

# ECOLOGICAL ASSESSMENT FOR PROPOSED SUBDIVISION – LOT 1 DP842144, BERANGHI ROAD



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OCTOBER 2022

## Revision History

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## **1. BACKGROUND INFORMATION**

### **1.1 Site Description and Location**

The subject site is Lot 1 DP842144 and is located on Beranghi Road. The site is 7.9ha in area and is currently vacant, though there is an approval for a single dwelling. Land in the surrounding area comprises rural properties, with Maria National Park to the west of the site. The location of the site is shown in Figure 1.

### **1.2 Development Proposal**

The proposal is to subdivide the property into two lots and establish a building envelope, APZ and new driveway access to the new lots. The building envelopes and driveways have been located as much as possible within cleared areas, though one mature tree and a patch of young regrowth trees will require removal for the driveway access to Lot 1B. The proposed new boundary passes through existing clearings and will not require tree removal. The development layout plan is shown in Figure 2.

Photos of the site and location of the development footprint are shown in Photos 1-2.

### **1.3 Key Definitions**

The development footprint is defined as the area of land directly affected by the development comprising the building envelopes and driveways. This covers an area of approximately 0.4ha. The subject site comprises the whole of Lot 1 DP842144 which is 7.9ha. The study area is land within 20m of the subject site. The locality is land within a 10km radius of the site.

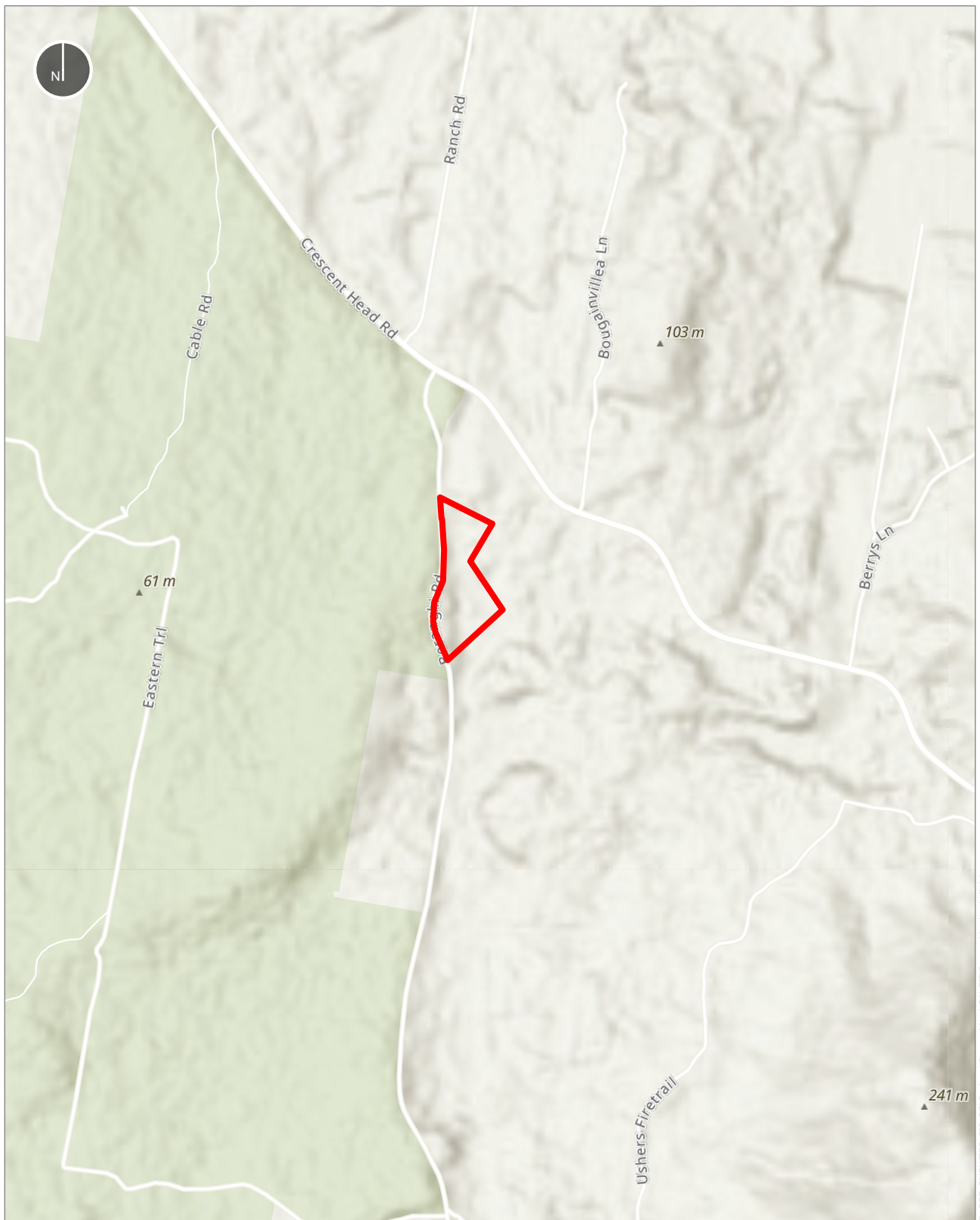
*Photo 1: View of the southern development envelope*



*Photo 2: View of the northern development envelope*






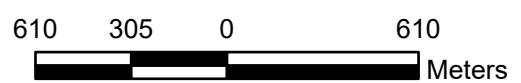


Data Sources: Wolfpeak 2021, Imagery Esri, HERE, Garmin, Foursquare, METI/NASA,

**Legend**

 Subject site

WGS 1984 Web Mercator Auxiliary Sphere 24,075@A4

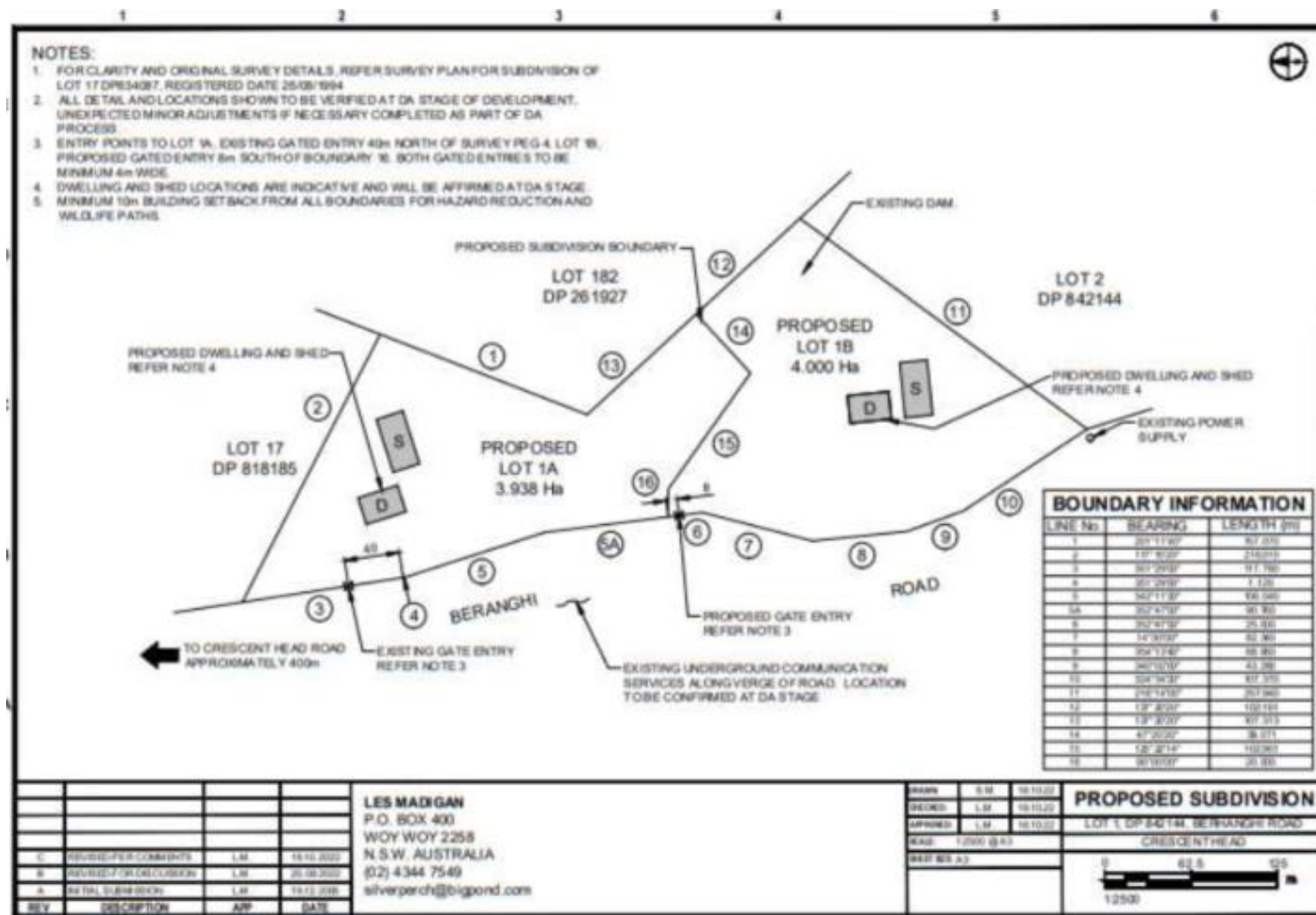


**Figure 1** | Location of site



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Figure 2: Site Development Layout





## 2. METHODS

### 2.1 Desktop Study and Literature Review

A desktop study was carried out prior to the field survey to gather relevant information and data. The following databases and Geographic Information System (GIS) layers were searched/obtained:

- Department of Climate Change, Energy, the Environment and Water Protected Matters Search Tool (DCCEEW 2022);
- NSW BioNet/Atlas of Wildlife (DPIE 2022a);
- NSW Threatened Biodiversity Data Collection (OEH 2019b);
- Coastal Management SEPP Map Viewer (DPE 2022); and
- Coastal Quaternary Geology – North and South Coast of NSW digital data layer (Troedson & Hashimoto 2008).

### 2.2 Flora Survey

The flora survey consisted of the following:

- Identification, description and mapping of the vegetation communities on the site.
- Searches for threatened species listed under the *Biodiversity Conservation Act 2016* (BC Act) and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) undertaken in accordance with the NSW Guide to Surveying Threatened Plants (OEH 2016).
- Identification, mapping and condition assessment of any Endangered Ecological Communities (EEC) listed under the BC Act, and EPBC Act.

Flora surveys were carried out by WolfPeak's Senior Ecologist on the 14<sup>th</sup> September 2022.

#### 2.2.1 Vegetation Classification and Mapping

The vegetation communities were described from data collected during random meander transect surveys. The site vegetation communities are classified as per the NSW Plant Community Type (PCT) Classification.

Identification of possible EECs was based on the data collected in the survey and review of the relevant listings on the Department of Planning and Environment (DPE) website ([www.environment.nsw.gov.au](http://www.environment.nsw.gov.au)) and Department of Climate Change, Energy, the Environment and Water MNES SPRAT website (DCCEEW 2022).

Plant species were identified to species or subspecies level and nomenclature conforms to that currently recognised by the Royal Botanic Gardens via PlantNET (Royal Botanic Gardens 2022).

## **2.2.2 Threatened Flora Species**

### **2.2.2.1 Searches**

Searches for the locally recorded threatened flora were carried out over the survey period.

Threatened plant searches consisted of undertaking walking transects throughout the subject site targeting habitat most likely to support threatened flora. Opportunistic searches for threatened flora species were also undertaken during other activities. Given the small site area, the combination of these methods allowed a thorough search of its entire extent.

## **2.2.3 Potential Occurrence Assessment**

Potential occurrence assessment of threatened flora species is provided in Appendix B. This section assesses threatened species for their potential to occur on site.

## **2.3 Fauna Survey**

### **2.3.1 Habitat Evaluation**

Habitats on and adjacent to the subject site were defined and assessed according to parameters such as:

- Structural and floristic characteristics of the vegetation;
- Degree and extent of disturbance;
- Availability of water;
- Size and abundance of tree hollows and fallen timber;
- Surface rocks and outcrops;
- Vegetation connectivity; and
- Presence of mistletoe, nectar, gum, seed and sap sources.

### **2.3.2 Secondary Evidence Searches**

Habitat searches involved inspection and assessment of potentially suitable habits for potentially occurring threatened species: Searches generally involved:

- Inspection under fallen timber, rocks and debris;
- Inspection of dense vegetation, aquatic habitats and leaf litter for frogs and reptiles;
- Inspection of trees for Koalas and claw markings;
- Searches for Glider sap incisions;
- Searches for nests and dreys; and
- Searches for scats, owl regurgitation pellets, tracks and feeding signs.

### **2.3.3 Direct Observation**

This involved passive and active observation of any fauna on or directly adjacent to the subject site during survey activities. Birds and reptiles were the main focus of the surveys. Searches for Koalas in the crowns of trees over the site were also undertaken. A total of three hours was spent on this activity over one day in conjunction with the overall site survey.

### **2.3.4 Hollow-bearing Tree and Koala Food Tree Survey**

Searches for hollow-bearing trees (HBTs) and preferred Koala Food Trees (KFTs) were carried out over the development footprint.

### 3. RESULTS

#### 3.1 Desktop Search Results

##### 3.1.1 Locally Recorded Threatened Species

The following table lists the threatened flora and fauna species identified in database and literature searches of the locality.

Table 1: Locally recorded threatened species

Scientific Name	Common Name	NSW status	Comm. status	Records
<i>Maundia triglochinosides</i>		V		1
<i>Litoria brevipalmata</i>	Green-thighed Frog	V,P		5
<i>Stictonetta naevosa</i>	Freckled Duck	V,P		1
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	E1,P		28
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	V,P		8
<i>Hieraaetus morphnoides</i>	Little Eagle	V,P		3
<i>Lophoictinia isura</i>	Square-tailed Kite	V,P,3		2
<i>Pandion cristatus</i>	Eastern Osprey	V,P,3		1
<i>Grus rubicunda</i>	Brolga	V,P		1
<i>Irediparra gallinacea</i>	Comb-crested Jacana	V,P		5
<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	V,P,2		8
<i>Glossopsitta pusilla</i>	Little Lorikeet	V,P		3
<i>Ninox strenua</i>	Powerful Owl	V,P,3		4
<i>Tyto novaehollandiae</i>	Masked Owl	V,P,3		4
<i>Daphoenositta chrysoptera</i>	Varied Sittella	V,P		2
<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	V,P		4
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V,P	E	4
<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	V,P		1
<i>Phascolarctos cinereus</i>	Koala	E1,P	E	92
<i>Petaurus australis</i>	Yellow-bellied Glider	V,P	V	5
<i>Petaurus norfolcensis</i>	Squirrel Glider	V,P		1

<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V,P	V	18
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	V,P		4
<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	V,P		3
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	V,P		2
<i>Myotis macropus</i>	Southern Myotis	V,P		2
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V,P		4
<i>Vespadelus troughtoni</i>	Eastern Cave Bat	V,P		1
<i>Miniopterus australis</i>	Little Bent-winged Bat	V,P		6
<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	V,P		5

### 3.1.2 Matters of National Environmental Significance

The results of the MNES search are provided in Appendix D. The search was undertaken using a 10km search radius from the subject site.

## 3.2 Flora Survey Results

### 3.2.1 Site Vegetation Communities

Vegetation within the study area has been disturbed in the past as a result of clearing and slashing. The development footprint comprises native and exotic grassland with scattered trees and dry sclerophyll forest occurs on the western edge of the subject site.

Table 2 and 3 provide detailed descriptions of the vegetation communities identified on site, Figure 3 provides the Plant Community Type mapping and photos of the types are provided below.

#### 3.2.1.1 Dry Sclerophyll Open Forest

Table 2: Vegetation community description

<b>Vegetation Community</b>	Dry Sclerophyll Forest
<b>NSW Plant Community Type (PCT)</b>	No 1135: Scribbly Gum - Needlebark Stringybark heathy open forest of coastal lowlands of the northern NSW North Coast Bioregion
<b>EEC Status</b>	Not an EEC
<b>Location and Area</b>	Located on the western edge of the subject site.



Description	<p><b>Canopy:</b>  <i>Structure and Species:</i> The canopy layer is mostly regrowth dominated by Needlebark Stringybark (<i>Eucalyptus planchoniana</i>), Scribbly Gum (<i>Eucalyptus signata</i>) and White Stringybark (<i>Eucalyptus globoidea</i>). Height to 25m.</p> <p><b>Understorey/shrub layer:</b>  <i>Structure and Species:</i> Open layer of shrubs and small trees present including Black Oak (<i>Allocasuarina littoralis</i>), occasional Broad-leaved Paperbark (<i>Melaleuca quinquenervia</i>), <i>Melaleuca sieberi</i>, Slender Tea-tree (<i>Leptospermum trinervium</i>), Broad-leaved Geebung (<i>Persoonia levis</i>), <i>Pultenaea myrtoidea</i> and Notched Bush Pea (<i>Pultenaea retusa</i>).</p> <p><b>Ground layer:</b>  <i>Structure and Species:</i> A dense layer (95% cover) comprising native grasses including Wiry Panic (<i>Entolasia stricta</i>) and Blady Grass (<i>Imperata cylindrica</i>), Thyme Spurge (<i>Phyllanthus hirtellus</i>), Forest Goodenia (<i>Goodenia hederacea</i>), Fluke Bogrush (<i>Schoenus apogon</i>) and Kangaroo Grass (<i>Themeda triandra</i>).</p>
Condition	Good condition with very few weeds present.

Photo 3: Dry Sclerophyll Open Forest



### 3.2.1.2 Mixed Native and Exotic Grassland with Scattered Trees

Table 3: Vegetation community description

Vegetation Community	Mixed Native and exotic grassland with scattered trees
NSW Plant Community Type (PCT)	NA
EEC Status	Not an EEC
Location and Area	Occurs across most of the subject site.
Description	<b>Canopy:</b> Has a few scattered trees including Tallowwood ( <i>Eucalyptus microcorys</i> ), Blackbutt ( <i>Eucalyptus pilularis</i> ), Pink Bloodwood ( <i>Corymbia intermedia</i> ) and White Stringybark ( <i>Eucalyptus globoidea</i> ). Height ranges from 15-20m with canopy cover of less than 5%.

	<p><b>Understory:</b> Absent</p> <p><b>Shrub layer:</b> Occasional shrubs present in windrows of fallen timber that have not been slashed. Species include Wallum Heath (<i>Epacris pulchella</i>), Elderberry Panax (<i>Polyscias sambucifolia</i>), Geebung (<i>Persoonia levis</i>), <i>Pultenaea retusa</i> and <i>Pultenaea myrtoidea</i>.</p> <p><b>Ground layer:</b></p> <p>Structure and Species: Consists of a mix of native and exotic and forbs including Wiry Panic, Kangaroo Grass, Pigeon Grass (<i>Setaria pumila</i>), Catsear (<i>Hypochaeris radicata</i>), Fireweed (<i>Senecio madagascariensis</i>) Thyme Spurge, Blady Grass, Forest Goodenia, Fluke Bogrush.</p> <p>Regularly slashed and has a height of about 5-30cm.</p>
<p><b>Condition</b></p>	<p>This community is generally highly modified with various levels of weed cover. Low biodiversity value.</p>

Photo 4: Grassland community with scattered trees







Data Sources: Wolfpeak 2021, Imagery Esri Community Maps Contributors,

**Legend**



Subject site

PCT

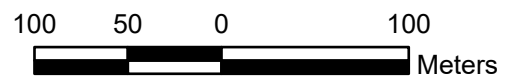


Native and exotic grassland with scattered trees



Scribbly Gum - Needlebark Stringybark heathy open forest

WGS 1984 Web Mercator Auxiliary Sphere 4,039@A4



**Figure 3** | Plant Community Type mapping



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## 3.2.2 Threatened Flora

### 3.2.2.1 Site Survey and Potential Occurrences

No threatened flora species were detected on site during the field survey.

Searches of relevant literature and databases (DPIE 2022) found records of one threatened flora species in the locality, *Maundia triglochoides*. The Protected Matters Search Tool also produced a list of additional potential occurrences in the locality. Given the modified habitats on site and lack of nearby records, no threatened flora species are considered likely to occur on the site.

## 3.2.3 Endangered Ecological Communities and Populations

### 3.2.3.1 Biodiversity Conservation Act 2016

Review of the site vegetation community has determined that it does not qualify as an EEC listed under the BC Act.

### 3.2.3.2 Environment Protection and Biodiversity Conservation Act 1999

Review of the site vegetation has determined that it does not qualify as an EEC listed under the EPBC Act.

## 3.3 Fauna and Habitat Survey Results

### 3.3.1 Habitat Evaluation

The following table summarises the survey findings for habitat within the development footprint and the constraints/opportunities it provides for potentially occurring threatened species.

*Table 4: Habitat constraints/opportunities for threatened species*

Habitat/Attribute Type	Development footprint	Potential Values to Threatened Species Occurrence
Groundcover	Groundcover comprises slashed grass across most of the site. The south west edge of the site contains intact groundcover.	No threatened species are likely to utilise the groundcover habitat due to site disturbance.
Logs and Debris	Absent	No significance for any threatened species.
Hollows	Absent in development footprint. A few occur along the western edge of the site but will not be impacted.	Development footprint has no potential nesting/denning habitat for hollow-obligate species.



Habitat/Attribute Type	Development footprint	Potential Values to Threatened Species Occurrence
Nectar Sources	Some trees within the subject site would provide a minor nectar source.	Eucalypts in study area could potentially be used when flowering by Grey-headed Flying Fox and Little Lorikeet.
Preferred Koala use Trees	One KFT (White Stringybark) as per Kempsey Comprehensive Koala Plan of Management occurs in the northern development footprint. No other KFTs are likely to be impacted. Tallowood, White Stringybark and Scribbly Gum occur as scattered trees and in the Dry Sclerophyll Forest on the western edge of the site.	The removal of one KFT is a very minor impact on available Koala habitat. Koalas are likely to persist on site post development.
Allocasuarinas	Some young <i>Allocasuarina littoralis</i> will require removal to allow for the driveways (four meters by four meters) accessing the lots. However, most <i>Allocasuarina littoralis</i> will be retained.	Glossy Black Cockatoo was detected via observation of chew <i>Allocasuarina littoralis</i> cones in the south west of the site. This habitat resource will remain on the site.
Aquatic habitats	Absent	N/A
Fruiting species	Absent	No fruiting resource for frugivorous birds.
Caves, cliffs, culverts, bridges	Absent	Absence of potential roosts for Microchiropteran bats.
Habitat Linkages	The vegetation on the western edge of the subject site extends offsite and links to large areas of forest associated with Maria National Park.	Site would be accessible for Koala, however it would have to cross Beranghi Road. Highly mobile species (e.g. birds and bats) would be able to access the site vegetation.

### 3.3.2 Observed Fauna

The main fauna species detected during the survey consisted of common bird species including Scarlet Honeyeater, White-throated Treecreeper, Grey Shrike-thrush, Noisy Friarbird. The Glossy Black-Cockatoo was detected via observation of chewed *Allocasuarina littoralis* cones.

The following table lists the fauna species recorded during the field survey.

Table 5: Fauna species detected

Class	Scientific Name	Common Name
Aves	<i>Phylidonyris niger</i>	White-cheeked Honeyeater
Aves	<i>Cormobates leucophaea</i>	White-throated Treecreeper

Aves	<i>Philemon corniculatus</i>	Noisy Friarbird
Aves	<i>Geopelia humeralis</i>	Bar-shouldered Dove
Aves	<i>Caligavis chrysops</i>	Yellow-faced Honeyeater
Aves	<i>Colluricincla harmonica</i>	Grey Shrike-thrush
Aves	<i>Corvus coronoides</i>	Australian Raven
Aves	<i>Oriolus sagittatus</i>	Olive-backed Oriole
Aves	<i>Gymnorhina tibicen</i>	Australian Magpie
Aves	<i>Smicrornis brevirostris</i>	Weebill
Aves	<i>Acanthiza pusilla</i>	Brown Thornbill
Aves	<i>^Calyptorhynchus lathami</i>	Glossy Black-Cockatoo
Aves	<i>Geopelia striata</i>	Peaceful Dove
Aves	<i>Eopsaltria australis</i>	Eastern Yellow Robin
Aves	<i>Rhipidura albiscapa</i>	Grey Fantail
Aves	<i>Myzomela sanguinolenta</i>	Scarlet Honeyeater
Aves	<i>Malurus cyaneus</i>	Superb Fairy-wren
Aves	<i>Dacelo novaeguineae</i>	Laughing Kookaburra
Amphibia	<i>Litoria fallax</i>	Eastern Dwarf Tree Frog

### 3.3.3 Potential Occurrence Assessment

Review of literature and databases search results of threatened fauna species in the locality are provided in Appendix B. The threatened Glossy Black-Cockatoo was detected via observation of chewed *Allocasuarina littoralis* cones. No other threatened species were recorded on site during the survey. In consideration of the habitats present on site, the following species are considered to potentially occur on the subject site:

- Little Lorikeet;
- Masked Owl;
- Powerful Owl;
- Grey-headed Flying Fox;
- Koala;
- Yellow-bellied Sheath-tail-Bat;
- Large Bentwing Bat;
- Eastern Coastal Free-tailed Bat;  
and
- Little Bentwing Bat.

## 4. IMPACT ASSESSMENT AND MITIGATION

### 4.1 Avoidance and Minimisation

The development will minimise impacts on native vegetation and habitat by locating the development footprints and proposed driveways in existing cleared areas as much as possible. Any new fences or other infrastructure associated with the development is to avoid tree removal.

### 4.2 Direct Impacts

Due to the avoidance and minimisation measures applied to the proposal, direct impacts will be very limited. Establishing the development will largely impact mixed native and exotic grassland. For the northern lot, some widening of the existing entrance is likely to be required (four metres wide) and one mature White Stringybark may require removal. For the southern lot, a four metre wide strip of young regrowth trees is proposed to be removed as part of the driveway. The extent of native vegetation removal is approximately 0.2ha which includes some patches of native dominated grassland.

*Photo 5: Regrowth trees proposed to be removed for the driveway to the southern lot*



## 4.3 Indirect Impacts

The following potential impacts may be associated with the proposal:

- **Injury/mortality during clearing:** Unlikely to be a risk as no hollow trees will be removed.
- **Inadvertent impacts on retained or adjoining vegetation:** If not properly demarcated and protected, it is possible that retained trees and vegetation adjacent to the construction site could be impacted by clearing, earthworks and construction vehicle movements. Recommendations are provided to reduce this risk.
- **Erosion and sedimentation:** Standard mechanisms and controls should ensure the prevention of erosion and sedimentation during construction and post-development and such impacts do not extend beyond the development footprint.
- **Predation of Native Fauna:** New owners may wish to keep cats and dogs which can prey on native wildlife. Recommendations are provided to keep pets restricted to yard and not roam adjacent bushland.
- **Weed invasion:** Weeds currently occur on the site. The proposal is unlikely to introduce any new weed species, however it may increase the potential for spread of weeds within the site through vegetation modification.
- **Noise and vibration:** Currently, noise is derived from traffic and nearby rural areas, hence fauna are likely to have some tolerance to anthropogenic noise. During the development's establishment, noise would be highest during construction, but limited to daytime hence would only impact diurnal birds and mammals. Post-development, noise levels are expected to return to levels which occurred prior to construction.

## 4.4 Mitigation Measures

### 4.4.1 Avoiding Vegetation Removal

Vegetation removal is to be limited to the minimum extent required to establish the development and not greater than what has been assessed in this report. Any new driveways, fence lines or infrastructure is to avoid removal of mature trees and native vegetation.

### 4.4.2 CKPOM offset area

As per the requirements of the Kempsey Council Comprehensive Koala Plan of Management (CKPOM)(refer to section 5), a parcel of land that equates to no less than two times the total area to be affected by the proposed vegetation removal is to be set aside and secured under a legally binding agreement that ensures in perpetuity habitat protection. The proposal is likely to require the removal of one White Stringybark, which is no more than 5mx5m. The south west edge of the site that contains Scribbly Gum - Needlebark Stringybark heathy open forest is to be set aside as an offset, with a protective covenant on title (Figure 5).

#### 4.4.3 Clearing Measures

The area to be cleared/modified should be clearly marked (e.g. with stakes and bunting) before clearing in order to prevent inadvertent clearance beyond what is required and has been assessed. Trees to be removed should be clearly marked with flagging tape or spray paint.

Site induction is to specify that no clearing is to occur beyond the marked area, and vehicles are only to be parked in designated areas. Similarly, any materials are to be stored outside the retained vegetation. Clearing and earthworks is to avoid damage to root zones of the retained trees.

#### 4.4.4 Domestic Pets

Cats and dogs should be restrained to the vicinity of the residence as far as practicable to avoid potential injury to native fauna. Ideally, dogs should be restricted within a fence which prevents fauna access, but permits their escape (e.g. by a wooden post).

#### 4.4.5 Sedimentation and Erosion Controls

Standard soil and sedimentation control measures will be required throughout the clearing and construction works to ensure that habitats on the site and in the study area, as well as any downstream aquatic habitats are not substantially affected by erosion and sedimentation.

#### 4.4.6 Weed control

Disturbance of the sites soils during vegetation removal and construction has potential to encourage weed invasion. Hence, it is recommended that:

- Disturbance of vegetation and soils on the site should be limited to the areas of the proposed work and should not extend into adjacent vegetation.
- To assist in reducing the spread of exotic species, all vehicles and machinery are to be inspected for the presence of weeds prior to entering the site.
- Any new weed infestations that arise within the works area during construction are to be treated and removed.

## 5. KEMPSEY CKPOM ASSESSMENT

### 5.1 Site Classification

The CKPoM covers the whole of the eastern part of the Kempsey Shire LGA. The Koala habitat mapping provided in the CKPoM shows that the subject site is mostly mapped as 'Unknown', the south west edge of the site is mapped as Secondary (Class B) and Primary habitat occurs to the south of the site. This map is shown in Figure 4.

As per Section 4.5 of the CKPoM, areas mapped as unknown are required to be classified as either preferred Koala habitat (Primary, Secondary A or Secondary B), or Other vegetation. Detailed CKPOM Koala habitat mapping has been completed for the site as shown in Figure 4.



Only one White Stringybark tree will be impacted by the northern development envelope, with the remaining area in which the development envelopes are located being managed grassland.

No evidence of the Koala was identified on the site during the field survey.

## 5.2 Compliance Assessment

As the proposed development comprises DA for a subdivision, and one KFT (White Stringybark) will be impacted by the proposed development, Habitat Compensation Measures (Section 4.12) and nominated Performance Criteria for areas mapped as Preferred Koala Habitat (PKH) in Section 4.10 are to be applied.

## 5.3 Habitat Compensation Measures

Section 4.12 of the CKPOM stipulates the Habitat Compensation Measures required for the subject DA that would involve the loss of KFTs. These measures involve the securement of a parcel of land that equates to no less than two times the total area to be affected by the proposed vegetation removal. This land is to be secured under a legally binding agreement that ensures in perpetuity habitat protection (refer to Section 4.12 of the CKPOM for details). The removal of one White Stringybark equates to an area of no more than 5mx5m. As an offset for this impact, the south west edge of Lot 1B that contains a patch Scribbly Gum - Needlebark Stringybark heathy open forest is to be secured under a protective covenant on title (Figure 5).

## 5.4 Performance Criteria Compliance Assessment

Section 4.10 of the CKPoM list the performance criteria for Preferred Koala Habitat. The proposed development has been assessed by these criteria in the following table, to demonstrate compliance with the CKPoM.

*Table 6: CKPoM Performance Criteria*

Performance Criteria	Compliance Assessment
a) maximise retention and minimise degradation of native vegetation across the subject land;	The proposal will require the removal of only one KFT. All native vegetation in areas outside the proposed development footprint will be retained. This includes numerous preferred KFTs.  The loss of the one KFT is to be offset through securing the patch of Scribbly Gum - Needlebark Stringybark heathy open forest in the south west edge of the site under a protective covenant.
b) minimise the removal of any identified preferred koala food trees, where they occur across the subject land;	The development has been designed to reduce removal of all trees, including KFTs. One KFT will however be impacted by the proposal.

c) ensure such trees will not be negatively impacted by subsequent development works including the construction of buildings, associated infrastructure and/or provision of public utilities;	The area outside of the development footprint is to be retained.
d) maintain key linkages across the landscape, where they occur, to reduce the effects of habitat fragmentation;	Existing linkages across the landscape will not be impacted by the proposed development, as retained vegetation and APZs within the site will continue to provide habitat connecting through the site.
e) comply with the Habitat Compensation Measures where relevant as per Section 4.12 of this plan;	Habitat Compensation Measures are to be provided for via a protective covenant to be put in place for the patch of Scribbly Gum - Needlebark Stringybark heathy open forest in the south west of the site.
f) Where Onsite PKFT Tree Replacement Measures have been applied, as per Section 4.9 of this plan, measures to ensure the retention of replacement trees over time, which may include but are not limited to restrictions on title; and	It is proposed to offset the loss of the KFT on the development site with the securing of the patch of vegetation in the south west of the site.
g) Where Koala habitat and associated linkages are proposed to be retained on the development site to mitigate impacts, measures to ensure the protection of those areas in the long term, which may include but are not limited to restrictions on title;	Fences for the proposed development are to be of post and rail or post and two strands of wire design so that Koalas and other fauna can move freely through the site.
h) Appropriate measures (ie erection of exclusion fencing) are to be in place to ensure Koalas are protected during site construction works. Should Koalas be found on site during clearing, construction or site works then provisions (i) and (j) in Section 4.11 apply.	Pre-clearing surveys will ensure that Koalas are not impacted during construction works. Provisions i) and j) have been incorporated into the mitigations measures of this report.

### 5.4.1 Special Conditions

The following lists the special conditions associated with the Performance Criteria Compliance Assessment, as outlined in the Kempsey CKPoM.

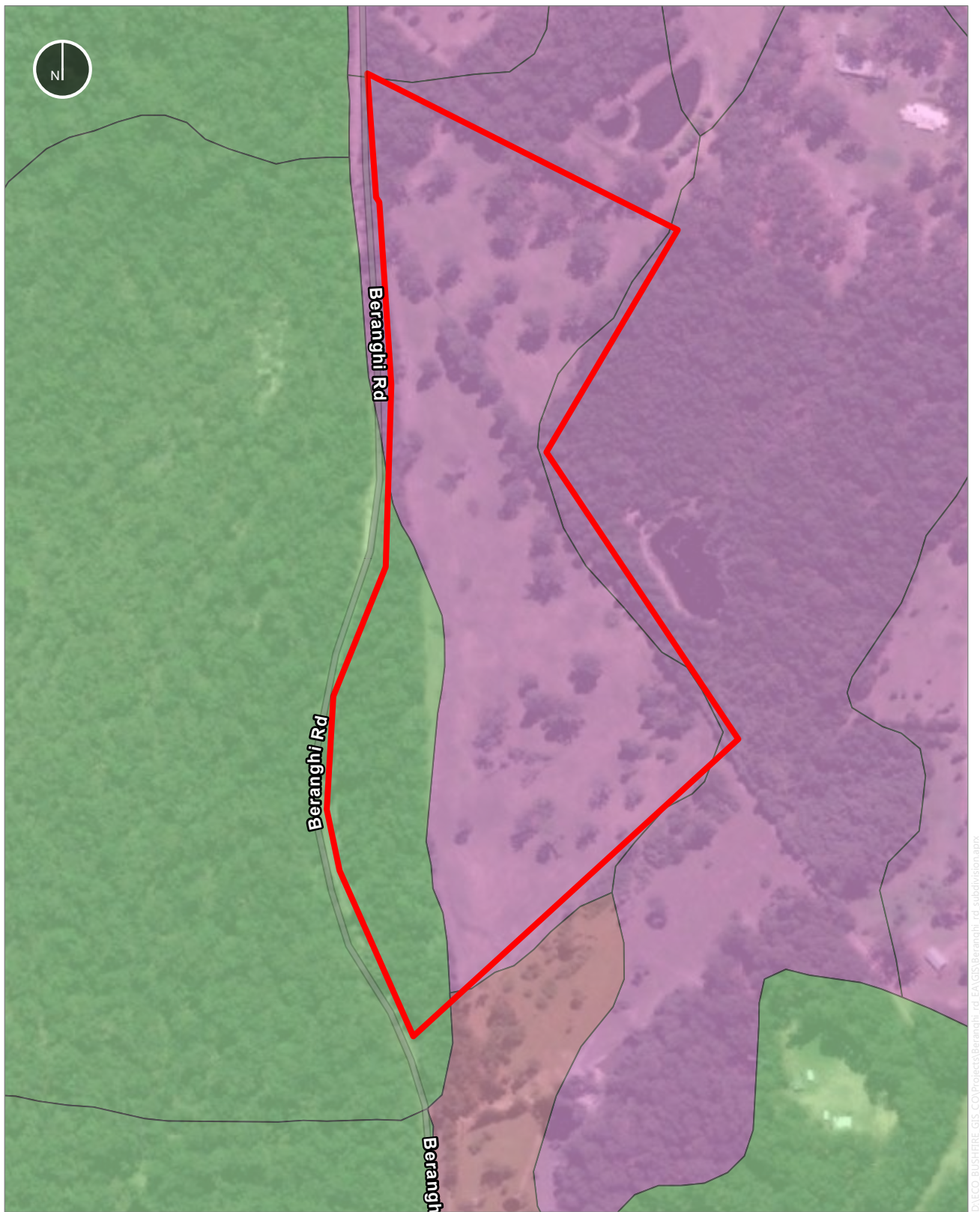
#### Clearing of Vegetation

- Clearing for development purposes must not proceed until the area has been inspected for the presence of Koalas and approval given in writing by a suitably qualified and/or accredited Koala specialist.

- Approval to proceed with the clearing of vegetation in accordance with this section is only valid for the day on which the inspection has been undertaken.
- The Koala specialist referred to above must remain on site during clearing of vegetation.

### **Protection of Koalas from Undue Disturbance**

The clearing of native vegetation and/or earthworks must be temporarily suspended within a range of 25m from any tree which is occupied by a Koala and must not resume until the Koala has moved from the tree of its own volition.



Data Sources: Wolfpeak 2021, Imagery Esri Community Maps Contributors,

#### Legend

- Subject site
- Secondary (Class B)
- Preferred Koala Habitat Label
- Unknown
- Primary

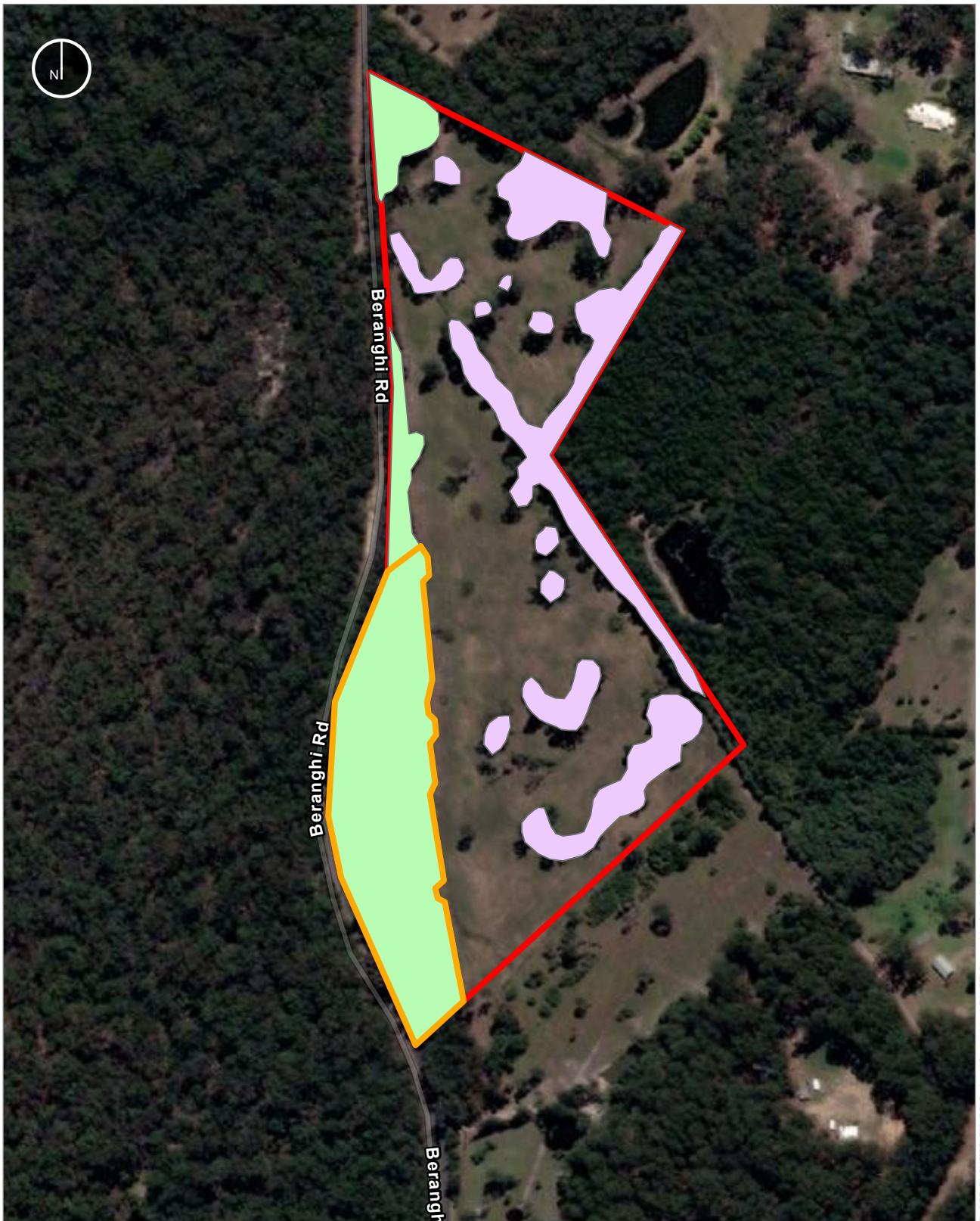
WGS 1984 Web Mercator Auxiliary Sphere

100 50 0 100  
Meters

**Figure 4** | Kempsey CKPOM mapping





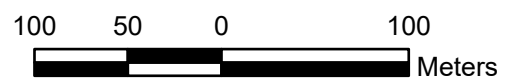


Data Sources: Wolfpeak 2021, Imagery Esri Community Maps Contributors,

#### Legend

- Subject site
- Secondary (Class B)
- Protective covenant
- Secondary (Class A)
- CKPOM

WGS 1984 Web Mercator Auxiliary Sphere



\*Note - all unmapped areas are classified as "other" habitat

**Figure 5** | Revised Kempsey CKPOM mapping



COMMERCIAL IN CONFIDENCE



## 6. TESTS OF SIGNIFICANCE

### 6.1 Biodiversity Conservation Act 2016 Test of Significance

#### 6.1.1 Assessment Pathways

Under the NSW BC Act and *Biodiversity Conservation Regulation 2017*, Part 4 developments under the *Environmental Planning & Assessment Act 1979* (other than State Significant Development) are assessed to determine if they trigger the Biodiversity Offset Scheme (BOS). For developments which trigger the BOS, a Biodiversity Development Assessment Report (BDAR) will be required. This assesses the impact using the Biodiversity Assessment Method (BAM) and determines the offset obligations required.

There are three triggers to the BOS:

- **Clearing Threshold** – Section 7.1 of the Biodiversity Regulation 2017 sets out a clearing threshold based on minimum Lot size.
- **Biodiversity Values Map** – The Biodiversity Values Map (BV map) provides mapping of areas of high biodiversity value such as riparian zones, critical habitat for threatened species and Core Koala Habitat. Any impact on a mapped area will trigger the BOS.
- **Significant Impact as determined by Test of Significance** - Developments which fall below the clearing threshold and do not impact on sensitive biodiversity values must be assessed under the new five-part test of significance. If the test determines that a significant impact is likely, a BDAR will be required.

#### 6.1.2 Assessment Pathway Determination

Although a very small area in the south of the subject site is mapped on the BV Map as part of a larger mapped area extending south of the site, this area will not be impacted by the proposed dwellings. The Biodiversity Offset and Threshold Tool Map is provided in Appendix C. The clearing threshold for the development site is 0.5ha. Analysis of the required clearing for the development has determined that less than 0.2ha of native vegetation removal is required which is below the threshold.

The development has been assessed via the Test of Significance in Section 6.1.3 below.

#### 6.1.3 Test of Significance

The Test of Significance is prescribed in Part 7, Division 1, Section 7.2 of the BC Act. The purpose of the Test of Significance is to determine whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats.

If it is determined that a development or activity will have a significant effect, a BDAR will be required if the proponent so elects, or if not, a Species Impact Statement must be prepared.

The Test of Significance has been prepared in consideration of the Threatened Species Test of Significance Guidelines (OEH 2018).

#### 6.1.4 Entities to be Assessed

The Glossy Black Cockatoo was recorded on site and automatically requires assessment. The potential occurrence assessments have determined that the following species are likely to occur in the study area and are subject to the Test of Significance:

- Glossy Black Cockatoo;
- Little Lorikeet;
- Masked Owl;
- Powerful Owl;
- Grey-headed Flying Fox;
- Koala;
- Yellow-bellied Sheath-tail-Bat;
- Large Bentwing Bat;
- Eastern Coastal Free-tailed Bat; and
- Little Bentwing Bat.

#### 6.1.5 Responses

- a) In the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,**

The proposal is for the subdivision of a rural property into two lots and the establishment of a building envelope, APZ and new driveway access on each lot. Areas of native and exotic grassland will require removal as well as regrowth trees for driveway access. One KFT (White Stringybark) occurs in proximity to the northern building envelope and is likely to require removal. No hollow-bearing trees or other habitat features require removal. Connectivity across the site will not be reduced. There is some potential for minor indirect impacts such as noise, edge effects and further weed invasion. Cats and dogs may also be kept on the new property, however this is not a new threat. Predation of wildlife could be increased if pets are not restrained to yards.

Given that no Koalas have been recorded on site, only one KFT will require removal and habitat will be retained on site to allow the persistence of Koala, the development is unlikely to have any significant adverse impacts on the local population.

A few regrowth *Allocasuarina littoralis* may require removal for the driveway access and will therefore be impacted by the proposal. No hollow bearing trees are to be removed and the majority of existing habitat for Glossy Black Cockatoo is to be retained and set aside under a protective covenant.

All other species are highly mobile and the majority of habitat on site will be retained to allow for continued use of the site.

As such, removal of this habitat would be highly unlikely to place a viable population of the subject species at risk of extinction.

- b) In the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:**

- (i) **Is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or**
- (ii) **Is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,**

No EECs are present on the subject site.

**c) In relation to the habitat of a threatened species or ecological community:**

- (i) **The extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and**
- (ii) **Whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and**
- (iii) **The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality.**

Habitat to be removed comprises approximately 0.2ha of native and exotic grassland, a patch of regrowth trees and one White Stringybark which is of limited importance to threatened species.

The site offers potential habitat for some threatened fauna species however given the extent of modification and limitations of the site habitats, these species would be reliant on adjacent and nearby habitats to fulfil their lifecycle requirements and the site would not be of any key importance.

**d) Whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),**

The proposed development will not directly or indirectly affect an area of outstanding biodiversity value.

**e) Whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.**

A Key Threatening Process (KTP) is defined as a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, populations or ecological communities.

The following table lists the relevant KTP's listed under the BC Act and whether the proposed activity is recognised a threatening process.

*Table 7: Key Threatening processes*

KTP	Extent/manner which proposal affects KTP	Mitigable?
Clearing of native vegetation	Loss of exotic and native grassland, regrowth trees and one White Stringybark tree.	No.

KTP	Extent/manner which proposal affects KTP	Mitigable?
Human induced climate change	Use of fossil fuels during civil and construction works.	No options available.
Invasion of native plant communities by exotic perennial grasses	Exotic grasses currently present.	N/A

### 6.1.6 Conclusion

The Test of Significance has determined that the proposed development would not result in a significant impact on threatened species or ecological communities. A BDAR or Species Impact Statement is not required for the development proposal.

## 6.2 EPBC Act MNES Assessment

### 6.2.1 Assessment Summary

The provisions of the EPBC Act require determination of whether the proposal has, will or is likely to have a significant impact on a MNES. These matters are listed and addressed in summary as follows:

*Table 8: MNES Assessment Summary*

Category	Relevance	Significant Impact Likely?
World Heritage Properties	The site is not listed as a World Heritage area	N/A
National Heritage Places	The site is not listed as a National Heritage Place	N/A
Wetlands of International Importance	The site does not contain important wetlands	N/A
Great Barrier Reef Marine Park	The proposal does not affect the Great Barrier Reef Marine Park.	N/A
Commonwealth Marine Environment (CME)	The site is not within the CME.	N/A
Listed Threatened Ecological Communities	No TEC's occur on the site.	No TEC is likely to be significantly affected by the proposal.

Category	Relevance	Significant Impact Likely?
Listed Threatened Species	The Koala and Grey-headed Flying Fox are considered potential occurrences in the study area.	No threatened species is likely to be significantly affected by the proposal given that only one tree is required to be removed and potential indirect threats would be minor.
Listed Migratory Species	Several migratory birds are considered potential occurrences in the study area.	No Migratory species is likely to be significantly affected by the proposal.
Nuclear Actions	The proposal is not a nuclear action	N/A
A water resource, in relation to coal seam gas development and large coal mining development	The proposal is not a mining development.	N/A
World Heritage Properties	The site is not listed as a World Heritage area	N/A
National Heritage Places	The site is not listed as a National Heritage Place	N/A
Wetlands of International Importance	The site does not contain important wetlands	N/A

## 7. CONCLUSION

This report has assessed the impact of the proposed subdivision and establishment of two development envelopes at Lot 1 DP842144, Beranghi Road. The proposed building footprints have been previously cleared and is vegetated with mixed native and exotic grassland, though one White Stringybark will be impacted. A patch of Scribbly Gum - Needlebark Stringybark heathy open forest occurs along the western edge, with the patch in the south west of the site to be set aside under a protective covenant to fulfill the requirements of Kempsey CKPOM. No hollow-bearing trees require removal.

No threatened flora species were detected in the study area, and none are considered potential occurrences. The site vegetation does not qualify as an EEC.

The Glossy Black Cockatoo was detected in the south west of the site via chewed *Allocasuarina littoralis* cones. No other threatened fauna species were detected on the site, though 10 threatened fauna species were considered to have potential to use the site as a small part of a larger range. Assessment of these species concluded they were unlikely to be significantly impacted by the proposal due to their ecology, the historical disturbance of the site and the mitigation measures proposed. Hence neither a referral to the DEECW or a BDAR is required.

A number of mitigation measures have been developed to reduce the impacts of the proposal on flora, fauna and ecological communities. These include vegetation and habitat avoidance, domestic pet restrictions, weed control and a protective covenant over the remnant patch of Scribbly Gum - Needlebark Stringybark heathy open forest in the south west of the site.

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## REFERENCES

- Dept. of Planning, Infrastructure and Environmental (2021). Bionet ([http://www.environment.nsw.gov.au/atlaspublicapp/UI Modules/ATLAS /AtlasSearch.aspx](http://www.environment.nsw.gov.au/atlaspublicapp/UI%20Modules/ATLAS%20AtlasSearch.aspx))
- DPIE (2021b). Threatened Biodiversity Data Collection. [www.threatenedspecies.environment.nsw.gov.au](http://www.threatenedspecies.environment.nsw.gov.au)
- Department of the Environment (2014). EPBC Act referral guidelines for the Vulnerable Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory). Department of the Environment.
- DAWE (2021a). Matters of National Environmental Significance Search Tool. <http://www.environment.gov.au/epbc/pmst/index.html>
- DAWE (2021b). Species Profiles and Threats (SPRAT) Database. <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>
- Eby, P. (2000a). A Case for Listing Grey-Headed Flying Fox (*Pteropus poliocephalus*) as Threatened in NSW Under IUCN Criterion A2. In: Proceedings of a Workshop to Assess the Status of the Grey-Headed Flying Fox in NSW. Richards, G. (Ed.). Australasian Bat Society, Sydney.
- Eby, P. (2002). Using NSW planning instruments to improve conservation and management of Grey-Headed Flying Fox (*Pteropus poliocephalus*) camps. In: Managing the Grey-Headed Flying Fox as a Threatened Species in NSW. Eby, P and Lunney, D. (Eds.). Royal Zoological Society of NSW, Sydney.
- Keith (2004). Ocean shores to desert dunes: the native vegetation of New South Wales and the ACT. NSW Department of Environment and Conservation, Sydney.
- Keith, D. and Scott, J. (2005). Native vegetation of coastal floodplains – a diagnosis of the major plant communities in New South Wales. *Pacific Conservation Biology*, 11: 81-104.
- NSWSC (2004b). Invasion of native plant communities by exotic perennial grasses as a Key Threatening Process under Schedule 3 of the TSCA 1995. [www.npws.nsw.gov.au](http://www.npws.nsw.gov.au).
- NSWSC (2001) Final Determination - Clearing of native vegetation” as a Key Threatening Process under Schedule 3 of the TSCA 1995. [www.npws.nsw.gov.au](http://www.npws.nsw.gov.au).
- NSWSC (2000). Human-caused climate change - key threatening process declaration. [www.npws.nsw.gov.au](http://www.npws.nsw.gov.au).
- NSW Government (1995). *State Environmental Planning Policy No 44 - Koala Habitat Protection*.
- Office of Environment and Heritage (2016). NSW Guide to Surveying Threatened Plants.
- Radle, A.L. (undated). The Effect of Noise on Wildlife: A Literature Review. University of Oregon, Eugene. Royal Botanical Gardens. Plantnet website ([www.plantnet.rbgsyd.nsw.gov.au/search](http://www.plantnet.rbgsyd.nsw.gov.au/search))
- Scotts, D. (2002) editor. Key Habitats and Corridors for Forest Fauna of North-East NSW: A regional landscape to focus conservation, planning, assessment and management. NSW NPWS, Hurstville.
- Troedson A.L. & Hashimoto T.R. (2008). Coastal Quaternary Geology – north and south coast of NSW. Geological Survey of New South Wales, Bulletin 34.

Troedson, A.L. and Hashimoto (2005). NSW coastal Quaternary geology data package. NSW Department of Primary Industries, Mineral Resources, Geological Survey of NSW. Prepared for NSW Coastal Council and managed by the NSW Dept of Planning, Infrastructure and Natural Resources.

## APPENDIX A – SITE VEGETATION LIST

Table 9: Vegetation list

Family	Scientific Name	Common Name
Acanthaceae	<i>Pseuderanthemum variabile</i>	Pastel Flower
Anthericaceae	<i>Thysanotus juncifolius</i>	
Apiaceae	<i>Centella asiatica</i>	Indian Pennywort
Apiaceae	<i>Hydrocotyle spp.</i>	
Apocynaceae	<i>Parsonsia straminea</i>	Common Silkpod
Araliaceae	<i>Polyscias sambucifolia</i>	Elderberry Panax
Asteraceae	<i>Hypochaeris radicata</i>	Catsear
Asteraceae	<i>Ozothamnus diosmifolius</i>	White Dogwood
Campanulaceae	<i>Lobelia purpurascens</i>	whiteroot
Casuarinaceae	<i>Allocasuarina littoralis</i>	Black She-Oak
Cyperaceae	<i>Fimbristylis dichotoma</i>	Common Fringe-sedge
Cyperaceae	<i>Gahnia clarkei</i>	Tall Saw-sedge
Cyperaceae	<i>Gahnia spp.</i>	
Cyperaceae	<i>Lepidosperma laterale</i>	Variable Sword-sedge
Cyperaceae	<i>Schoenus apogon</i>	Fluke Bogrush
Dennstaedtiaceae	<i>Pteridium esculentum</i>	Bracken
Droseraceae	<i>Drosera spp.</i>	
Ericaceae	<i>Epacris pulchella</i>	Wallum Heath
Fabaceae (Faboideae)	<i>Dillwynia retorta</i>	
Fabaceae (Faboideae)	<i>Glycine clandestina</i>	Twining glycine
Fabaceae (Faboideae)	<i>Mirbelia speciosa</i>	
Fabaceae (Faboideae)	<i>Pultenaea myrtoidea</i>	
Fabaceae (Faboideae)	<i>Pultenaea retusa</i>	
Fabaceae (Mimosoideae)	<i>Acacia linifolia</i>	White Wattle
Fabaceae (Mimosoideae)	<i>Acacia terminalis</i>	Sunshine Wattle
Fabaceae (Mimosoideae)	<i>Acacia floribunda</i>	White Sally Wattle
Goodeniaceae	<i>Goodenia hederacea</i>	Forest Goodenia
Haloragaceae	<i>Gonocarpus micranthus</i>	
Haloragaceae	<i>Gonocarpus teucroides</i>	Germander Raspwort
Iridaceae	<i>Patersonia sericea</i>	Silky Purple-Flag
Lauraceae	<i>Cassytha pubescens</i>	Downy Dodder-laurel
Lomandraceae	<i>Lomandra longifolia</i>	Spiny-headed Mat-rush
Luzuriagaceae	<i>Eustrephus latifolius</i>	Wombat Berry
Myrtaceae	<i>Callistemon salignus</i>	Willow Bottlebrush

Myrtaceae	<i>Corymbia gummifera</i>	Red Bloodwood
Myrtaceae	<i>Eucalyptus globoidea</i>	White Stringybark
Myrtaceae	<i>Eucalyptus microcorys</i>	Tallowwood
Myrtaceae	<i>Eucalyptus pilularis</i>	Blackbutt
Myrtaceae	<i>Eucalyptus planchoniana</i>	Bastard Tallowwood
Myrtaceae	<i>Eucalyptus seeana</i>	Narrow-leaved Red Gum
Myrtaceae	<i>Eucalyptus signata</i>	Scribbly Gum
Myrtaceae	<i>Leptospermum polygalifolium</i>	Tantoon
Myrtaceae	<i>Leptospermum trinervium</i>	Slender Tea-tree
Myrtaceae	<i>Melaleuca nodosa</i>	
Myrtaceae	<i>Melaleuca quinquenervia</i>	Broad-leaved Paperbark
Myrtaceae	<i>Melaleuca sieberi</i>	
Myrtaceae	<i>Sannantha angusta</i>	
Oleaceae	<i>Notelaea longifolia</i>	Large Mock-olive
Phormiaceae	<i>Dianella caerulea</i>	Blue Flax-lily
Phyllanthaceae	<i>Glochidion ferdinandi</i>	Cheese Tree
Phyllanthaceae	<i>Phyllanthus hirtellus</i>	Thyme Spurge
Pittosporaceae	<i>Pittosporum undulatum</i>	Sweet Pittosporum
Poaceae	<i>Rytidosperma pallidum</i>	Silvertop Wallaby Grass
Poaceae	<i>Andropogon virginicus</i>	Whisky Grass
Poaceae	<i>Aristida vagans</i>	Threeawn Speargrass
Poaceae	<i>Entolasia marginata</i>	Bordered Panic
Poaceae	<i>Entolasia stricta</i>	Wiry Panic
Poaceae	<i>Eragrostis brownii</i>	Brown's Lovegrass
Poaceae	<i>Imperata cylindrica</i>	Blady Grass
Poaceae	<i>Setaria pumila</i>	Pale Pigeon Grass
Poaceae	<i>Themeda triandra</i>	
Proteaceae	<i>Persoonia lanceolata</i>	Lance Leaf Geebung
Proteaceae	<i>Persoonia levis</i>	Broad-leaved Geebung
Rubiaceae	<i>Opercularia diphylla</i>	Stinkweed
Rutaceae	<i>Boronia polygalifolia</i>	Dwarf Boronia
Santalaceae	<i>Exocarpos cupressiformis</i>	Cherry Ballart
Solanaceae	<i>Solanum mauritianum</i>	Wild Tobacco Bush
Stylidiaceae	<i>Stylidium graminifolium</i>	Grass Triggerplant
Thymelaeaceae	<i>Pimelea linifolia</i>	Slender Rice Flower
Verbenaceae	<i>Lantana camara</i>	Lantana
Vitaceae	<i>Cissus hypoglauca</i>	Giant Water Vine
Xanthorrhoeaceae	<i>Xanthorrhoea spp.</i>	

## APPENDIX B – POTENTIAL OCCURRENCE ASSESSMENT

### FLORA SPECIES

Species	BC Act	EPBC Act	No. of Records	Link to Profile	Likelihood of Occurrence	Significance Assessment Required?
<i>Maundia triglochinos</i>	V	-	1	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10511">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10511</a>	Occurs in freshwater wetland. No suitable habitat on site. No.	No
<b>Magenta Lilly Pilly</b> <i>Syzygium paniculatum</i>	E	V	0	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10794">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10794</a>	Occurs along the coastal strip. No suitable habitat on site. Unlikely.	No
<b>Scented Acronychia</b> <i>Acronychia littoralis</i>	E	E	0	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10030">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10030</a>	Occurs in littoral rainforest and margins. No suitable habitat on site. Unlikely.	No
<i>Euphrasia arguta</i>	CE	CE	0	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20165">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20165</a>	No local records and the site does not provide suitable habitat. Unlikely.	No
<b>Biconvex Paperbark</b> <i>Melaleuca biconvexa</i>	V	V	0	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10514">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10514</a>	Species occurs in creek lines and low-lying areas on alluvial soils. No suitable habitat on site. Unlikely.	No
<b>Milky Silkpod</b> <i>Parsonsia dorrigoensis</i>	V	V	0	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10587">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10587</a>	Found in subtropical and warm-temperate rainforest and margins. The site does not contain suitable habitat for the species.	No
<b>Austral Toadflax</b> <i>Thesium australe</i>	V	V	0	<a href="https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=15202">https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=15202</a>	Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast. Often found in association with Kangaroo Grass ( <i>Themeda australis</i> ). Habitats of this type do not occur within the subject site. Not recorded during site survey and no local records. Unlikely to occur.	No
<b>Cryptic Forest Twiner</b> <i>Tylophora woollsii</i>	E	E	0	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10816">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10816</a>	This species grows in moist eucalypt forest, moist sites in dry eucalypt forest and rainforest margins. No suitable habitat on site. Unlikely.	No



Species	BC Act	EPBC Act	No. of Records	Link to Profile	Likelihood of Occurrence	Significance Assessment Required?
<b>Slender Marsdenia</b> <i>Marsdenia longiloba</i>	E	V	0	<a href="https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=2794">https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=2794</a>	Subtropical and warm temperate rainforest, lowland moist or open eucalypt forest adjoining rainforest. Associated species include <i>Eucalyptus crebra</i> , <i>E. microcorys</i> , <i>E. acmenoides</i> , <i>E. saligna</i> , <i>E. propinqua</i> , <i>Corymbia intermedia</i> and <i>Lophostemon confertus</i> . Not recorded within the subject site and no suitable habitat present. Unlikely.	No
<b>Hairy-joint Grass</b> <i>Arthraxon hispidus</i>	V	V	0	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10066">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10066</a>	This species prefers moist rainforest edges and wet Eucalypt forest near swamps or creeks. Habitats of this type does not occur within the subject site. Species not recorded during site surveys and no local records. Unlikely to occur.	No
<b>Leafless Tongue-orchid</b> <i>Cryptostylis hunteriana</i>		V	0	<a href="https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=19533">https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=19533</a>	This species is often found in association with the Large Tongue Orchid ( <i>C. subulata</i> ) and the Tartan Tongue Orchid ( <i>C. erecta</i> ). These species were not detected during surveys. No suitable habitat within the site. Unlikely to occur.	No
<b>Lesser Swamp-orchid</b> <i>Phaius australis</i>		E	0	<a href="https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=5872">https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=5872</a>	This species is limited to areas of swampy grassland and swampy forest. No suitable habitat occurs on the subject site. Not recorded during site surveys and no local records. Unlikely to occur.	No
<b>Macadamia Nut</b> <i>Macadamia integrifolia</i>	-	V	0	<a href="http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=7326">http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=7326</a>	This species is generally found in Queensland with the subject site occurring in the southern extent of this species' known distribution. Not recorded during surveys and no local records of this species. Unlikely to occur within site.	No
<b>Scrub Turpentine</b> <i>Rhodamnia rubescens</i>	CE	CE	0	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20341">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20341</a>	Found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest. No suitable habitat on site. Unlikely.	No
<b>Native Guava</b> <i>Rhodomyrtus psidioides</i>	CE	CE	0	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20342">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20342</a>	This pioneer species occurs in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest often near creeks. Habitats within the subject site are not suitable for this species. Not found during survey. Unlikely.	No

Species	BC Act	EPBC Act	No. of Records	Link to Profile	Likelihood of Occurrence	Significance Assessment Required?
<b>Tall Knotweed</b> <i>Persicaria elatior</i>	-	V	0	<a href="https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=5831">https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=5831</a>	This species occurs in coastal swampy areas, along watercourses and disturbed areas. Marginal areas of suitable habitat occur within the subject site in proximity to the dam and creek. Species not detected during site survey and no local records occur. Unlikely to occur	No
<b>Trailing Woodruff</b> <i>Asperula asthenes</i>	V	V	0	<a href="http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10316">http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10316</a>	This species is found in damp sites, often along freshwater streams and drainages. No suitable habitat occurs on site, this species was not detected during surveys. Unlikely to occur.	No
<b>White-flowered Wax Plant</b> <i>Cynanchum elegans</i>	E	E	0	<a href="http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10196">http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10196</a>	This species predominately occurs in dry rainforest and littoral rainforest communities. Habitats of this type do not occur within the subject site and no local records occur. Unlikely to occur.	No

Key: Critically Endangered (CE), Endangered E, Vulnerable (V).

## FAUNA SPECIES

Species	BC Act	EPBC Act	No. of Records	Link to Profile	Likelihood of Occurrence	Significance Assessment Required?
<b>Amphibia</b>						
<b>Green-thighed Frog</b> <i>Litoria brevipalmata</i>	V	-	5	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10485">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10485</a>	Green-thighed Frogs occur in a range of habitats from rainforest and moist eucalypt forest to dry eucalypt forest and heath, typically in areas where surface water gathers after rain. It prefers wetter forests in the south of its range, but extends into drier forests in northern NSW and southern Queensland. No suitable habitat on the site. Unlikely.	No
<b>Green &amp; Golden Bell Frog</b> <i>Litoria aurea</i>	E	V	0	<a href="http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10483">http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10483</a>	This species inhabits permanent waterbodies with a preference for those which are still. The dam may provide marginal suitable quality habitat for this species within the subject site, however no local	No

Species	BC Act	EPBC Act	No. of Records	Link to Profile	Likelihood of Occurrence	Significance Assessment Required?
					records occur and the species is highly unlikely to occur.	
<b>Stuttering Frog</b> <i>Mixophyes balbus</i>	E	V	0	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10536">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10536</a>	Found in rainforest and wet, tall open forest. Outside the breeding season adults prefer deep leaf litter and thick understorey forest floor vegetation. Habitats of this type do not occur within the subject site. No local records. Unlikely to occur.	No
<b>Giant Barred Frog</b> <i>Mixophyes iteratus</i>	E	V	0	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10538">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10538</a>	Giant Barred Frogs are found along freshwater streams with permanent or semi-permanent water and favours riparian habitats with deep leaf litter. Habitats of this type do not occur within the subject site. One local records. Unlikely to occur.	No
<b>Aves</b>						
<b>Freckled Duck</b> <i>Stictonetta naevosa</i>	V	-	1	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10771">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10771</a>	Prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds. No suitable habitat on site. Unlikely.	No
<b>Comb-crested Jacana</b> <i>Irediparra gallinacea</i>	V	-	5	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10435">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10435</a>	Inhabit permanent freshwater wetlands, either still or slow-flowing, with a good surface cover of floating vegetation, especially water-lilies, or fringing and aquatic vegetation. No suitable habitat on site. Unlikely.	No
<b>Brolga</b> <i>Grus rubicunda</i>	V	-	1	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10382">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10382</a>	Often feed in dry grassland or ploughed paddocks or even desert claypans, they are dependent on wetlands too, especially shallow swamps, where they will forage with their head entirely submerged. No suitable habitat on site. Unlikely.	No
<b>Australasian Bittern</b> <i>Botaurus poiciloptilus</i>	E	E	0	<a href="http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10105">http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10105</a>	An estuarine or freshwater species found in areas of dense sedges, reeds and rushes. Suitable habitat for this species is not present on site. Unlikely to occur.	No

Species	BC Act	EPBC Act	No. of Records	Link to Profile	Likelihood of Occurrence	Significance Assessment Required?
<b>Red Knot</b> <i>Calidris canutus</i>	E	-	0	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20310">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20310</a>	Mainly occurs in small numbers on intertidal mudflats, estuaries, bays, inlets, lagoons, harbours and sandflats and sandy beaches of sheltered coasts. No suitable habitat on site. Unlikely.	No
<b>Black-necked Stork</b> <i>Ephippiorhynchus asiaticus</i>	E	-	28	<a href="http://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=20111">http://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=20111</a>	This species is found in close proximity to a water source. Generally inhabiting lakes, swamps, mudflats and mangroves. No suitable habitat within the site – unlikely.	No
<b>Eastern Osprey</b> <i>Pandion cristatus</i>	V	-	1	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10585">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10585</a>	This species is found in habitats with large, open bodies of water, including large rivers, oceans, and lakes. Breeding habitat for this species typically involves nests in large emergent eucalypts and are always in close proximity to foraging habitat. Waterbodies within the subject site are unlikely to provide suitable foraging habitat and therefore nesting habitat for this species. Unlikely to occur.	No
<b>Glossy Black Cockatoo</b> <i>Calyptorhynchus lathami</i>	V	-	8	<a href="http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10140">http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10140</a>	This species occurs in woodlands and dry sclerophyll forest. <i>Allocasuarinas</i> are required as a food resource. <i>Allocasuarina littoralis</i> occurs in relatively high densities along the western edge of the site and the species was recorded through detection of chewed cones. Unlikely.	Yes
<b>Square-tailed Kite</b> <i>Lophoictinia isura</i>	V	-	2	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10495">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10495</a>	Found in a variety of timbered habitats including dry woodlands and open forests. Shows a particular preference for timbered watercourses. Site is disturbed, with no suitable nesting habitat and marginal forage habitat. Unlikely.	No
<b>Little Eagle</b> <i>Hieraaetus morphnoides</i>	V	-	3	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20131">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20131</a>	Occupies open eucalypt forest, woodland or open woodland. Sheoak or Acacia woodlands and riparian woodlands of interior NSW are also used. No suitable nesting habitat on site and very marginal forage habitat. Unlikely.	No
<b>Grey Falcon</b> <i>Falco hypoleucos</i>	E	V	0	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10330">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10330</a>	An inland species that is restricted to semi-arid regions and not known to occur as far east as the subject site. No local records. Unlikely to occur.	No

Species	BC Act	EPBC Act	No. of Records	Link to Profile	Likelihood of Occurrence	Significance Assessment Required?
<b>Little Lorikeet</b> <i>Glossopsitta pusilla</i>	V	-	3	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20111">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20111</a>	This species forages primarily in the canopy of open <i>Eucalyptus</i> forest and woodland. Small extent of suitable foraging habitats on site. Low chance of occurrence.	Yes
<b>Masked Owl</b> <i>Tyto novaehollandiae</i>	V	-	4	<a href="http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10820">http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10820</a>	This species occurs in forests and woodlands with a sparse understory. It requires tree hollows for nesting and an abundance and diversity of prey species. Prey species are likely scarce across the study area, however there is some potential to forage over the site as part of a larger range. Low chance of occurrence.	Yes
<b>Painted Honeyeater</b> <i>Grantiella picta</i>	V	V	0	<a href="http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=470">http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=470</a>	This species inhabits mistletoe-infested forest and woodland communities. This habitat is rare within the subject site and this species has no local records. Unlikely to occur.	No
<b>Powerful Owl</b> <i>Ninox strenua</i>	V	-	4	<a href="http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10562">http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10562</a>	This species occurs in sclerophyll forests and requires an abundance and diversity of prey species. Powerful Owls utilise very large hollows for nesting. Prey species are likely scarce across the study area, though the species may use the site as part of a larger foraging home range. Hollows within the site are not suitable for this species. Possible.	Yes
<b>Red Goshawk</b> <i>Erythrotriorchis radiatus</i>	CE	V	0	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10279">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10279</a>	This species is not known or predicted to occur as far south as Port Macquarie. In NSW, they are recorded in riparian habitats and are known to prefer mixed subtropical rainforest, riparian Eucalyptus forests of coastal rivers and Melaleuca swamp forests. Marginal habitats of this type occur within the subject site as disturbed, riparian eucalypt habitat. No local records. Unlikely to occur.	No
<b>Regent Honeyeater</b> <i>Anthochaera phrygia</i>	CE	CE	0	<a href="https://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10841">https://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10841</a>	The species inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Oak. Foraging habitats on the site is unlikely to attract this species. No local records. Unlikely to occur.	No



Species	BC Act	EPBC Act	No. of Records	Link to Profile	Likelihood of Occurrence	Significance Assessment Required?
<b>Coxens Fig Parrot</b> <i>Cyclopsitta diophthalma coxeni</i>	CE	E	0	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10195">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10195</a>	Usually recorded from drier rainforests and adjacent wetter eucalypt forest but rarely seen due to its small size and cryptic habits. Also found in the wetter lowland rainforests that are now largely cleared in NSW. No suitable habitat on site. Unlikely.	No
<b>Swift Parrot</b> <i>Lathamus discolor</i>	E	CE	0	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10455">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10455</a>	On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. The minor extent of potential foraging resources on the site is unlikely to attract the species. No local records. Unlikely to occur.	No
<b>Varied Sittella</b> <i>Daphoenositta chrysoptera</i>	V	-	2	<a href="http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20135">http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20135</a>	This species forages in trees with rough bark or on dead trees. It is known to occur in a range of vegetation types excluding deserts and grassland. Habitat within the subject site is likely to be too exposed and fragmented. Unlikely to occur.	No
<b>White-bellied Sea Eagle</b> <i>Haliaeetus leucogaster</i>	V	M	8	<a href="http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20322">http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20322</a>	This species is found in habitats with large, open bodies of water, including large rivers, oceans, and lakes. Breeding habitat for this species typically involves nests in large emergent eucalypts and are always in close proximity to foraging habitat. Suitable foraging habitats and therefore nesting habitats do not occur within the subject site. Unlikely to occur in the site.	No
<b>Dusky Woodswallow</b> <i>Atamus cyanopterus cyanopterus</i>	V	-	4	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20303">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20303</a>	Primarily inhabit dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and ground-cover of grasses or sedges and fallen woody debris. It has also been recorded in shrublands, heathlands and very occasionally in moist forest or rainforest. Also found in farmland, usually at the edges of forest or woodland. Few records of the species. Unlikely to occur.	No

Species	BC Act	EPBC Act	No. of Records	Link to Profile	Likelihood of Occurrence	Significance Assessment Required?
<b>White-throated Needletail</b> <i>Hirundapus caudacutus</i>	-	V, M	25	<a href="https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=682">https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=682</a>	This species is almost exclusively aerial, it is migratory and does not breed in Australia. While the subject site may contain a small area of suitable foraging habitat for this species, it is only likely to fly over the site rather than utilise the site for foraging or resting. Low chance of occurrence.	No
<b>Mammalia</b>						
<b>Brush-tailed Phascogale</b> <i>Phascogale tapoatafa</i>	V	-	1	<a href="https://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10613">https://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10613</a>	Generally found in areas of dry sclerophyll open forest containing sparse groundcover. These habitats do not occur within the subject site. The site is considered too disturbed for this species.	No
<b>Greater Glider</b> <i>Petauroides volans</i>	-	V	0	<a href="http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=254">http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=254</a>	The Greater Glider is largely restricted to eucalypt forests and woodlands, favouring forests with a diversity of eucalypt species, due to seasonal variation in its preferred tree species. This species requires hollow-bearing trees for denning and breeding. Site habitat is too disturbed and vegetation too sparse for this species. Unlikely to occur.	No
<b>Grey-headed Flying Fox</b> <i>Pteropus poliocephalus</i>	V	V	18	<a href="http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10697">http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10697</a>	A nomadic species which is dependent on winter flowering eucalypts. Potential foraging resources for this species occur within the subject site however no breeding or roosting camps for this species were located within the subject site. Moderate to high potential to occur foraging as part of larger home range.	Yes
<b>Koala</b> <i>Phascolarctos cinereus</i>	E	E	92	<a href="https://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10616">https://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10616</a>	The Koala was detected via scats and a recent records of Koala occurs at a similar location within the conservation lot. Several local records for the Koala occur and there is potential habitat for the species on the subject site. Fair potential to occur.	Yes
<b>Yellow-bellied Sheathtail-Bat</b> <i>Saccolaimus flaviventris</i>	V	-	4	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10741">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10741</a>	Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. Forages in most habitats across its very wide range, with and without trees;	Yes

Species	BC Act	EPBC Act	No. of Records	Link to Profile	Likelihood of Occurrence	Significance Assessment Required?
					appears to defend an aerial territory. The site offers some marginally suitable habitat. Possible.	
<b>Large Bentwing Bat</b> <i>Miniopterus schreibersii oceanensis</i>	V	-	5	<a href="http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10534">http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10534</a>	The primary roosting habitat for this species are caves and subsequently other man-made structures. They forage in well forested areas. Site likely to offer a small area of suitable foraging habitat. Low chance of occurrence.	<b>Yes</b>
<b>Eastern False Pipistrelle</b> <i>Falsistrellus tasmaniensis</i>	V	-	2	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10331">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10331</a>	Prefers moist habitats, with trees taller than 20m. Generally roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings. No suitable habitat. Unlikely.	No
<b>Eastern Coastal Free-tailed Bat</b> <i>Micronomus norfolkensis</i>	V	-	3	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10544">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10544</a>	Occur in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range. Roost mainly in tree hollows but will also roost under bark or in man-made structures. Site likely to offer a small area of suitable foraging habitat. Low chance of occurrence.	<b>Yes</b>
<b>Large-eared Pied Bat</b> <i>Chalinolobus dwyeri</i>	-	V	0	<a href="https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=183">https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=183</a>	This species roosts in sandstone cliffs and woodland valley habitat and prefers box gum, river and rainforest habitats for foraging. Habitats of this type do not occur within the subject site. No local records. Unlikely to occur.	No
<b>Little Bentwing Bat</b> <i>Miniopterus australis</i>	V	-	6	<a href="https://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10533">https://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10533</a>	This species inhabits a range of community types however is most common in well-forested areas, often found roosting in caves, old mines and old buildings. Site likely to offer a small area of suitable foraging habitat. Low chance of occurrence.	<b>Yes</b>
<b>Greater Broad-nosed Bat</b> <i>Scoteanax rueppellii</i>	V	-	4	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10748">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10748</a>	Utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest. Although this species usually roosts in tree hollows, it has also been found in buildings. No suitable habitat. Unlikely.	No

Species	BC Act	EPBC Act	No. of Records	Link to Profile	Likelihood of Occurrence	Significance Assessment Required?
<b>Eastern Cave Bat</b> <i>Vespadelus troughtoni</i>	V	-	1	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10829">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10829</a>	A cave-roosting species that is usually found in dry open forest and woodland, near cliffs or rocky overhangs; has been recorded roosting in disused mine workings, occasionally in colonies of up to 500 individuals. No suitable roosting, few records and marginal forage habitat. Unlikely.	No
<b>Long-nosed Potoroo</b> <i>Potorous tridactylus tridactylus</i>	V	V	0	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10662">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10662</a>	This species inhabits coastal heaths and dry and wet sclerophyll forests. Dense understorey with occasional open areas is an essential part of habitat. Habitats of this type do not occur within the subject site. No local records. Unlikely to occur.	No
<b>New Holland Mouse</b> <i>Pseudomys novaehollandiae</i>	-	V	0	<a href="https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=96">https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=96</a>	This species requires heathlands with a dense understorey. Suitable habitat for this species does not occur within the subject site. No local records. Unlikely to occur.	No
<b>Southern Myotis</b> <i>Myotis macropus</i>	V	-	2	<a href="https://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10549">https://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10549</a>	This species requires tree hollows, caves, tunnels or dense foliage for roosting. Forages along creek lines and other water bodies and has a preference for riparian habitat. No suitable habitat on the site. Unlikely.	No
<b>Spotted-Tailed Quoll</b> <i>Dasyurus maculatus</i>	V	E	4	<a href="http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10207">http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10207</a>	This species prefers forest habitats with dense vegetation. They require forest with suitable den sites such as rock crevices, caves, hollow logs, burrows and tree hollows. Suitable habitat for this species does not occur on site. Unlikely to occur.	No
<b>Squirrel Glider</b> <i>Petaurus norfolcensis</i>	V	-	1	<a href="http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10604">http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10604</a>	The Squirrel Glider has a preference for wet and dry sclerophyll forests and woodlands. This species requires abundant tree hollows for refuge and nest sites. Site habitat is unsuitable and likely too disturbed. Unlikely to occur.	No
<b>Yellow-bellied Glider</b> <i>Petaurus australis</i>	V	-	5	<a href="http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10601">http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10601</a>	Occurs in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soil. Feeds primarily on plant and insect exudates (nectar, sap, honeydew, manna) with pollen and insects providing protein. Den, often in family groups, in hollows of large trees.	No

Species	BC Act	EPBC Act	No. of Records	Link to Profile	Likelihood of Occurrence	Significance Assessment Required?
					Unlikely to occur within site due to lack of suitable vegetation and denning hollows.	
<b>Reptiles</b>						
<b>Three-toed Snake-tooth Skink</b> <i>Coeranoscincus reticulatus</i>	V	V	0	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10172">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10172</a>	Rainforest and occasionally moist eucalypt forest, on loamy or sandy soils. The Three-toed Snake-tooth Skink lives in loose soil, leaf litter and rotting logs, and feeds on earthworms and beetle grubs. No suitable habitat on site. Unlikely.	No
<b>Insects</b>						
<b>Australian Fritillary</b> <i>Argynnis hyperbius inconstans</i>	E	CE	0	<a href="https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10064">https://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10064</a>	The Australian Fritillary is found in open swampy coastal habitat. Eggs are laid singly on a leaf of the caterpillar's food plant, the Arrowhead Violet ( <i>Viola betonicifolia</i> ). No suitable habitat. Unlikely.	No
<b>Listed Migratory Terrestrial Species</b>						
<b>Oriental Cuckoo</b> <i>Cuculus optatus</i>	-	M	0	<a href="http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=86651">http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=86651</a>	Species forages solitarily in upper and middle levels of boreal forest and mixed woodlands. No suitable habitat occurs on the subject site. No local records. Unlikely to occur.	No
<b>Black-faced Monarch</b> <i>Monarcha melanopsis</i>	-	M	0	<a href="http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=609">http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=609</a>	The Black-faced Monarch mainly occurs in rainforest ecosystems. The subject site contains marginal habitats suitable for this species. Habitats are more likely to be utilised on a transient basis. Low likelihood of occurrence.	No
<b>Spectacled Monarch</b> <i>Monarcha trivirgatus</i>	-	M	0	<a href="http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=83946">http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=83946</a>	Usually occurs in dense rainforests and moist eucalypt forests of eastern and north-eastern Australia, the Spectacled Monarch sometimes also inhabits mangroves and other densely vegetated habitats. The site contains minimal potential habitats for this species and there are no local records. Unlikely to occur.	No

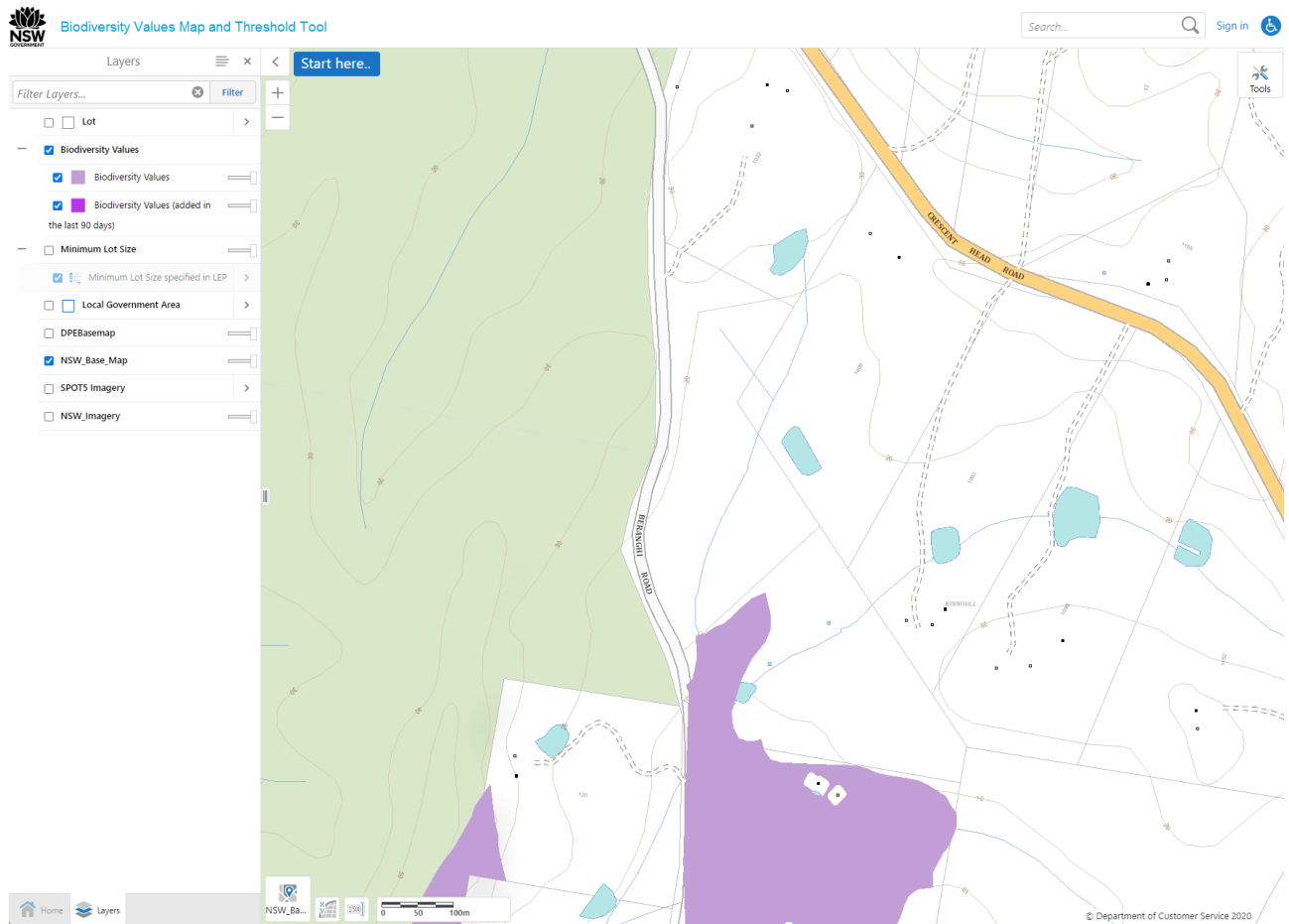


Species	BC Act	EPBC Act	No. of Records	Link to Profile	Likelihood of Occurrence	Significance Assessment Required?
<b>Satin Flycatcher</b> <i>Myiagra cyanoleuca</i>	-	M	0	<a href="http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=612">http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=612</a>	Satin Flycatchers inhabit heavily vegetated gullies in eucalypt-dominated forests and taller woodlands, and on migration, occur in coastal forests, woodlands, mangroves and drier woodlands and open forests. The site contains marginal potential habitat for this species however there are no local records. Low likelihood of occurrence.	No
<b>Rufous Fantail</b> <i>Rhipidura rufifrons</i>	-	M	0	<a href="http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=612">http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=612</a>	In east and south-east Australia, the Rufous Fantail mainly inhabits wet sclerophyll forests, often in gullies dominated by eucalypts usually with a dense shrubby understorey often including ferns. The site contains potential habitat for this species however understorey is likely too sparse. No local records. Low likelihood of occurrence for this species to utilise habitats on a transient basis.	No
<b>Fork-tailed Swift</b> <i>Apus pacificus</i>	-	M	2	<a href="https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=678">https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxonid=678</a>	The Fork-tailed Swift is almost exclusively aerial they mostly occur over inland plains but sometimes above foothills or in coastal areas. This species does not breed in Australia. The subject site provides an insignificant area of potential foraging habitat for this species. Only two local records. Unlikely to occur.	No

Key: Critically Endangered (CE), Endangered (E), Vulnerable (V), Migratory (M).

NOTE: Shorebirds and species restricted to marine environments have been excluded from this assessment as these habitats are not present within the study area.

## APPENDIX C - BOSET REPORT



## **APPENDIX D – EPBC ACT MNES SEARCH RESULTS**



# EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 13-Sep-2022

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

# Summary

## Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	None
<a href="#">Wetlands of International Importance (Ramsar</a>	None
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	5
<a href="#">Listed Threatened Species:</a>	82
<a href="#">Listed Migratory Species:</a>	57

## Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

<a href="#">Commonwealth Lands:</a>	6
<a href="#">Commonwealth Heritage Places:</a>	1
<a href="#">Listed Marine Species:</a>	77
<a href="#">Whales and Other Cetaceans:</a>	12
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Australian Marine Parks:</a>	None
<a href="#">Habitat Critical to the Survival of Marine Turtles:</a>	None

## Extra Information

This part of the report provides information that may also be relevant to the area you have

<a href="#">State and Territory Reserves:</a>	5
<a href="#">Regional Forest Agreements:</a>	1
<a href="#">Nationally Important Wetlands:</a>	2
<a href="#">EPBC Act Referrals:</a>	5
<a href="#">Key Ecological Features (Marine):</a>	None
<a href="#">Biologically Important Areas:</a>	3
<a href="#">Bioregional Assessments:</a>	None
<a href="#">Geological and Bioregional Assessments:</a>	None



# Details

## Matters of National Environmental Significance

Listed Threatened Ecological Communities

[ Resource Information ]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community</a>	Endangered	Community likely to occur within area	In feature area
<a href="#">Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland</a>	Endangered	Community likely to occur within area	In feature area
<a href="#">Littoral Rainforest and Coastal Vine Thickets of Eastern Australia</a>	Critically Endangered	Community likely to occur within area	In buffer area only
<a href="#">Lowland Rainforest of Subtropical Australia</a>	Critically Endangered	Community likely to occur within area	In feature area
<a href="#">Subtropical and Temperate Coastal Saltmarsh</a>	Vulnerable	Community likely to occur within area	In buffer area only

Listed Threatened Species

[ Resource Information ]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.

Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
<a href="#">Anthochaera phrygia</a> Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Botaurus poiciloptilus</a> Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Calyptorhynchus lathami lathami</a> South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Cyclopsitta diophthalma coxeni</a> Coxen's Fig-Parrot [59714]	Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Diomedea antipodensis</a> Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Diomedea antipodensis gibsoni</a> Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Erythroriorchis radiatus</a> Red Goshawk [942]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Falco hypoleucos</a> Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Fregetta grallaria grallaria</a> White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Grantiella picta</a> Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Lathamus discolor</a> Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Limosa lapponica baueri</a> Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Pachyptila turtur subantarctica</a> Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Phoebetria fusca</a> Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Pterodroma leucoptera leucoptera</a> Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Pterodroma neglecta neglecta</a> Kermadec Petrel (western) [64450]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In buffer area only
<a href="#">Rostratula australis</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Sternula nereis nereis</a> Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Thalassarche bulleri</a> Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche bulleri platei</a> Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche carteri</a> Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Thalassarche cauta</a> Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche eremita</a> Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Thalassarche salvini</a> Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In buffer area only
FISH			
<a href="#">Epinephelus daemeli</a> Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Hippocampus whitei</a> White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Serirolella brama</a> Blue Warehou [69374]	Conservation Dependent	Species or species habitat known to occur within area	In buffer area only
<a href="#">Thunnus maccoyii</a> Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only
FROG			
<a href="#">Litoria aurea</a> Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Mixophyes balbus</a> Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Mixophyes iteratus</a> Giant Barred Frog, Southern Barred Frog [1944]	Vulnerable	Species or species habitat known to occur within area	In feature area
INSECT			
<a href="#">Argynnis hyperbius inconstans</a> Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area	In feature area
MAMMAL			
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only



Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Chalinolobus dwyeri</a> Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Dasyurus maculatus maculatus (SE mainland population)</a> Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Eubalaena australis</a> Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Petauroides volans</a> Greater Glider (southern and central) [254]	Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Petaurus australis australis</a> Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)</a> Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Potorous tridactylus tridactylus</a> Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Pseudomys novaehollandiae</a> New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Pteropus poliocephalus</a> Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area	In feature area
PLANT			
<a href="#">Acronychia littoralis</a> Scented Acronychia [8582]	Endangered	Species or species habitat likely to occur within area	In feature area
<a href="#">Arthraxon hispidus</a> Hairy-joint Grass [9338]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Asperula asthenes</a> Trailing Woodruff [14004]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Cryptostylis hunteriana</a> Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Cynanchum elegans</a> White-flowered Wax Plant [12533]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Euphrasia arguta</a> [4325]	Critically Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Leichhardtia longiloba listed as Marsdenia longiloba</a> Clear Milkvine [91911]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Macadamia integrifolia</a> Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat may occur within area	In feature area
<a href="#">Melaleuca biconvexa</a> Biconvex Paperbark [5583]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Parsonsia dorrigoensis</a> Milky Silkpod [64684]	Endangered	Species or species habitat may occur within area	In feature area
<a href="#">Persicaria elatior</a> Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<a href="#">Phaius australis</a> Lesser Swamp-orchid [5872]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Rhodamnia rubescens</a> Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Rhodomyrtus psidioides</a> Native Guava [19162]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Syzygium paniculatum</a> Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thesium australe</a> Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Vincetoxicum woollsii listed as Tylophora woollsii</a> [40080]	Endangered	Species or species habitat likely to occur within area	In feature area
REPTILE			
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Coeranoscincus reticulatus</a> Three-toed Snake-tooth Skink [59628]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area	In buffer area only
SHARK			
<a href="#">Carcharias taurus (east coast population)</a> Grey Nurse Shark (east coast population) [68751]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Carcharodon carcharias</a> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Galeorhinus galeus</a> School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area	In buffer area only
<a href="#">Rhincodon typus</a> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Sphyrna lewini</a> Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only

Listed Migratory Species	[ Resource Information ]		
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
<a href="#">Anous stolidus</a> Common Noddy [825]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
<a href="#">Ardeenna carneipes</a> Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Ardeenna grisea</a> Sooty Shearwater [82651]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Calonectris leucomelas</a> Streaked Shearwater [1077]		Species or species habitat may occur within area	In buffer area only
<a href="#">Diomedea antipodensis</a> Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Fregata ariel</a> Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In buffer area only
<a href="#">Fregata minor</a> Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Phaethon lepturus</a> White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In buffer area only
<a href="#">Phoebetria fusca</a> Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Sternula albifrons</a> Little Tern [82849]		Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche bulleri</a> Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche carteri</a> Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Thalassarche cauta</a> Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche eremita</a> Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Thalassarche salvini</a> Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Migratory Marine Species			
<a href="#">Balaenoptera edeni</a> Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Carcharhinus longimanus</a> Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area	In buffer area only
<a href="#">Carcharodon carcharias</a> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only



Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Eubalaena australis as Balaena glacialis australis</a> Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Lamna nasus</a> Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area	In buffer area only
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]		Species or species habitat known to occur within area	In buffer area only
<a href="#">Mobula alfredi as Manta alfredi</a> Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat may occur within area	In buffer area only
<a href="#">Mobula birostris as Manta birostris</a> Giant Manta Ray [90034]		Species or species habitat may occur within area	In buffer area only
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area	In buffer area only
<a href="#">Orcinus orca</a> Killer Whale, Orca [46]		Species or species habitat may occur within area	In buffer area only
<a href="#">Rhincodon typus</a> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Sousa sahalensis as Sousa chinensis</a> Australian Humpback Dolphin [87942]		Species or species habitat likely to occur within area	In buffer area only
Migratory Terrestrial Species			
<a href="#">Cuculus optatus</a> Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Monarcha melanopsis</a> Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
<a href="#">Myiagra cyanoleuca</a> Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
<a href="#">Rhipidura rufifrons</a> Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
<a href="#">Symposiachrus trivirgatus as Monarcha trivirgatus</a> Spectacled Monarch [83946]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat likely to occur within area	In feature area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat likely to occur within area	In feature area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area	In feature area
<a href="#">Limosa lapponica</a> Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Pandion haliaetus</a> Osprey [952]		Breeding known to occur within area	In buffer area only
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area	In feature area

## Other Matters Protected by the EPBC Act

Commonwealth Lands <span>[ <a href="#">Resource Information</a> ]</span>		
The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.		
Commonwealth Land Name	State	Buffer Status
Communications, Information Technology and the Arts - Australian Broadcasting Corporation		
Commonwealth Land - Australian Broadcasting Commission [15018]	NSW	In buffer area only
Communications, Information Technology and the Arts - Australian Postal Corporation		
Commonwealth Land - Australian Postal Commission [11782]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [11781]	NSW	In buffer area only
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [11780]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian Telecommunications Commission [15970]	NSW	In buffer area only

Defence		
Defence - 41 RNSWR KEMPSEY ; KEMPSEY GRES DEPOT [10066]	NSW	In buffer area only

Commonwealth Heritage Places	[ Resource Information ]		
Name	State	Status	Buffer Status
Historic			
<a href="#">Kempsey Post Office</a>	NSW	Listed place	In buffer area only

Listed Marine Species	[ Resource Information ]		
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
<a href="#">Actitis hypoleucos</a>			
Common Sandpiper [59309]		Species or species habitat likely to occur within area	In feature area
<a href="#">Anous stolidus</a>			
Common Noddy [825]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Apus pacificus</a>			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
<a href="#">Ardenna carneipes as Puffinus carneipes</a>			
Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Ardenna grisea as Puffinus griseus</a>			
Sooty Shearwater [82651]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Bubulcus ibis as Ardea ibis</a>			
Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
<a href="#">Calidris acuminata</a>			
Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat likely to occur within area overfly marine area	In feature area
<a href="#">Calonectris leucomelas</a> Streaked Shearwater [1077]		Species or species habitat may occur within area	In buffer area only
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
<a href="#">Diomedea antipodensis</a> Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Diomedea antipodensis gibsoni as Diomedea gibsoni</a> Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Fregata ariel</a> Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Fregata minor</a> Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Lathamus discolor</a> Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Limosa lapponica</a> Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
<a href="#">Monarcha melanopsis</a> Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area



Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Myiagra cyanoleuca</a> Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Neophema chrysostoma</a> Blue-winged Parrot [726]		Species or species habitat may occur within area overfly marine area	In feature area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<a href="#">Pachyptila turtur</a> Fairy Prion [1066]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Pandion haliaetus</a> Osprey [952]		Breeding known to occur within area	In buffer area only
<a href="#">Phaethon lepturus</a> White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In buffer area only
<a href="#">Phoebetria fusca</a> Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Rhipidura rufifrons</a> Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Rostratula australis as Rostratula benghalensis (sensu lato)</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
<a href="#">Stercorarius skua as Catharacta skua</a> Great Skua [823]		Species or species habitat may occur within area	In buffer area only
<a href="#">Sternula albifrons as Sterna albifrons</a> Little Tern [82849]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Symposiachrus trivirgatus as Monarcha trivirgatus</a> Spectacled Monarch [83946]		Species or species habitat known to occur within area overfly marine area	In feature area
<a href="#">Thalassarche bulleri</a> Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche bulleri platei as Thalassarche sp. nov.</a> Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche carteri</a> Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Thalassarche cauta</a> Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche eremita</a> Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Thalassarche salvini</a> Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area	In feature area
Fish			
<a href="#">Acentronura tentaculata</a> Shortpouch Pygmy Pipehorse [66187]		Species or species habitat may occur within area	In buffer area only
<a href="#">Festucalex cinctus</a> Girdled Pipefish [66214]		Species or species habitat may occur within area	In buffer area only
<a href="#">Filicampus tigris</a> Tiger Pipefish [66217]		Species or species habitat may occur within area	In buffer area only
<a href="#">Heraldia nocturna</a> Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area	In buffer area only
<a href="#">Hippichthys heptagonus</a> Madura Pipefish, Reticulated Freshwater Pipefish [66229]		Species or species habitat may occur within area	In buffer area only
<a href="#">Hippichthys penicillus</a> Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area	In buffer area only
<a href="#">Hippocampus whitei</a> White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Histiogamphelus briggsii</a> Crested Pipefish, Briggs' Crested Pipefish, Briggs' Pipefish [66242]		Species or species habitat may occur within area	In buffer area only
<a href="#">Lissocampus runa</a> Javelin Pipefish [66251]		Species or species habitat may occur within area	In buffer area only
<a href="#">Maroubra perserrata</a> Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Solegnathus dunckeri</a> Duncker's Pipehorse [66271]		Species or species habitat may occur within area	In buffer area only
<a href="#">Solegnathus spinosissimus</a> Spiny Pipehorse, Australian Spiny Pipehorse [66275]		Species or species habitat may occur within area	In buffer area only
<a href="#">Solenostomus cyanopterus</a> Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area	In buffer area only
<a href="#">Solenostomus paradoxus</a> Ornate Ghostpipefish, Harlequin Ghost Pipefish, Ornate Ghost Pipefish [66184]		Species or species habitat may occur within area	In buffer area only
<a href="#">Stigmatopora nigra</a> Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In buffer area only
<a href="#">Syngnathoides biaculeatus</a> Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area	In buffer area only
<a href="#">Trachyrhamphus bicoarctatus</a> Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area	In buffer area only
<a href="#">Urocampus carinirostris</a> Hairy Pipefish [66282]		Species or species habitat may occur within area	In buffer area only
<a href="#">Vanacampus margaritifer</a> Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In buffer area only
Mammal			
<a href="#">Arctocephalus forsteri</a> Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area	In buffer area only
<a href="#">Arctocephalus pusillus</a> Australian Fur-seal, Australo-African Fur-seal [21]		Species or species habitat may occur within area	In buffer area only
Reptile			

Scientific Name	Threatened Category	Presence Text	Buffer Status
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<a href="#">Hydrophis elegans</a> Elegant Seasnake [1104]		Species or species habitat may occur within area	In buffer area only
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area	In buffer area only
<a href="#">Pelamis platurus</a> Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area	In buffer area only

Whales and Other Cetaceans [ Resource Information ]			
Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
<a href="#">Balaenoptera acutorostrata</a> Minke Whale [33]		Species or species habitat may occur within area	In buffer area only
<a href="#">Balaenoptera edeni</a> Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
<a href="#">Delphinus delphis</a> Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In buffer area only

Current Scientific Name	Status	Type of Presence	Buffer Status
<a href="#">Eubalaena australis</a> Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In buffer area only
<a href="#">Grampus griseus</a> Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area	In buffer area only
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]		Species or species habitat known to occur within area	In buffer area only
<a href="#">Orcinus orca</a> Killer Whale, Orca [46]		Species or species habitat may occur within area	In buffer area only
<a href="#">Sousa sahalensis as Sousa chinensis</a> Australian Humpback Dolphin [87942]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Stenella attenuata</a> Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area	In buffer area only
<a href="#">Tursiops aduncus</a> Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In buffer area only
<a href="#">Tursiops truncatus s. str.</a> Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In buffer area only

### Extra Information

State and Territory Reserves			[ <a href="#">Resource Information</a> ]
Protected Area Name	Reserve Type	State	Buffer Status
Goolawah	National Park	NSW	In buffer area only
Hat Head	National Park	NSW	In buffer area only
Kumbatine	National Park	NSW	In buffer area only
Limeburners Creek	National Park	NSW	In buffer area only
Maria	National Park	NSW	In feature area



Regional Forest Agreements

[ Resource Information ]

Note that all areas with completed RFAs have been included.

RFA Name	State	Buffer Status
<a href="#">North East NSW RFA</a>	New South Wales	In feature area

Nationally Important Wetlands

[ Resource Information ]

Wetland Name	State	Buffer Status
<a href="#">Clybucca Creek Estuary</a>	NSW	In buffer area only
<a href="#">Limeburners Creek Nature Reserve</a>	NSW	In buffer area only

EPBC Act Referrals

[ Resource Information ]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
<a href="#">Mineral sand mining</a>	2003/931	Controlled Action	Completed	In buffer area only
<a href="#">Oxley Highway to Kempsey Pacific Highway Upgrade, NSW</a>	2012/6518	Controlled Action	Post-Approval	In buffer area only
Not controlled action				
<a href="#">Church Hill Quarry Proposed Expansion, South Kempsey, NSW</a>	2014/7214	Not Controlled Action	Completed	In buffer area only
<a href="#">Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia</a>	2015/7522	Not Controlled Action	Completed	In feature area
Referral decision				
<a href="#">Breeding program for Grey Nurse Sharks</a>	2007/3245	Referral Decision	Completed	In buffer area only

Biologically Important Areas

Scientific Name	Behaviour	Presence	Buffer Status
Dolphins			
<a href="#">Tursiops aduncus</a>			
Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Breeding	Likely to occur	In buffer area only
Sharks			
<a href="#">Carcharias taurus</a>			
Grey Nurse Shark [64469]	Foraging	Known to occur	In buffer area only
Whales			
<a href="#">Megaptera novaeangliae</a>			
Humpback Whale [38]	Foraging	Known to occur	In buffer area only

# Caveat

## 1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

## 2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

## 3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

## 4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

# Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

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Please feel free to provide feedback via the [Contact Us](#) page.

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