

# Appendix I

## Habitat Clearing and Management Plan

# Habitat Clearing and Management Plan

## Mount Emerald Wind Farm, Herberton Range, North Queensland



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Report Number: PR130417/R75472  
Version/Date: Final – V3 16/11/2016

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### Document Status

Version	Purpose of Document	Orig	Review	Review Date
V1	Report	MJ	DF	10/02/2016
V2	Report	MJ	LL	6/06/2016
V3	Report	MJ	TJ	16/11/2016

### Approval for Issue

Name	Signature	Date
Mellissa Jess		16/11/2016

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## 1.0 Introduction

RPS Australia East Pty Ltd (RPS) has been commissioned by RATCH Australia Corporation Ltd (RATCH) to develop a Habitat Clearing and Management Plan (HCMP) which encompasses spotter catcher pre-clearance and fauna management strategies for works proposed at the Mount Emerald Wind Farm, Arriga. Refer to **Figure 1** for the Locality Plan. The aim of this HCMP is to address potential effects of the Project on fauna species and/or their habitat during the clearing process through a range of management objectives.

### 1.1 Purpose

The purpose of this plan is to summarise the measures that will be implemented as part of the spotter catcher process and general fauna management activities associated with the construction phase. The plan considers spotter catcher activities undertaken during pre-clearing, vegetation clearing and construction and the necessary safety and reporting processes that are also required.

In particular this plan outlines how fauna management will be undertaken in accordance with the requirements of the conditions issued under the Approvals listed in the **EPBC Referral 2011/6228** pursuant to the *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act) and the Development Notice pursuant to the *Sustainable Planning Act 2009* (SPA) (**Section 1.2**)

This plan follows the *Draft Queensland Code of Practice for the Welfare of Wild Animals Affected by Land Clearing and Other Habitat Impacts and Wildlife Spotter Catchers* (Hanger and Nottidge, 2009).

All subcontractors will supply permit approvals upon contract negotiation.

In preparing the Environmental Impact Statement, several specialist investigations were undertaken and accompanying technical reports prepared. These include the disciplines of flora, fauna, general environmental reporting and offsets plan; town planning; aeronautical assessment; transport and traffic assessment; shadow flicker, electromagnetic interference, and energy yield; geotechnical; visual and landscape aesthetics; noise mapping; cultural heritage; community consultation; and social and economic assessment.

Several strategic and site-based plans have been compiled to facilitate the delivery of mitigation measures. These will include the Environmental Management Plan (EMP). The EMP is to be supported by a number of plans including: a Rehabilitation Plan, Weed Management Plan, Rare and Threatened Species Management Plans and Fire Management Plan. These plans will have an effective life span to include the decommissioning phase and will be revised periodically to reflect ongoing changes and improvements.

### 1.2 Permit Approvals

All activities are conducted under permit approvals issued to RPS as identified in **Table 1** below. These permits enable RPS to conduct, observe and relocate protected animals exposed to disturbance as a result of the clearing and destruction of their natural and artificial habitat.

**Table 1 Permit/Authorisation Information**

Permit/Authorisation	Permit Number	Expiry Date
Scientific Purposes Permit	WISP14220714	07/03/2019
Animal Ethics	CA 2016/02/943	25/03/2019
Registration as Scientific User	063	25/03/2019

### 1.3 Role of Wildlife Spotter Catcher

The proper conduct of wildlife management procedures at the time of land-clearing and development of the site involves the following processes:

- Fauna and flora assessment;
- Species identification;
- Animal trapping, capture and handling;
- Assessment of animal health and injuries;
- Assessment of development risks and impacts on wildlife and ecosystems;
- Preparation of *Wildlife Protection and Management Plans*;
- Husbandry of captured wild animals;
- Identification of suitable wildlife release sites;
- Emergency management and/or euthanasia of injured or sick animals; and
- Ensure that all State and Commonwealth policies, permits and conditions are met.

### 1.4 Responsibilities

A spotter catcher has ethical responsibilities to ensure the welfare of wild animals in respect to a development or activity for which they are acting in that role. A spotter catcher also has an obligation to comply with the provisions of this suggested protocol.

In terms of the performance of duties and operating procedures required for each project, the spotter catcher's responsibilities include, but are not limited to:

- (a) Thorough site assessment and fauna survey (or validation of a previously conducted fauna survey).
- (b) Clearly identifying to all relevant persons the specific wildlife welfare risks associated with the project, and recommended risk mitigation measures.
- (c) Ensuring the timely and appropriate removal and management of animals from development sites prior to and/or during operational works or activities.
- (d) Ensuring the appropriate housing, veterinary assessment and care, translocation, euthanasia or other appropriate disposal of animals removed from development sites.
- (e) Preparation of reporting on wildlife activities;
- (f) Notification of the appropriate local, state and/or federal regulatory authorities of breaches of the applicable laws.

In addition, the spotter catcher should be aware of their own "duty of care" obligations under the applicable local State and/or Federal law(s) as these apply to animals captured, trapped or held in the course of their duties.

### 1.5 Project Site

The Mount Emerald Wind Farm (MEWF) is approved for the construction of up to 63 wind turbines on an elevated site approximately 20km SSW of Mareeba on the Atherton Tablelands in north Queensland (**Figure 1**). The towers will be approximately 80-90m high with approximately 50m blades, utilising 3 MW machines.

The site where the wind turbines, interconnecting tracks and associated infrastructure are to be established is on land formally described as Lot 7 on SP235224, which encompasses an area of 2,422ha. This land

forms the terminus of the Herberton Range and is contiguous with Mount Emerald (proper) at its southern boundary. Virtually all the wind farm project area is covered by remnant and relatively undisturbed vegetation, where the only land modification is associated with the existing 275 kV transmission line infrastructure and its series of access tracks. Kippen Drive at the base of the site is severely degraded in most zones adjacent to the unsealed road, and weeds are conspicuous.

The wind farm site has been selected on the basis that it represents an excellent wind resource because of its elevated position and series of high ridges. The elevation range of the site is between 540m up to 1089m above sea level (ASL). The highest ridges south of the existing 275 kV transmission line hold the most significant value in terms of flora and represent an important tract of land with functional connectivity to other regional nodes of high biodiversity importance. Although land to the north of the transmission line (including the landmark of Walsh Bluff) possesses lower floristic diversity, it is recognised for its habitat value for the endangered Northern Quoll (which is also expected to occur south of the transmission line).

The wind farm project estimates to deliver in the order of 650,000 megawatt hours of renewable energy, which is predicted to meet the annual needs of approximately 75,000 North Queensland homes over a 20 year period.

The wind farm will be connected to the existing Chalumbin – Woree 275 kV transmission line via a substation, which is to be located within the site. The 275 kV transmission line infrastructure that traverses the site was established in 1998 and represents a pre-existing disturbance footprint which the proposed wind farm will take advantage of in order to minimise the area of new impacts to the environment.

From a constructability perspective the northern sector of the site has more undulating landforms and fewer dissected ridges. There also appears to be a higher proportion of former landscape disturbance in the northern sector and across the east-facing slopes on the Walkamin side.



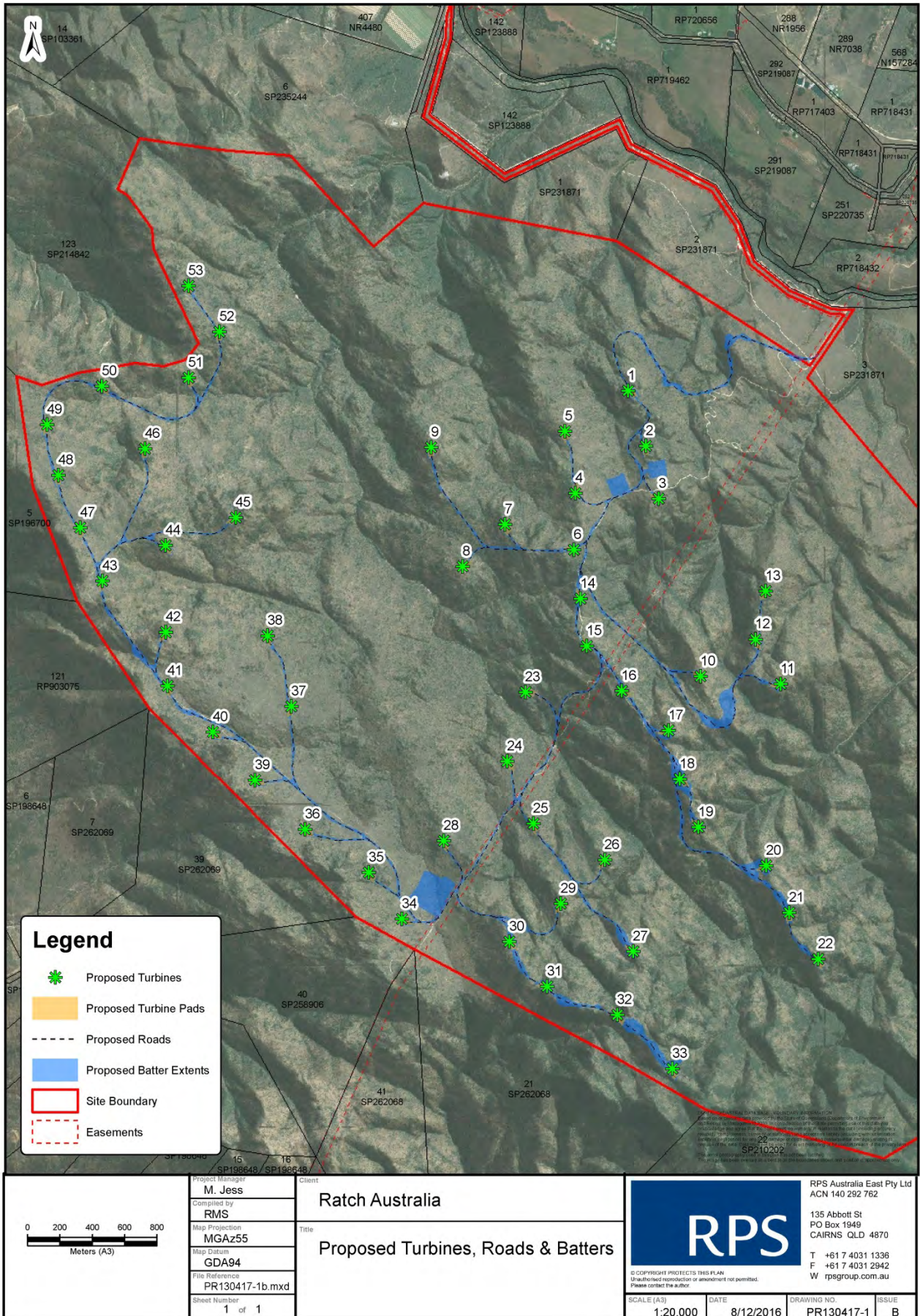


Figure 1 Project Site Location

## 1.6 Construction Details

Access to the site will be via Kennedy Highway, onto Hansen Drive and then into the site at a realigned Springmount Road - Kippen Drive intersection. Kippen Drive is currently unsealed. A series of access and interconnecting tracks will need to be constructed within the wind farm site, and will take advantage of existing transmission line infrastructure tracks wherever possible. A number of new tracks will need to be constructed to an initial cleared width of 10m. The interconnecting tracks will form the routes for the inter-turbine underground cabling - expected to be buried in trenches at approximately 1m deep.

Each turbine construction pad is expected to occupy an area in the order of 40m (long) x 60m (wide). The substation and associated compound will be in the order of 200m x 200m or similar configuration and will be located close to the existing 275 kV transmission line which crosses the site.

Wind turbines are proposed to be "micro-sited" - a technique which involves selecting a position in the landscape where the least environmental impact is expected to occur. As part of this procedure, comprehensive ground surveys will be undertaken of each site to ensure impacts to conservation significant species and other matters of importance are minimised or avoided.

A wind farm operations building will be constructed adjacent to the substation, which will house monitoring and communications equipment. Other associated internal infrastructure will include car parking areas, construction compound and machinery area. Depending on the outcomes of relevant approvals, a batching plant may be temporarily constructed within the site.

The Mount Emerald Wind Farm (MEWF) project has been broadly categorised into four phases: pre-construction, construction, operation and maintenance and decommissioning. Rehabilitation and impact mitigation will be actively practiced throughout these stages and will be informed by respective plans and strategic documents.

## 2.0 Regulatory Requirements

### 2.1 Project Approvals

#### 2.1.1 Sustainable Planning Act 2009

Conditions relevant to the preparation and implementation of the HCMP are detailed in Condition 13 of the Ministerial Decision Notice.

##### 2.1.1.1 Ministerial Decision Notice

The Development Notice (dated 24 April 2015) in accordance with the SPA included a number of conditions relating to the preparation of a HCMP. *Condition 13 - Environmental Management* which relates to the HCMP, states the following:

*Submit to the chief executive administering SPA an Environmental Management Plan (EMP) prepared by a suitably qualified person(s). The EMP must:*

- i. be generally in accordance with the Preliminary Environmental Management Plan prepared by RPS and dated November 2013 and the draft Statement of Commitments contained within Appendix A of the RPS Development Application Material Change of Use Report dated March 2012;*
- ii. be based on the revised Turbine Location and Development Footprint Plan submitted in accordance with condition 2 of this approval;*
- iii. include the following components,:*
  - Habitat Clearing and Management Plan (timing as required with the EMP).*

In accordance with the *Attachment 1 – Components of the Environmental Management Plan* this plan must *'include management strategies involved in mitigating impacts of habitat clearing on susceptible fauna, including the induction of workers and for wildlife spotters and catchers involved in habitat clearing'*

#### 2.1.2 Nature Conservation Act 1992

The primary purpose of the *Nature Conservation Act 1992* (NC Act) is to conserve biodiversity by creating and managing protected areas, managing and protecting native wildlife and managing the spread of non-native wildlife. Unless authorised, it is an offence under the NC Act to take, keep, use, or move protected flora and fauna for commercial, recreational or other purposes. Where a proposed development will result in such impacts to flora and/or fauna protected under the NC Act, authorisation from Department of Environment and Heritage Protection will be required.

Under section 332 of the *Nature Conservation (Wildlife Management) Regulation 2006* (NCR), MEWF requires a Species Management Plan (SMP) to undertake any works that will, or potentially will, disturb or interfere with a protected animal breeding place. This HCMP will ensure the correct procedures are undertaken to protect native wildlife.

Section 332 of the NCR states the following:

##### **s332 - Tampering with animal breeding place**

- (1) *A person must not, without a reasonable excuse, tamper with an animal breeding place that is being used by a protected animal to incubate or rear the animal's offspring.*

- (2) For subsection (1), an animal breeding place is being used by a protected animal to incubate or rear the animal's offspring if -
- (a) the animal is preparing, or has prepared, the place for incubating or rearing the animal's offspring; or
  - (b) the animal is breeding, or is about to breed, and is physically occupying the place; or
  - (c) the animal and the animal's offspring are physically occupying the place, even if the occupation is only periodical; or
  - (d) the animal has used the place to incubate or rear the animal's offspring and is of a species generally known to return to the same place to incubate or rear offspring in each breeding season for the animal.
- (3) Also, subsection (1) does not apply to a person removing or otherwise tampering with the breeding place if -
- (e) the removal or tampering is part of an approved species management program for animals of the same species; or
  - (f) the person holds a damage mitigation permit for the animal and the permit authorises the removal or tampering.

### 2.1.3 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Referral Approval 2011/6228 conditions are very specific to several threatened species, namely the Northern Quoll, Spectacled Flying Fox and Bare-rumped Sheath-tail Bat. The purpose of the HCMP is to protect all threatened species and communities, minimise impact on native flora and fauna and manage clearing on the site. Therefore activities undertaken as part of this plan will only serve to work in conjunction with the *Northern Quoll Management Plan* and *MEWF Outcomes Strategy* (RPS,2016), and *MEWF Implementation Strategy* (RPS, 2016) on the site, as also required by the EPBC Referral approval.

The relevant conditions of the EPBC Referral Approval which refer to the HCMP are contained in **Table 2**.

**Table 2 Conditions of EPBC Referral Approval**

Species	Condition
Northern Quoll	For the protection of the Northern Quoll, the approval holder must maintain a viable population of Northern Quoll on the wind farm site.
Northern Quoll	The approval holder must prepare and submit an Outcomes Strategy for the Minister's written approval which describes a monitoring program to inform adaptive management and determine whether the outcome required under condition 7 is being or has been met. The Outcomes Strategy must: be prepared by a suitably qualified expert; identify and justify performance measures, which are capable of accurate and reliable measurement, and will be used to measure the outcome required under condition 7; include a monitoring program, to detect changes in the performance measures. The monitoring must include baseline surveys, control sites and experimental design (to test the effectiveness of different management measures); and describe how the baseline and monitoring data will be adequate to: inform adaptive management; enable an objective decision to be made on whether the outcome described in condition 7 has been met.
Northern Quoll	The approval holder must not commence construction until the Minister has approved the Outcomes Strategy in writing.
Northern Quoll	The approved Outcomes Strategy must be implemented.

Species	Condition
Northern Quoll	If the Minister is not satisfied that either the outcomes required under condition 7 are likely to be achieved, or there is insufficient evidence that the outcomes required under condition 7 are being achieved, the Minister may (in writing) require the approval holder to submit a plan for the Minister's approval to reduce, mitigate, remediate, or offset impacts to matters protected under the controlling provisions of this approval within a designated timeframe. The Minister may require the plan be prepared or reviewed by a suitably qualified person or another person specified or agreed to by the Minister. If the Minister approves the plan then the approved plan must be implemented.
Bare-rumped Sheathtail Bat Spectacled Flying Fox	Prior to commissioning, the approval holder must evaluate the effectiveness of suitable measures, including changed cut-in speed, avian radar system and SCADA system, to avoid and mitigate the impacts of turbine collision to Spectacled Flying-fox ( <i>Pteropus conspicillatus</i> ) and Bare-rumped Sheathtail Bat ( <i>Saccolaimus saccolaimus nudicluniatus</i> ) on the wind farm site.
Bare-rumped Sheathtail Bat	Prior to commissioning, the approval holder must submit to the Minister for written approval, a Wind Farm Implementation Plan that is informed by the results of the evaluation required by condition 12. The Wind Farm Implementation Plan must include: details of intended outcomes and measurable performance criteria which are based on the outcomes of population viability analysis and numerical collision risk modelling for the Spectacled Flying-fox and Bare-rumped Sheathtail Bat; a program to monitor the effectiveness of progress against performance criteria; and contingency measures and corrective actions that will be implemented if performance criteria are not being or are not likely to be met.
Spectacled Flying Fox	The Wind Farm Implementation Plan must be reviewed by a suitably qualified expert prior to submission to the Minister for approval. The Wind Farm Implementation Plan must include the findings of the review undertaken by the suitably qualified expert and details of how any recommendations made by the suitably qualified expert have been addressed.
Bare-rumped Sheathtail Bat	The approval holder must not commission the wind farm until the Wind Farm Implementation Plan has been approved by the Minister in writing.
Spectacled Flying Fox	The approved Wind Farm Implementation Plan must be implemented.
Bare-rumped Sheathtail Bat	Upon the direction of the Minister, the approval holder must cease to operate any specified wind turbine generator/s if the Minister considers that, based on compliance reporting required by condition 26, they are having an impact on Bare-rumped Sheathtail Bat and Spectacled Flying-fox greater than the performance criteria required by condition 13(a) that cannot be mitigated or compensated.



### 3.0 Existing Environment




#### 3.1 Flora




The vegetation that occurs throughout the study area has been described in detail within the EIS (RPS, 2013) and the Ecological Assessment Report (RPS, 2010).

Eight vegetation communities were identified across the site. With the exception of the linear clearing associated with the existing 275 kV electrical transmission line that bisects the project area, the wind farm site is predominantly covered by remnant vegetation, much of which is in exceptionally good condition. Landscape disturbance and hence, modification, is minimal and virtually absent from the southern half of the project area, which is located in the Wet Tropics bioregion section as shown in **Table 3**. Where disturbance is present adjacent to cleared tracks, wattle regrowth (*Acacia* spp.) is the main successional community. The most severe land modification and lowest ecological function is associated with Kippen Drive at the base of the project site, where weeds are the dominant vegetation.

**Table 3 Vegetation Communities located on the Mount Emerald Wind Farm site**

Community Description	
<p><b>Rustyjacket Woodland</b>                      Woodland to open woodland of <i>Corymbia leichhardtii</i>, <i>Callitris intratropica</i> with <i>Eucalyptus shirleyi</i> and <i>Eucalyptus granitica</i> to 8 - 12 m.                      Occurs mainly the centre of the site in the EU bioregion section.</p>	
<p><b>Silver-leaf Ironbark Woodland</b>                      Woodland to low open woodland of <i>Eucalyptus shirleyi</i> to 4 m with emergent <i>Callitris intratropica</i> (12 m).                      Best representation is near the centre of the site close in the EU and WT bioregion sections.</p>	

Community Description	
<p><b>Yellow Stringybark Woodland</b> Grassy woodland of <i>Eucalyptus portuensis</i> with <i>Corymbia citriodora</i> to 7-12 m. Occurs on slopes of WT and EU bioregion sections.</p>	
<p><b>White Stringybark Woodland</b> Tall, grassy woodland of <i>Eucalyptus reducta</i> with <i>Eucalyptus portuensis</i> and occasional <i>Corymbia citriodora</i> and <i>Eucalyptus drepanophylla</i> (sens. lat.) to 12-18 m. Occurs mainly in the WT bioregion section on slopes.</p>	
<p><b>Range Bloodwood Woodland and Shrubland</b> Low, windswept woodland to open woodland and shrubland of <i>Corymbia abergiana</i> to 4 m on exposed ridges. Mainly occurs in the WT bioregion section close to ridge tops and edges.</p>	

Community Description	
<p><b>Montane Heathland</b></p> <p>Low heathland with scattered shrubs or isolated, wind-sheared and stunted trees of <i>Corymbia abergiana</i> and <i>Eucalyptus lockyeri</i> subsp. <i>exuta</i>. Includes patches of rock pavements and outcropping rock.</p> <p>Occurs above 900 m in the WT bioregion section.</p>	
<p><b>Narrow-leaf Ironbark and Lemon-scented Gum Woodland</b></p> <p>Woodland of <i>Eucalyptus drepanophylla</i> (sens. lat.) and <i>Corymbia citriodora</i> to 15 m.</p> <p>Occurs in northern aspects of the site mainly in the EU bioregion section.</p>	
<p><b>Dead Finish Woodland</b></p> <p>Grassy woodland to 8-10 m of <i>Eucalyptus cloeziana</i>, <i>Corymbia citriodora</i> and <i>E. portuensis</i>.</p> <p>Occurs mainly around the boundary junction of the WT and EU bioregion sections.</p>	
<p>WT - Wet Tropics, EU - Einasleigh Uplands</p>	

### 3.1.2 Threatened Flora

Ridge tops are the proposed location for a majority of the interconnecting tracks and turbine construction pads. This type of habitat in the Wet Tropics section and the western ridge of the Einasleigh Uplands section supports the following conservation significant plant species; all were confirmed to potentially occur on the site and within the construction footprint:

- *Grevillea glossadenia*: a shrub found on ridges and adjacent to tracks. Relatively common on site. Listed under EPBC Act and NC Act as vulnerable.



- *Homoranthus porteri*: a shrub found mainly on higher elevation ridges, where it forms thickets on rock pavements or their edges. Common in places where important populations exist. Uncommon elsewhere. Listed under EPBC Act and NC Act as vulnerable.
- *Melaleuca uxorum*: a shrub found (during the surveys) only in two locations on exposed ridges in the SW of the site. Exceptionally uncommon and rare. Listed under NC Act as endangered.
- *Plectranthus amoenus*: a succulent, low shrub found on rock pavements in the SW of the site and an isolated occurrence near proposed turbine 66. Relatively uncommon and restricted to rock pavement geology. Listed *NC Act* as vulnerable. Conservation plants are rarely if ever encountered in the Einasleigh Uplands section on rolling hills, flat zones, and wide ridges.

### 3.1.3 Conservation Significant Plant Communities

Regional ecosystems 7.12.57 and 7.12.58 are listed under the *Vegetation Management Act 1999* as “Of Concern”. These communities are also linked to the key habitats for the conservation significant plants listed above and only occur in the Wet Tropics section.

The montane heath community which occurs above 900 m ASL is a variant of regional ecosystem 7.12.57; and is narrowly represented along ridges to the south of the transmission line in an area of very high biodiversity value with a concentration of conservation significant and poorly distributed plants.

## 3.2 Fauna

### 3.2.1 Threatened Species

During preparation of the Environmental Impact Statement (RPS 2013) it was found that a relatively diverse range of fauna species are represented across the site due to the moderately high quality of the habitat.

Of the 29 fauna species assessed for likelihood of occurrence under the EPBC Act:

- 12 species are not considered likely to occur on the site due to the lack of suitable habitats: principally closed rainforest, wet sclerophyll forest and permanent wetlands or streams
- an additional five species, the Squatter pigeon, Eastern bristlebird, Star finch (eastern), Northern bettong, and Brush-tailed rabbit rat are also considered unlikely to occur on the site given knowledge of their known current distributions
- Nine species were considered to have a ‘Moderate’ likelihood of occurrence either due to the presence of suitable habitat or likelihood of overflying, but none of these species were observed during field investigations.

The remaining three threatened terrestrial fauna species were identified through field surveys occurring on the proposed MEWF project site:

- Northern Quoll (EPBC Act – endangered);
- Bare-rumped Sheath-tail Bat (EPBC Act - critically endangered; NC Act - endangered); and
- Spectacled Flying-fox (EPBC act - vulnerable).

While modelling indicates the local Mount Emerald population of Northern Quoll represents <1% of the estimated total Far North Queensland metapopulation (~10,000 individuals) and does not represent a distinct genetic sub-population, (Burnett, 2013) the population located on site is important to the genetic diversity of the regional population. The most probable significant impact to this species is directly through mortality/disturbance and loss of habitat during construction. While there is uncertainty whether ridge tops are the most favoured denning locations, it is known the species utilise ridgetop habitats of the MEWF site.

Although, the overall impact on the site from footprint clearing is only 2.4% or ~57 ha, much of this clearing is specific to the ridgelines therefore mitigation measures specifically targeting this impact have been devised. These measures are detailed in:

- *Northern Quoll Outcomes Strategy (Burnett, 2016)*
- *Northern Quoll Species Management Plan (RPS, 2016).*

The most significant potential impact to the Spectacled flying fox is predicted to be turbine mortalities through the operation phase of the project. This is also the case for the Bare-rumped Sheath-tail Bat, however, preferred habitat for roosting and foraging is so poorly known that land clearing activities may also be a threat to the local population. Mitigation measures to reduce and potentially remove these impacts have been addressed in the *MEWF Implementation Plan (RPS, 2016)*.

Of the six migratory bird species confirmed to occur on site, two are known to utilise the habitat on site. Neither of these species preferentially utilise the site as key habitat. There are also large tracts of continuous habitat available to these species throughout the region and the project is unlikely to impact on their population.

Four migratory species were recorded to fly over the site:

- Sarus Crane;
- Whitethroated Needletail;
- Great Egret; and
- White-bellied Sea Eagle.

Mitigation measures including detailed radar observations and implementation of turbine curtailment are currently being investigated for use on this site but will not be discussed further here. Refer to the *MEWF Implementation Plan (2016)* for further information.

### 3.2.2 General Fauna

A complete list of the fauna recorded within the site is provided in **Appendix A**.

Those species observed within the site that may be identified during spotter catcher activities include the following provided in **Table 4**.

**Table 4 Common Fauna found on the MEWF Project Site**

Mammals	Birds	Reptiles	Amphibians
<b>Terrestrial</b> <ul style="list-style-type: none"> <li>▪ Dingo</li> <li>▪ Agile Wallaby</li> <li>▪ Echidna</li> </ul> <b>Arboreal</b> <ul style="list-style-type: none"> <li>▪ Common Brushtail Possum</li> <li>▪ Giant White-tailed Rat</li> </ul> <b>Bats</b> <ul style="list-style-type: none"> <li>▪ Little Bent-wing Bat</li> <li>▪ Eastern Freetail Bat</li> <li>▪ Northern Freetail Bat</li> </ul>	<ul style="list-style-type: none"> <li>▪ Red-tailed Black Cockatoo</li> <li>▪ Rainbow Bee-eater</li> <li>▪ Noisy Friarbird</li> <li>▪ Laughing Kookaburra</li> <li>▪ Striped Pardalote</li> <li>▪ Pied Butcherbird</li> <li>▪ Grey Faintail</li> <li>▪ Brown Honeyeater</li> </ul>	<ul style="list-style-type: none"> <li>▪ Northern Spotted Velvet Gecko</li> <li>▪ Rainbow Skink</li> <li>▪ Tommy Roundhead Dragon</li> <li>▪ Brown Snake</li> </ul>	<ul style="list-style-type: none"> <li>▪ Cane Toad</li> <li>▪ Green Tree Frog</li> <li>▪ Bumpy Rocket Frog</li> </ul>

## 4.0 Management Actions

### 4.1 Responsibilities

The site Environment Officer(s) is responsible for ensuring all monitoring and auditing, and corrective actions are undertaken as outlined in **Sections 5.0 and 6.0**.

#### 4.1.1 Qualified Ecologist

An experienced Fauna Ecologist will be responsible for implementation of any pre works surveys, survey and relocation activities and Endangered, Vulnerable, and Near Threatened (EVNT) species surveys on behalf of MEWF. This person will have ultimate responsibility for suspending or ceasing works in the event criteria are not met (e.g. decision on cessation of works if deleterious impacts on welfare of fauna identified). They will be responsible for reporting to administering authorities such as the Department of the Environment (DotE) and Department of Environment and Heritage Protection (DEHP) as required. It will be their responsibility to ensure all requirements of this plan and applicable permits/legislation are met.

#### 4.1.2 Spotter Catchers

The spotter catchers undertaking the spotter catcher works during clearing activities will be EHP registered and will be responsible for carrying out the spotter catcher activities during tree removal activities as per the requirements of this plan.

#### 4.1.3 Wildlife Carers/Vet

Wildlife Carers will be engaged to assist in the care of any fauna that may become injured either directly or indirectly throughout any relocation.

A vet will be briefed and made available for treatment of injured fauna if they are encountered.

#### 4.1.4 Others involved

All parties will have responsibilities to ensure the welfare of fauna is maintained throughout the works. All parties will be inducted on identification EVNT fauna and who to contact in the event one is identified in the works site.

#### 4.1.5 Training and Awareness

All site personnel and contractors must undertake a site specific environmental induction prior to commencing works on the MEWF project. The environmental induction shall provide information to enable staff to recognise and respond to signs of current fauna activity.

### 4.2 Pre-works Meeting

The Spotter Catcher should ensure the Environmental Manager, Site Foreman and Operators understand the sequence of events should wildlife capture be necessary, and to identify habitat features.

### 4.3 Contact Information

**Table 5 Contact Information**

Name	Details
<b>RATCH</b>	Terry Johannesen Level 4, 231 George Street BRISBANE QLD 4000 T: 07 3214 3401 F: 07 3214 3499 E: <a href="mailto:terry.johannesen@ratcaustralia.com">terry.johannesen@ratcaustralia.com</a> W: <a href="http://www.ratcaustralia.com">www.ratcaustralia.com</a>
<b>Contractor</b>	TBA
<b>Ecologist</b>	Mellissa Jess 135 Abbott Street Cairns T: 07 4031 1336 M: 0447 171 417 E: <a href="mailto:mellissa.jess@rpsgroup.com.au">mellissa.jess@rpsgroup.com.au</a>
<b>Spotter Catcher</b>	Jeff Middleton M: 0419 345 559 Dave Walton M: 0408 331 700
<b>Mareeba Veterinary Surgery</b>	149 Walsh Street T: 07 4092 4260
<b>Tablelands Wildlife Rescue</b>	24 Hour Emergency Hotline T: 07 4091 7767
<b>QPWS</b>	Level 3, Building 2 William McCormack Place 5B Sheridan Street Cairns Qld 4870 T: 07 4222 5303

## 5.0 Preclearance Methodologies

### 5.1 Fauna Habitat Surveys

Fauna habitat surveys must be conducted at each site prior to clearance of vegetation.

These surveys are required to determine the presence of fauna both current and likely within the clearing alignment. The timing of the survey must be conducted within one week to 2 days of construction and features required to identify include:

- Terrestrial microhabitats. For example logs, burrows, termitaria, leaf litter, bark fissures, cave habitats.
- Arboreal microhabitats. For example hollows, nests, exfoliating bark.
- Aquatic habitats. For example creeks, culvert and seepage areas that may be impacted by falling timber or dammed during clearing.
- Direct observation of fauna within each of the habitat which may identify the habitat location of individuals. Animals actively nesting or roosting that may require active management prior to the clearing campaign to minimise the impact to individuals of the species.
- Scats, tracks, carrion, scratches can indicate presence or historical presence of certain species. It can also identify any areas of high fauna utilisation.
- Artificial habitats from previous cleared events or development processes on the site.

Habitat areas of high fauna value should be flagged to identify as exclusion zones. These areas will then be assessed individually to ensure exclusion/ vacation of fauna from the habitat.

Wherever appropriate and required, the spotter catcher will install fauna exclusion devices if fauna are absent from habitat. For example, empty tree hollows with no evidence of nesting fauna will be closed until clearing has commenced.

### 5.2 Salvage and Reuse of Habitat Material

Vegetation clearance can result in loss of habitat in the project area due to the removal of hollows, log, rocks, ground habitat such as leaf litter and vegetation. Some of this habitat is of high quality to fauna and relocation of microhabitat where possible will assist in maintaining fauna populations and diversity across the site. This habitat could also provide a safe place for relocated individuals should spotter catchers be forced to remove them from hazards during a clearing campaign.

### 5.3 Hollow Relocation

Trees with hollows which could provide important habitat to fauna will be flagged before the commencement of clearing. Where possible active hollows will be removed and relocated to a nominated area external to the clearing zone to prevent the fauna from being reintroduced to the hazard. It is anticipated most ground dwelling fauna will move once vibrations from clearing equipment commences.

### 5.4 Nest Management

Nests should be flagged and an exclusion zone should be clearly marked at a 10m radius around the vegetation. If no chicks or eggs are present in the nest, it is able to be destroyed. As vegetation clearance is on a relatively small scale on the MEWF site, only a limited amount of arboreal habitat is expected to be removed. If there are a large number of hollows that require removal as identified by the Ecologist during

preclearance surveys, artificial nest boxes will be erected at suitable habitats within the project area (at one box per two hectares to prevent over saturation).

## 5.5 Release Points

RPS have identified suitable release points for fauna (**Figure 2**), across the project site. Specific locations will be selected within the identified release points based on the captured species niche requirements.

## 5.6 Timing Considerations

The timing for conducting the vegetation clearing will be determined by the Environmental Manager in consultation with the Contractor and with input from the appointed Ecologist. The timing of the vegetation clearing must consider the following:

- Clearing needs to be undertaken progressively to minimise disturbance at any one time and allow for placement of topsoil onto rehabilitation areas where possible;
- Avoidance of breeding periods of key species where possible (Northern Quoll) or hibernating of species; and
- Experience from the past clearing campaign which have identified threatened species or species that require particular relocation strategies.

## 5.7 Targeted Species

Northern Quoll Species Management Plan, Bat Implementation Plan have been developed for threatened species on the MEWF site. These plans will be used in conjunction with this HCMP to provide best management practice for fauna and flora species on the site. This includes targeted searches for threatened flora species along identified sections of the clearing transect.

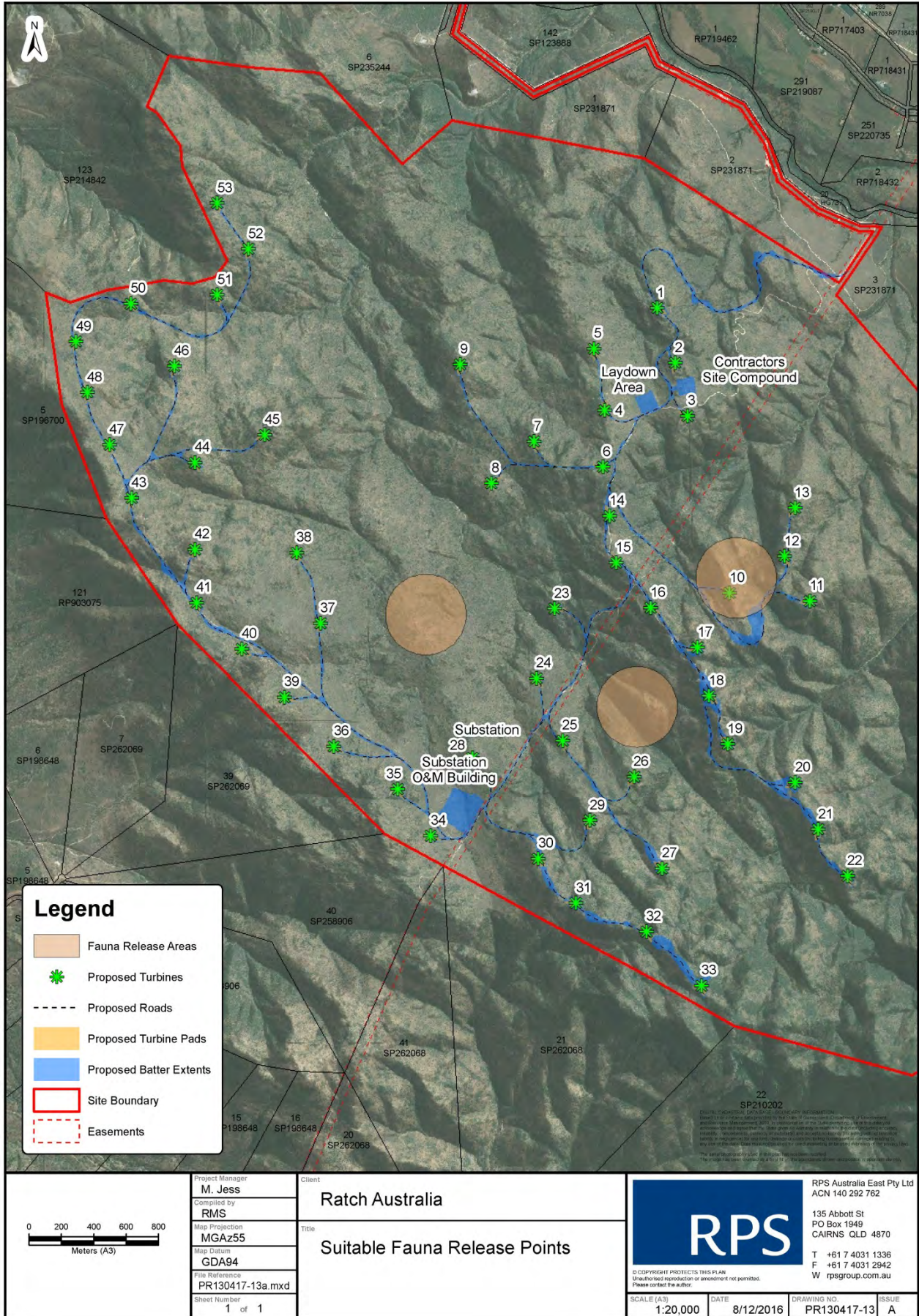


Figure 2 Fauna Release Sites

## 5.8 Animal Handling

Some animals may need to be handled. Captured animals should be handled in a way that minimizes the risk of injury or stress-induced disease. This can be best achieved by:

- Firm and quiet handling;
- Keeping handling and restraint time to the minimum needed to achieve the scientific or educational objectives; and
- Using techniques and timing appropriate to the species.

In unusual circumstances, animals may need to be temporarily housed for identification. Housed animals will be kept in a way appropriate to their biology and in circumstances that ensure they are safe from harm, environmental stresses and other adverse conditions. Mammals and reptiles can be held in cloth bags and frogs in plastic bags with some water. When transported in vehicles, cloth or plastic bags should be kept within hard plastic containers to prevent animals from being inadvertently squashed. Containers should be cleaned frequently to minimize chances of spread of parasites and disease.

Bats should not be released in daylight but will be held until dusk. They should be held separately in suspended calico bags in dark, quiet, warm places.

Animals will only be transported in an emergency and if they are in need of veterinary care or to be euthanased by a veterinarian. Animals will be transported in a suitable secure container protected by a blanket or other material to provide darkened conditions. Transportation will be by air-conditioned vehicle and will aim to ensure the trip is as brief and comfortable as possible.

Animals considered to be in good health will be released provided conditions are appropriate. In the event of extreme weather conditions or significant risk of wildfire, immediate predation or other disturbance, animals may be suitable housed until release conditions are acceptable. Animals will be released at suitable release points identified in **Figure 2** (These sites will be modified based on final detail of alignment).

### 5.8.1 Frogs

Handling of frogs should be consistent with the NSW NPWS Threatened Species Management Information Circular No. 6 regarding the *Hygiene protocol for the control of disease in frogs*. This protocol is aimed primarily at reducing the spread and impact of amphibian chytrid fungus. Frogs should only be handled where necessary.

Where handling of frogs is necessary:

- Hands should be cleaned and disinfected between samples or a new pair of disposable gloves used; and
- A one bag-one frog and one bag-one tadpole approach should be used.

Frogs and tadpoles should only be removed from a site when absolutely necessary. Where it is necessary to collect frogs and tadpoles the following procedures should be followed:

- Frogs from different sites should be kept separately from each other and from other captive animals; and
- Tanks or containers used to hold frogs must be disinfected prior to housing and after frogs are removed.

When travelling between sites (which may be considered as separate water-bodies that are not clearly connected) the following must be undertaken:

- Footwear must be thoroughly cleaned of mud and disinfected (gum boots are the easiest to clean) or several changes of footwear used and bagged between sites; and



- Equipment such as nets, bags, torches and waders should be cleaned and disinfected.

## 5.9 Injured Animals and Euthanasia

Animals showing signs of stress, injury or ill health following continued monitoring will be taken to a veterinarian. In certain circumstances (e.g. for a larger animal such as a Koala), a veterinarian may be requested to treat the animal on site.

Seriously injured animals encountered in the field will be euthanased using appropriate methods. Euthanasia procedures conform to the recommendations contained within the 2001 ANZCART publication "Euthanasia of Animals Used for Scientific Purposes", which are adopted by the Animal Ethics Committee (AEC). Emergency euthanasia of animals less than 150gms will be carried out by cervical dislocation in the field by the person identified under the ethics committee permit as the responsible party) or if not available, the animal will be taken to a local Veterinarian.

The above mentioned staff are competent in performing cervical dislocation of small mammals and birds, and stunning and decapitation/destruction of the brain or pithing for small reptiles and amphibians. Larger animals will be taken to a Veterinary Surgeon or biology department where animals can be euthanased appropriately.

Voucher specimens will only be collected in rare circumstances and in accordance with the "Guidelines for Voucher Specimens"(2016).

## 6.0 Clearance Methodologies

### 6.1 Tree Felling Procedure

Staged clearing should be performed whereby firstly removing non habitat trees prior to the removal of potential habitat trees. Potential habitat trees should be removed at least 24 hours later to enable resident hollow dependant fauna time to evacuate the tree prior to felling. Each felled tree must be inspected and habitation recorded.

The clearing procedure for hollow bearing trees (HBT) will include:

- Clearing all vegetation around hollow bearing trees prior to their removal.
- Tapping hollow bearing trees following clearing of surrounding vegetation and leaving them to stand for 24 hours. Tapping should occur as a single tap, then wait for 5 minutes then 2 further taps. This should be sufficient to convince animal to move from the habitat tree when it considers it safe to do so. This may take several minutes.
- Smoothly felling hollow bearing trees to minimise damage to hollows is to slowly lower the tree to the ground.
- Inspecting hollows of felled hollow bearing trees (by fauna spotter/catcher) and removing and relocating any fauna found.
- Leaving the tree on the ground for a minimum of two hours to provide any trapped fauna with an opportunity to escape.
- Where possible leave fallen trees overnight.
- Identification of locations outside the project area for relocation that contain suitable habitat/breeding places.
- Where necessary prepare for the distribution of artificial and natural habitat features and resources for relocated/displaced fauna such as hollows and rock piles.
- Post felling - All fauna found are to be translocated to an adjacent locality or nominated relocation point comprising suitable refugia and feeding resources consistent with individual species requirements. Where possible relocate fauna as soon as possible.
- Injured fauna are to be taken to a Veterinarian.

## 7.0 Trenching Operations

In addition to clearing operations, lengths of trench will be excavated to install electrical cabling. There will typically be a time delay between excavating the trenches, installation of the cabling work and the back filling of the trench. The trenches may potentially be open for several days which may become a hazard to fauna.

### 7.1 Management Measures

As per **Section 4.0**, preclearance surveys will be conducted prior to all vegetation clearing activities which will also be a requirement before trench digging commences.

To manage fauna interactions at trenches, several mitigation measures will be required:

- Erect where possible fauna exclusion fences to prevent access to trenches. If exclusion fences are greater than 500m in length, ramps will be required to be installed at a minimum of 500m apart to ensure small fauna can traverse habitat.
- Hessian bags and polystyrene should be placed intermittently along the trench to allow for shade and height to prevent heat stress or drowning of smaller fauna species.
- Structures for shade will be implemented near egress points to encourage fauna to seek out these cooler areas.
- The Environmental Officer must check the trenches twice daily (am/pm) for signs of trapped fauna.

## 8.0 Safety Processes

### 8.1 Job Safety Environmental Analysis (JSEA)

Before a spotter catcher commences work they must complete a Job Safety Environmental Analysis (JSEA) to identify the potential and real time hazards of the area. In addition they must ensure they have read and understood the relevant work Method Statements and job specific JSEA.

### 8.2 Equipment

A spotter catcher must have the equipment detailed in **Table 6** available to them at all times for their own safety and that of wildlife.

**Table 6 Equipment Required for Safe Spotter Catcher Activities on the MEWF site**

Fauna	Personal Protective Equipment
4-wheel drive vehicle	Hard hat with sun brim.
2-way radios	Hi-vis clothing above the waist (vest or shirt, sleeves buttoned down).
Cages of various sizes and construction	Long pants.
Various traps for animal capture	Safety glasses (tinted and clear).
Calico bags of various sizes	Steel cap boots (lace-up).
Various nets with extendable handles (site dependent)	Riggers gloves.
Leather and latex gloves	Sunscreen/zinc.
Towels	Backpack with hydration bladder (minimum 2.5L).
Blankets	First Aid Kit/Snake bite kit
Spray marking paint	
Flagging tape	
2.5L water bladder or alternative	
Extension ladder (site dependent)	
GPS unit	
Digital camera	
Complete set of field guide publications to enable identification of wildlife to species level	
Snake handling equipment	
Binoculars	
Torch	
Waders	
Range of containers to hold and transport aquatic fauna (dependent on site)	
Scales	
10 x lens and vernier calipers	
Complete set of fauna first aid kit containing scissors, tweezers, bandages, antiseptic, tape)	
Hot water bottle	

## 9.0 Safety Activities

A summary of the activities that are high risk to spotter catchers and which have very specific control measures in place have been identified and are provided in **Table 7** below.

**Table 7 High risk activities with recommended control measure to reduce risk**

Activity	Risk	Control
Falling / Felled Timber	Injury or death from falling timber or felled trees during clearing process	<ul style="list-style-type: none"> <li>▪ Remain two tree lengths from falling timber;</li> <li>▪ For large dead trees increase the distance from the tree. Dead trees can shatter once felled and the risk of debris scattering away from the tree is high;</li> <li>▪ Maintain visual and radio contact with your machinery operators at all times;</li> <li>▪ Look for remaining hanging debris still present in standing vegetation;</li> <li>▪ Make sure the tree has settled before going in to inspect;</li> <li>▪ Look out for potential sprung branches;</li> <li>▪ Look and listen whilst inspecting the tree for signs of movement (i.e. cracking, branches slipping);</li> <li>▪ Be aware of broken or protruding branches;</li> <li>▪ Never walk or crawl under limbs.</li> </ul>
Interaction with Machinery	Serious Injury or Death caused by interaction with heavy machinery such as an excavator, dozer, grader etc.	<p>Positive communications between the Fauna Spotter/Catcher and machinery operators is paramount. Before moving in and around any machinery for any reason make sure of the following:</p> <ul style="list-style-type: none"> <li>▪ Positive communication between the wildlife spotter and machinery operator has been made within the area;</li> <li>▪ The machinery operator/s has lowered their boom, blade or ripper to acknowledge the communication between the wildlife spotter and machinery operator;</li> <li>▪ A clear line of sight should be maintained at all times where possible. If working out of sight communication should be maintained by means of a UHF radio;</li> <li>▪ Stay clear of machinery with a minimum distance of 30m or two times the length of felled trees.</li> </ul>
Long periods working in hot conditions without shade	Serious injury or death from Heat Stroke / Sun Stroke / Thermic fever	<ul style="list-style-type: none"> <li>▪ Drink sufficient water; always carry adequate drinking water (amount will depend upon conditions and distance/time away from vehicle);</li> <li>▪ Take regular breaks in cool/shade;</li> <li>▪ Reduce physical activity and avoiding vigorous exertion in hot weather;</li> <li>▪ Minimise sun exposure by wearing lightweight clothing (SP50+ rated), a broad brimmed hat or legionnaire style cap and sunglasses;</li> <li>▪ Apply sunscreen (at least SPF30+) on exposed skin at recommended intervals throughout the day;</li> <li>▪ Carry first aid kit and communication appropriate devices (mobile/sat phone, VHF radio) with spare batteries.</li> </ul>
Live trapping/animal handling, Quolls etc	Bites, scratches, Injury resulting from handling/capturing animals (infection)	<ul style="list-style-type: none"> <li>▪ Only appropriate qualified staff to handle animals; handlers to have appropriate up-to-date vaccinations (tetanus; rabies for microbats and flying-foxes);</li> <li>▪ Ensure appropriate handling equipment is used (e.g. calico handling bags, snake tongs etc.);</li> <li>▪ Carry first aid kit and communication appropriate devices (mobile/sat phone, VHF radio);</li> <li>▪ Wear appropriate PPE (e.g. Latex gloves);</li> <li>▪ Wash hands with soap and water or alcohol wash following handling animals and especially before eating or drinking.</li> </ul>

Activity	Risk	Control
Snake Bite	Serious Injury or death from snake bite	<ul style="list-style-type: none"> <li>▪ Mandatory PPE must be worn at all times;</li> <li>▪ Only physically handle fauna when necessary;</li> <li>▪ Only competent and authorised personnel to handle venomous snakes;</li> <li>▪ First Aid / Snake Bite kit to be carried at all times;</li> <li>▪ Use appropriate techniques for the situation;</li> <li>▪ No handling of venomous insects (i.e. spiders, scorpions, centipedes);</li> <li>▪ Move away from disturbed ants nests;</li> <li>▪ Only personnel vaccinated for Australian Bat Lyssavirus (ABL) to handle bats;</li> <li>▪ Report all bites and scratches immediately;</li> <li>▪ Apply antiseptic to all bites and scratches. Medical advice should be sought for bites which break the skin.</li> </ul>

## 10.0 Monitoring and Reporting

It is a requirement of the Habitat Clearing and Management Plan developed by MEWF and the Conditions specified by Department of the Environment (DotE) and DEHP that the following information be recorded as a Wildlife Capture and Disposal Record. The form is provided in **Appendix B**.

The *Wildlife Capture and Disposal Record* must contain the following details for each captured animal classified as *endangered*, *vulnerable* or *near threatened* under State legislation, classified by the local regulatory authority as *locally significant* or under the federal *EPBC Act* as *critically endangered*, *endangered*, *vulnerable* or *near threatened*:

- (a) Species;
- (b) Identification name or number;
- (c) Sex (M, F, or unknown);
- (d) Approximate age or age class (neonate, juvenile, sub-adult, adult);
- (e) Time and date of capture;
- (f) Method of capture;
- (g) Exact point of capture (GPS point);
- (h) State of health;
- (i) Incidents associated with capture likely to affect the animal;
- (j) Onsite treatment if required and injury specified;
- (k) Veterinary intervention or treatments;
- (l) Time held in captivity;
- (m) Disposal (euthanasia, re-release, translocation etc);
- (n) Date and time of disposal;
- (o) Details of disposal (if released, exact point of release GPS);
- (p) For released animals: distance from point of capture to point of release (GPS).

### 10.1.1 Training and Awareness

All site personnel and contractors must undertake a site specific environmental induction prior to commencing works on the MEWF project. The environmental induction shall provide information to enable staff to recognise and respond to signs of current fauna activity.

### 10.1.2 Monitoring and Reporting

The Contractor's Environmental Officer is to:

- Check on a daily basis during construction that vegetation to be cleared is clearly delineated (i.e. 'no go' zones are clearly demarcated and/or barricaded)
- Ensure vegetation clearing is being undertaken in accordance with 'Construction Strategies' listed above (e.g. pre-clearing surveys, requirement for licensed fauna spotter-catcher)
- Ensure on a daily basis that contractors are clearing vegetation in accordance with the Project environmental management plans and monitor for unauthorised works beyond the extent of clearing

barriers. During construction, record any discernible evidence of listed Threatened or Iconic species activity, which would require the presence of a spotter-catcher to relocate.

### 10.1.3 Records

The following records shall be kept for the duration of construction and for at least five years after activities have ceased at the MEWF project site:

- Records shall be kept of all inspections undertaken in accordance with this HCMP, including the following information:
  - » Date of inspection;
  - » Name and qualifications of person conducting the inspection;
  - » Results of inspection (description of area surveyed, type of works activity proposed in area, number and location (GPS coordinates) of dens found, individual identification (sex, status, dependent young recurring presence);
  - » Control measures / exclusion fencing put in place; and
  - » Persons notified (e.g. Environmental Officer, Project Manager, QPWS, and DEHP).
- Any unauthorised damage to dens shall be reported as an Environmental Incident; and
- Any harm to threatened species, in particular Northern Quoll that occurs during works shall be reported to DEHP within 24 hours of the incident and no works shall commence on site until approval to proceed has been obtained from DEHP.

### 10.1.4 Review

Third party audits of the HCMP are to take place at least four times a year for the duration of the construction of the MEWF project, then yearly once the MEWF project is in operation. These audits are to be arranged by the Contractor's Environmental Officer.



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Strahan, R. (2002) *The Mammals of Australia*, Angus and Robertson Publishers.

Triggs, Barbara (1996) *Tracks, Scats and Other Traces, A field Guide to Australian Mammal*,. Oxford University Press.

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Wilson, S., & Swan, G. (2008) *A Complete Guide to Reptiles of Australia*, New Holland Publishers Pty Ltd.

Australian Frog Calls (Sub-tropical and tropical) – CD

Bird Calls of SE QLD – CD

Nocturnal Bird and Mammal Calls of North-east NSW – CD

## Appendix A

### Species List

Family	Common Name	Scientific Name	EPBC	NCA
<b>AMPHIBIANS</b>				
Bufo	Cane Toad	<i>Bufo marinus</i>		
Hyla	Green Tree Frog	<i>Litoria caerulea</i>		
Hyla	Floodplain Frog	<i>Litoria inermis</i>		
Hyla	Broad-palmed Frog	<i>Litoria latopalmata</i>		
Hyla	Rocket Frog	<i>Litoria nasuta</i>		
Hyla	Desert Tree Frog	<i>Litoria rubella</i>		
Myobatrach	Montane Toadlet	<i>Uperoleia altissima</i>		
<b>BIRDS</b>				
Acanthiza	Yellow Thornbill	<i>Acanthiza nana</i>		
Smicromys	Weebill	<i>Smicromys brevirostris</i>		
Accipiter	Collared Sparrowhawk	<i>Accipiter cirrocephalus</i>	M	
Accipiter	Brown Goshawk	<i>Accipiter fasciatus</i>	M	
Aquila	Wedge-tailed Eagle	<i>Aquila audax</i>	M	
Elanus	Black-shouldered Kite	<i>Elanus axillaris</i>	M	
Haliaeetus	White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	M	
Haliastur	Brahminy Kite	<i>Haliastur indus</i>	M	
Haliastur	Whistling Kite	<i>Haliastur sphenurus</i>	M	
Hieraaetus	Little Eagle	<i>Hieraaetus morphnoides</i>	M	
Ceyx	Azure Kingfisher	<i>Ceyx azureus</i>		
Aerodramus	Australian Swiftlet	<i>Aerodramus terrareginae</i>		NT
Apus	House Swift	<i>Apus affinis</i>		
Apus	Fork-tailed Swift	<i>Apus pacificus</i>	M	
Hirundapus	White-throated Needletail	<i>Hirundapus caudacutus</i>	M	
Ardea	Cattle Egret	<i>Ardea ibis</i>	M	
Artamus	Dusky Woodswallow	<i>Artamus cyanopterus</i>		
Artamus	White-breasted Woodswallow	<i>Artamus leucorhynchus</i>		
Artamus	Little Woodswallow	<i>Artamus minor</i>		
Artamus	Masked Woodswallow	<i>Artamus personatus</i>		
Artamus	White-browed Woodswallow	<i>Artamus superciliosus</i>		
Cracticus	Pied Butcherbird	<i>Cracticus nigrogularis</i>		
Cracticus	Grey Butcherbird	<i>Cracticus torquatus</i>		
Gymnorhina	Australian Magpie	<i>Gymnorhina tibicen</i>		
Strepera	Pied Currawong	<i>Strepera graculina</i>		

Family	Common Name	Scientific Name	EPBC	NCA
Cacatuidae	Sulphur-crested Cockatoo	<i>Cacatua galerita</i>		
Campephagidae	White-bellied Cuckoo-shrike	<i>Coracina papuensis</i>		
Campephagidae	Cicadabird	<i>Coracina tenuirostris</i>		
Caprimulgidae	White-throated Nightjar	<i>Eurostopodus mystacalis</i>		
Centropodidae	Pheasant Coucal	<i>Centropus phasianinus</i>		
Climacteridae	Brown Treecreeper	<i>Climacteris picumnus</i>		
Columbidae	Bar-shouldered Dove	<i>Geopelia humeralis</i>		
Columbidae	Peaceful Dove	<i>Geopelia striata</i>		
Columbidae	Common Bronzewing	<i>Phaps chalcoptera</i>		
Coraciidae	Dollarbird	<i>Eurystomus orientalis</i>		
Corvidae	Torresian Crow	<i>Corvus orru</i>		
Cuculidae	Pallid Cuckoo	<i>Cacomantis pallidus</i>		
Cuculidae	Oriental Cuckoo	<i>Cuculus optatus</i>		
Dicaeidae	Mistletoe bird	<i>Dicaeum hirundinaceum</i>		
Dicruridae	Spangled Drongo	<i>Dicrurus bracteatus</i>		
Dicruridae	Leaden Flycatcher	<i>Myiagra rubecula</i>		
Dicruridae	Grey Fantail	<i>Rhipidura albiscapa</i>		
Dicruridae	Rufous Fantail	<i>Rhipidura rufifrons</i>	M	
Falconidae	Brown Falcon	<i>Falco berigora</i>	M	
Falconidae	Nankeen Kestrel	<i>Falco cenchroides</i>	M	
Falconidae	Peregrine Falcon	<i>Falco peregrinus</i>	M	
Falconidae	Black Falcon	<i>Falco subniger</i>	M	
Fringillidae	Chestnut-breasted Mannikin	<i>Lonchura castaneothorax</i>		
Fringillidae	Nutmeg Mannikin	<i>Lonchura punctulata</i>		
Fringillidae	Black-throated Finch (northern black-rumped subspecies)	<i>Poephila cincta atropydialis</i>		
Gruidae	Sarus Crane	<i>Grus antigone</i>	M	
Halcyonidae	Blue-winged Kookaburra	<i>Dacelo leachii</i>		
Halcyonidae	Laughing Kookaburra	<i>Dacelo novaeguineae</i>		
Hirundinidae	Barn Swallow	<i>Hirundo rustica</i>	M	
Maluridae	Red-backed Fairy-wren	<i>Malurus melanocephalus</i>		
Meliphagidae	Bridled Honeyeater	<i>Lichenostomus frenatus</i>		
Meliphagidae	Brown Honeyeater	<i>Lichmera indistincta</i>		
Meliphagidae	Noisy Miner	<i>Manorina melanocephala</i>		
Meliphagidae	White-throated Honeyeater	<i>Melithreptus albogularis</i>		
Meliphagidae	White-naped Honeyeater	<i>Melithreptus lunatus</i>		
Meliphagidae	Scarlet Honeyeater	<i>Myzomela sanguinolenta</i>		
Meliphagidae	Little Friarbird	<i>Philemon citreogularis</i>		
Meliphagidae	Noisy Friarbird	<i>Philemon corniculatus</i>		
Meliphagidae	White-cheeked Honeyeater	<i>Phylidonyris niger</i>		
Meropidae	Rainbow Bee-eater	<i>Merops ornatus</i>	M	
Neosittidae	Varied Sittella	<i>Daphoenositta chrysoptera</i>		

Family	Common Name	Scientific Name	EPBC	NCA
Oriolidae	Yellow Oriole	<i>Oriolus flavocinctus</i>		
Oriolidae	Olive-backed Oriole	<i>Oriolus sagittatus</i>		
Pachycephalidae	Grey Shrike-thrush	<i>Colluricincla harmonica</i>		
Pachycephalidae	Rufous Whistler	<i>Pachycephala rufiventris</i>		
Pardalotidae	Spotted Pardalote	<i>Pardalotus punctatus</i>		
Pelecanidae	Australian Pelican	<i>Pelecanus conspicillatus</i>		
Phasianidae	Brown Quail	<i>Coturnix ypsilophora</i>		
Podargidae	Tawny Frogmouth	<i>Podargus strigoides</i>		
Pomatostomidae	Grey-crowned Babbler	<i>Pomatostomus temporalis</i>		
Psittacidae	Red-winged Parrot	<i>Aprosmictus erythropterus</i>		
Psittacidae	Little Lorikeet	<i>Glossopsitta pusilla</i>		
Psittacidae	Pale-headed Rosella	<i>Platycercus adscitus</i>		
Psittacidae	Scaly-breasted Lorikeet	<i>Trichoglossus chlorolepidotus</i>		
Psittacidae	Rainbow Lorikeet	<i>Trichoglossus haematodus</i>		
Ptilonorhynchidae	Great Bowerbird	<i>Chlamydera nuchalis</i>		
Strigidae	Southern Boobook	<i>Ninox novaeseelandiae</i>		
Sylviidae	Rufous Songlark	<i>Cincloramphus mathewsi</i>		
<b>MAMMALS</b>				
Canidae	Dingo/Wild Dog	<i>Canis lupus dingo/C. Familiaris</i>		
Dasyuridae	Northern Quoll	<i>Dasyurus hallucatus</i>	E	E
Emballonuridae	Yellow-bellied Sheathtail Bat	<i>Saccolaimus flaviventris</i>		
Emballonuridae	Bare-rumped Sheathtail Bat	<i>Saccolaimus saccolaimus nudicluniatus</i>	CE	E
Emballonuridae	Common Sheathtail Bat	<i>Taphozous georgianus</i>		
Emballonuridae	Troughton's Sheathtail Bat	<i>Taphozous troughtoni</i>		E
Equidae	Domestic Horse	<i>Equus caballus</i>		
Felidae	House Cat	<i>Felis silvestris catus</i>		
Hipposideridae	Dusky Leafnosed Bat	<i>Hipposideros ater</i>		
Hipposideridae	Diadem Leafnosed Bat	<i>Hipposideros diadema reginae</i>		NT
Hipposideridae	Semon's Leafnosed Bat	<i>Hipposideros semoni</i>	E	
Leporidae	European Rabbit	<i>Oryctolagus cuniculus</i>		
Macropodidae	Agile Wallaby	<i>Macropus agilis</i>		
Macropodidae	Whiptail Wallaby	<i>Macropus parryi</i>		
Macropodidae	Wallaroo or Euro	<i>Macropus robustus</i>		
Molossidae	White-striped Freetail Bat	<i>Austronomus australis</i>		
Molossidae	Northern Freetail Bat	<i>Chaerephon jobensis</i>		
Molossidae	Beccari's Freetail Bat	<i>Mormopterus beccarii</i>		
Molossidae	Little Northern Freetail Bat	<i>Mormopterus loriae</i>		
Molossidae	Eastern Freetail Bat	<i>Mormopterus ridei</i>		
Muridae	Water Rat	<i>Hydromys chrysogaster</i>		
Muridae	Grassland Melomys	<i>Melomys burtoni</i>		
Muridae	Black-footed Tree-rat	<i>Mesembriomys gouldi</i>		

Family	Common Name	Scientific Name	EPBC	NCA
Muridae	House Mouse	<i>Mus musculus</i>		
Muridae	Black Rat	<i>Rattus rattus</i>		
Muridae	Giant White-tailed Rat	<i>Uromys caudimaculatus</i>		
Muridae	Common Rock-rat	<i>Zyomys argurus</i>		
Peramelidae	Northern Brown Bandicoot	<i>Isoodon macrourus</i>		
Phalangeridae	Common Brushtail Possum	<i>Trichosurus vulpecula</i>		
Pteropidae	Spectacled Flying-fox	<i>Pteropus conspicillatus</i>	V	V
Rhinolophidae	Eastern Horseshoe Bat	<i>Rhinolophus megaphyllus</i>		
Rhinolophidae	Large-eared Horseshoe Bat	<i>Rhinolophus philippinensis maros</i>	E	E
Suidae	Pig	<i>Sus scrofa</i>		
Tachyglossidae	Short-beaked Echidna	<i>Tachyglossus aculeatus</i>		
Vespertilionidae	Gould's Wattled Bat	<i>Chalinolobus gouldii</i>		
Vespertilionidae	Hoary Wattled Bat	<i>Chalinolobus nigrogriseus</i>		
Vespertilionidae	Little Bentwing Bat	<i>Miniopterus australis</i>		
Vespertilionidae	Large Bentwing Bat	<i>Miniopterus orianae oceanensis</i>		
Vespertilionidae	Northern Large-footed Myotis	<i>Myotis moluccarium</i>		
Vespertilionidae	Northern Longeared Bat	<i>Nyctophilus bifax</i>		
Vespertilionidae	Lesser Longeared Bat	<i>Nyctophilus geoffroyi</i>		
Vespertilionidae	Gould's Long-eared Bat	<i>Nyctophilus gouldii</i>		
Vespertilionidae	Greater Broadnosed Bat	<i>Scoteanax rueppellii</i>		
Vespertilionidae	Eastern Broadnosed Bat	<i>Scotorepens orion</i>		
Vespertilionidae	Northern Broadnosed Bat	<i>Scotorepens sanborni</i>		
Vespertilionidae	Eastern Forest Bat	<i>Vespadelus pumilus</i>		
Vespertilionidae	Eastern Cave Bat	<i>Vespadelus troughtoni</i>		
<b>REPTILES</b>				
Agamidae	Frill-necked dragon	<i>Chlamydosaurus kingii</i>		
Agamidae	Tommy roundhead	<i>Diporiphora australis</i>		
Agamidae	Two-lined dragon	<i>Diporiphora bilineata</i>		
Cheluidae	Saw-shelled turtle	<i>Wollumbinia latisternum</i>		
Colubridae	Common tree snake	<i>Dendrelaphis punctulatus</i>		
Colubridae	Keelback	<i>Tropidonophis mairii</i>		
Elapidae	Eastern brown snake	<i>Pseudonaja textilis</i>		
Gekkonidae	Dubious dtella	<i>Gehyra dubia</i>		
Gekkonidae	Northern spotted rock dtella	<i>Gehyra nana</i>		
Gekkonidae	Bynoe's gecko	<i>Heteronotia binoei</i>		
Gekkonidae	Northern velvet gecko	<i>Oedura castelnaui</i>		
Gekkonidae	Northern spotted velvet gecko	<i>Oedura coggeri</i>		
Gekkonidae	Zigzag velvet gecko	<i>Oedura rhombifer</i>		
Gekkonidae	Eastern spiny-tailed gecko	<i>Strophurus williamsi</i>		
Pygopodidae	Excitable delma	<i>Delma tincta</i>		
Pygopodidae	Burton's legless lizard	<i>Lialis burtonis</i>		

Family	Common Name	Scientific Name	EPBC	NCA
Pythonidae	Black-headed python	<i>Aspidites melanocephalus</i>		
Pythonidae	Scrub python	<i>Morelia kinghorni</i>		
Pythonidae	Carpet python	<i>Morelia spilota</i>		
Scincidae	Lined rainbow-skink	<i>Carlia jarnoldae</i>		
Scincidae		<i>Carlia longipes</i>		
Scincidae	Shaded-litter rainbow-skink	<i>Carlia munda</i>		
Scincidae		<i>Carlia mundivensis</i>		
Scincidae	Black-throated rainbow-skink	<i>Carlia rostralis</i>		
Scincidae	Robust rainbow-skink	<i>Carlia schmeltzii</i>		
Scincidae		<i>Carlia stori</i>		
Scincidae	Lively rainbow skink	<i>Carlia vivax</i>		
Scincidae		<i>Cryptoblepharus plagiocephalus</i>		
Scincidae	Wall skink	<i>Cryptoblepharus virgatus</i>		
Scincidae	Straight-browed ctenotus	<i>Ctenotus spaldingi</i>		
Scincidae	Copper-tailed skink	<i>Ctenotus taeniolatus</i>		
Scincidae	Pink-tongued skink	<i>Cyclodomorphus gerrardii</i>		
Scincidae	Major skink	<i>Egernia frerei</i>		
Scincidae	Northern barsided skink	<i>Eulamprus brachysoma</i>		
Scincidae	Common blue-tongued skink	<i>Tiliqua scincoides</i>		
Varanidae	Spotted tree monitor	<i>Varanus scalaris</i>		
Varanidae	Storr's monitor	<i>Varanus storri</i>		
Varanidae	Black-headed monitor	<i>Varanus tristis</i>		

## Appendix B

### Wildlife Capture and Disposal Record



Wildlife Capture and Disposal Record	
Name	
Date	
Qualification	
Project	
Species	
Identification name or number	
Sex	M / F / Unknown
Approximate age or age class	Neonate / Juvenile / Sub-Adult / Adult
Time and date of capture	
Method of capture	
Exact point of capture (GPS point)	
State of health	
Incidents associated with capture likely to affect the animal	
Onsite treatment if required and injury specified	
Veterinary intervention or treatments	
Time held in captivity	
Disposal	Euthanasia / Re-Release / Translocation .....
Date and time of disposal	...../...../..... : .....
Details of disposal (if released, exact point of release GPS)	
For released animals: distance from point of capture to point of release (GPS)	