

# ECOLOGICAL ASSESSMENT

Part LOT 22 DP 1073165

MULLUMBIMBY

PREPARED FOR

BYRON SHIRE COUNCIL

BY

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JULY 2017

## EXECUTIVE SUMMARY

Lot 22 DP 1073165 comprises ~28 hectares in extent overall, and includes the Mullumbimby Community Gardens and ~3.5 ha of land east of the North Coast Railway Line. These latter two areas are not included in the present assessment.

An ecological assessment carried out for the remaining part of Lot 22 DP 1073165 reveals a low-lying area of largely cleared land, currently used for cattle grazing and much modified by historical landuses.

Saltwater Creek forms the northern and eastern boundary of the Lot and King's Creek is present in the western and southwestern part of the site. Three small wetlands with associated stream channels and a network of man-made drains are present.

Vegetation is dominated by exotic pasture species, and weeds of pasture. Tree cover includes dense stands of Camphor Laurel along Saltwater Creek and clumps of Camphor Laurel trees at scattered locations in the extensive pasture of the site. The probable original native vegetation cover of floodplain forests is evident from a few isolated paddock trees and remnant native trees in the far southwest of the site, and from vegetation observed in the surrounding landscape. Planted native trees are present along the western and northern fenced boundaries. Cyclone fencing is present on the northern boundary of the site. Elsewhere on the site conventional post and wire fences and electrical fences are present.

No threatened flora were present during targetted surveys in July 2017, but a summer survey is recommended for the threatened species Hairy-joint Grass and Missionary Nutgrass.

No Endangered Ecological Communities are currently present. The probability of threatened fauna species being dependent upon the site in its current condition is low. Several hollow-bearing paperbark trees in the southwest of the site may provide refuges/shelter sites for microbats and or small gliders, and flying-foxes are likely to exploit Camphor Laurel fruits and native blossoms seasonally. A survey of the currently ungrazed western portion of the site is recommended to determine if the threatened Common Planigale is present.

The Eastern and King's Creek wetlands are areas with potential for rehabilitation and recovery of the freshwater wetland and floodplain forest habitats.

## ACKNOWLEDGEMENTS

Dr. R. Kooyman (EarthProcess Ecological Services, Myocum) conducted a botanical survey of the site. Mike Svikis (MikeSvikisPlanning, Ocean Shores) provided background and planning information for the site.

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## 1.0 Introduction

Byron Shire Council engaged Mark Fitzgerald Ecological Consultant (Mullumbimby) to provide an Ecological Assessment of Lot 22 DP 1073165 (the site). The land is owned by Byron Shire Council and is being considered for a re-zoning proposal.

### 1.1 Site Location

The site is located on the southern margin of the Mullumbimby residential precinct, as depicted outlined in red in Figure 1 below.

Figure 1: Lot 22 DP 1073165



Source: Byron Shire Council; Scale = 1: 12 600, July 7<sup>th</sup> 2015

## 1.2 Site Description

The area under consideration excludes the Mullumbimby Community Gardens and lands east of the unused North Coast Railway Line, which bisects Lot 22. Figure 2 shows the interior areas of the site.

Figure 2: Internal areas of Lot 22

Rail Line in Red



Source GoogleEarth. Scale = ~1: 10 000

## 1.3 Site Background

Originally purchased by Byron Shire Council for use as sportsfields, the site is now under consideration for a re-zoning proposal.

## 1.4 Elevation, topography, soils

The site is below 10m AHD, is generally level and is located in an alluvial soil landscape (BSC 1999), and is part of the Brunswick River floodplain. An area of land in the central southern portion of the site appears to be slightly elevated above lands to the east. Drains and stream channels are incised into the floodplain.

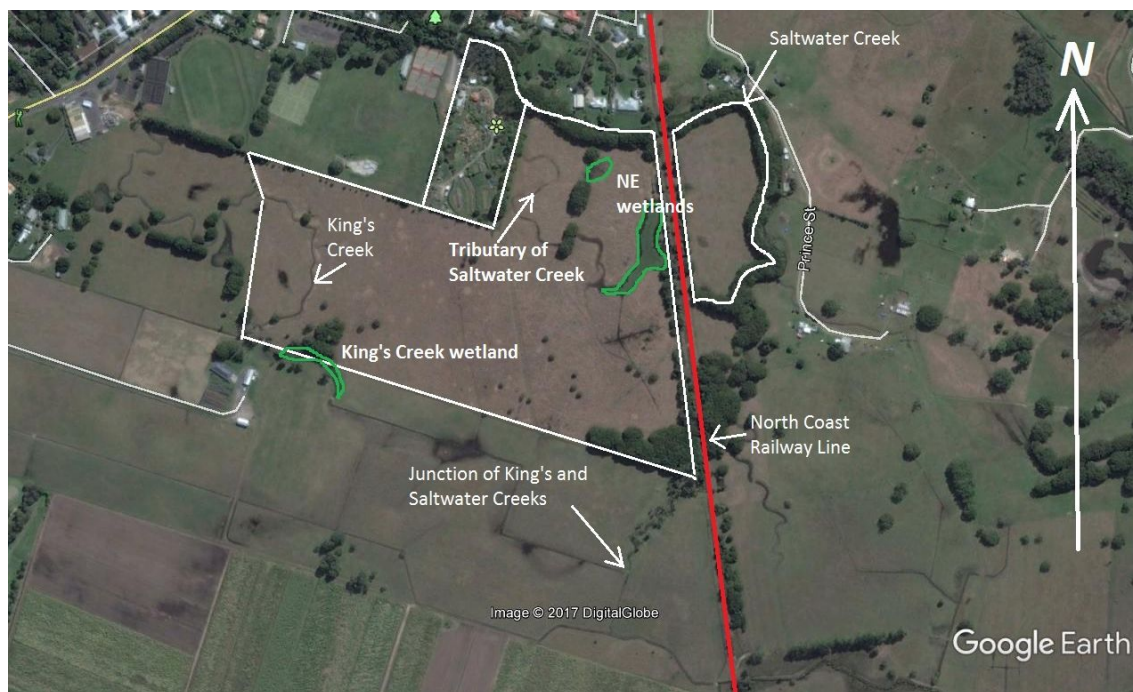
### 1.5 Watercourses, drains

Saltwater Creek forms the northern and eastern boundary of Lot 22, and supports a narrow belt of forest dominated by Camphor Laurel. Part of Saltwater Creek is affected by tidal flows and flows into Mullumbimby Creek (west of the Mullumbimby Swimming Pool) which then flows into the Brunswick River ~500m to the north.

King's Creek is present in the western and southwestern part of the site. Three wetland areas are present within the site. Two are located in the north and east of the site and the third is in the southwest, where King's Creek is located on the property boundary.

King's Creek is connected to Saltwater Creek by man-made drains south of Lot 22, and then joins Pipeclay Creek to flow into the Brunswick River ~3kms to the northeast. Both watercourses flow through culverts under the unused North Coast Railway Line.

Figure 3: Internal Watercourses



Source GoogleEarth. Scale = ~1: 10 000



### 1.5.1 Wetlands

Three small wetlands are present on the site.

The northernmost wetland is a grassy depression with some native rushes (*Juncus sp.*). This ~1800 square metre wetland was inundated at the first survey, but dry three weeks later.

The larger eastern wetland is irregularly elliptical in shape and appears to be a remnant billabong, possibly affected by impoundment from the raised North Coast Rail Line to the east. This ~3600 square metre wetland was inundated on both survey dates, has some native aquatic plants, and supported native ducks and herons.

The third wetland on the southern boundary of the site is part of King's Creek and is surrounded by old Broad-leaved Paperbarks. This ~850 square metre wetland is divided by a boundary fence, and was inundated on both survey dates. See Site Photographs at Appendix E.

Figure 4: Site wetlands

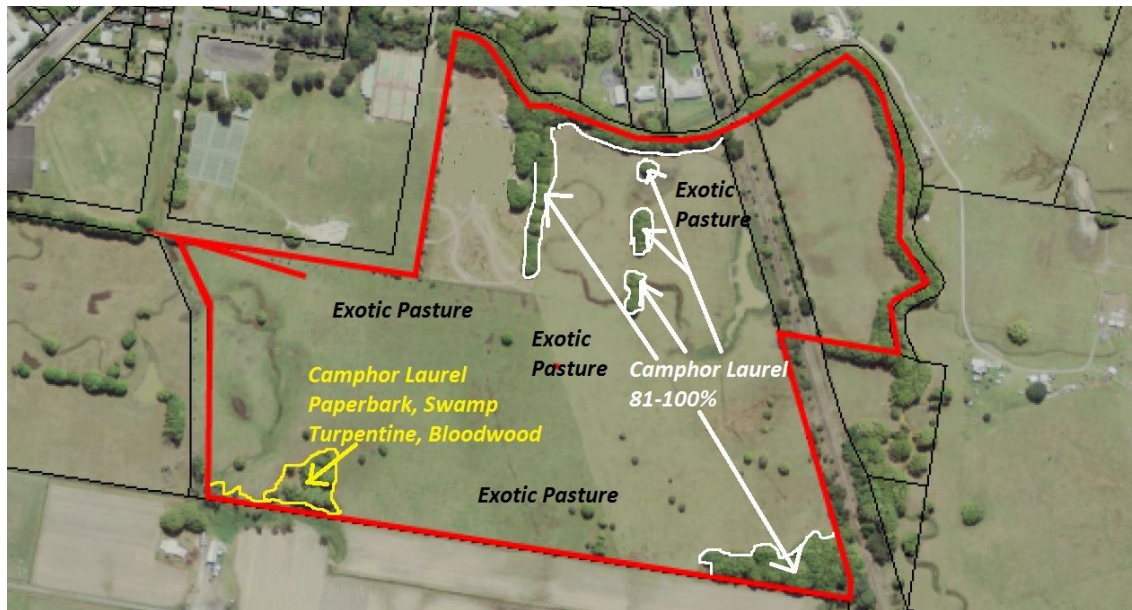


Source Byron Shire Council. Scale ~1: 6000

### 1.6 Vegetation

Vegetation is dominated by exotic pasture species (mainly South African Pigeon Grass), and weeds of pasture (e.g. Tall Verbena and Narrow-leaf Cotton Bush). Tree cover includes dense stands of Camphor Laurel along Saltwater Creek and clumps of Camphor Laurel trees at scattered locations in the extensive pasture of the site. Occasional native Willow Bottlebrush are present as paddock trees, and some native trees, including old hollow-bearing Broad-leaved paperbarks are present around the King's Creek wetland. Planted native trees (Tuckeroo and Bottlebrush) are present along the western and northern fenced boundaries. Figure 5 shows vegetation of the site.

Figure 3: Vegetation of the site



Source: Byron Shire Council; Scale = ~1: 7 600

### 1.7 Habitat Quality

The site represents low quality habitat for native fauna and flora, and biodiversity values of the site are accordingly low. The eastern part of the site was entirely grazed and largely trampled by cattle at the time of inspection. The western pasture had not been recently grazed and supported taller stands of pasture and weeds.

Taller stands of grass had some native birds present (Golden-headed Cisticolas) and native open country birds were also present, including: White-necked Herons, Willie Wagtails, Rainbow Bee-eaters, Pied Butcherbirds and Pied Currawongs.

Terrestrial habitats were poor with no logs or cover present to provide shelter for native terrestrial fauna. The Common Eastern Froglet was present and Pacific Black Ducks and Cattle Egrets were on the eastern and southern wetlands. Several older paperbarks with hollows were present in the southwest of the site, but the predominant habitat overall is degraded and weedy pasture. The main tree species present is Camphor Laurel. Numerous native fauna species feed on the fruits of Camphor Laurels, for example: Pied Currawongs and Figbirds, but also threatened Grey-headed Flying-foxes and Rose-crowned Fruit-doves.

Habitat quality is closely linked to the grazing regime at this site. In the absence of cattle grazing, pasture grasses develop over time into a tall closed stand which provides habitat for birds, such as Quails, Pheasant Coucals, Grassbirds, Fairy-wrens, Finches and Cisticolas, which in turn are preyed upon by Owls, Kites, and Harriers. Exotic mammals such as Rabbits and House Mice can also proliferate in ungrazed pasture, providing further resources for birds of prey, Brown Snakes and Carpet Pythons. The threatened Common Planigale occurs in some tall grassland stands.

However, closed grassland stands are resistant to regeneration, with few trees being capable of becoming established in the dense substrate, until fire or other severe disturbance exposes a suitable seed bed.

## 1.8 Landuses

The site is located within a largely cleared and agricultural landscape, and is used for grazing cattle. Part of Lot 22 not considered in this assessment is occupied by the Mullumbimby Community Gardens. Sportsfields and the Mullumbimby High School adjoin in the west, beyond Jubilee Avenue. The residential precinct of Mullumbimby adjoins to the north, beyond Saltwater Creek. The Mullumbimby Golf Course is located to the southwest and sugar cane is grown at various locations to the south and east of the site.

The unused North Coast Railway Line bisects the site.

Evidence of woodchip dumps was found near the King's Creek wetland.

## 2.0 Byron Shire Council Environmental Values Mapping

Byron Shire Council Environmental Values Mapping shows High Conservation Value vegetation on the Brunswick River and that part of Saltwater Creek on the northern boundary of the site and extending across the railway line to the northeast.

### 2.1 Byron Shire Council Vegetation Mapping

Byron Shire Council Vegetation Mapping shows the presence of 81-100% Camphor Laurel along Saltwater Creek and in the far southwestern corner of the site. See Appendix A for Byron Shire Council Environmental Values and Vegetation Mapping of the site.

### 3.0 Methods

Field surveys began with an initial reconnaissance of the site on June 19<sup>th</sup> 2017. A second survey was undertaken on July 7<sup>th</sup> 2017 with Dr. R. Kooyman (EarthProcess Ecological Services, Myocum) to provide a comprehensive inventory of the vegetation of the site.

The NSW OEH Bionet Atlas database was interrogated for a 10km by 10km area with the site at its centre, for all threatened species records.

The federal Department of Environment and Energy (DEE) Environment Protection and Biodiversity Conservation (EPBC) Act protected matters database was interrogated for an area with the site at its centre and a 5km buffer.

### 4.0 Results

#### 4.1 Flora species of the site: 2017 Survey results

Surveys of the site resulted in the recording of 68 flora species of which 61.7% were exotic species, including noxious and environmental weeds. See Appendix B.

#### 4.2 NSW OEH Bionet Atlas results

NSW OEH Bionet Atlas results include 80 threatened flora and fauna species recorded for the 100 square km search area. This number of records is largely due to the highly biodiverse landscapes to the west (Mt. Jerusalem and Goonengerry National Parks), and east of the site (Brunswick River and Brunswick Nature Reserve). Table 1 lists the threatened flora species recorded from the Bionet Search and their habitats.

Table 1: Threatened flora species recorded from the Bionet Search and their habitats.

Scientific Name	Common Name	Habitats
<i>Harnieria hygrophiloides</i>	No Common Name	Littoral rainforest, dry rainforest and wet eucalypt forest,
<i>Marsdenia longiloba</i>	Slender Marsdenia	Rainforest
<i>Ochrosia moorei</i>	Southern Ochrosia	Rainforest
<i>Tylophora woollsi</i>	Cryptic Forest Twiner	Rainforest
<i>Davidsonia jerseyana</i>	Davidson's Plum	Rainforest
<i>Davidsonia johnsonii</i>	Smooth Davidson's Plum	Rainforest
<i>Diospyros mabacea</i>	Red-fruited Ebony	Rainforest
<i>Elaeocarpus williamsianus</i>	Hairy Quandong	Rainforest
<i>Senna acclinis</i>	Rainforest Cassia	Rainforest
<i>Desmodium acanthocladum</i>	Thorny Pea	Riparian areas in Rainforest
<i>Acacia bakeri</i>	Marblewood	Rainforest
<i>Archidendron hendersonii</i>	White Lace Flower	Rainforest
<i>Xylosma terrae-reginae</i>	Queensland Xylosma	Rainforest

<i>Cryptocarya foetida</i>	Stinking Cryptocarya	Rainforest
<i>Endiandra floydii</i>	Crystal Creek Walnut	Rainforest
<i>Endiandra hayesii</i>	Rusty Rose Walnut	Rainforest
<i>Endiandra muelleri subsp. bracteata</i>	Green-leaved Rose Walnut	Rainforest
<i>Lindsaea brachypoda</i>	Short-footed Screw Fern	subtropical or warm-temperate rainforest
<i>Tinospora tinosporoides</i>	Arrow-head Vine	Rainforest
<i>Choricarpia subargentea</i>	Giant Ironwood	Rainforest
<i>Gossia fragrantissima</i>	Sweet Myrtle	Rainforest
<i>Syzygium hodgkinsoniae</i>	Red Lilly Pilly	Riparian areas in Rainforest
<i>Syzygium moorei</i>	Durobby	Riparian areas in Rainforest
<i>Uromyrtus australis</i>	Peach Myrtle	Rainforest
<i>Phaius australis</i>	Southern Swamp Orchid	Swamp Sclerophyll Forest
<i>Phyllanthus microcladus</i>	Brush Sauropus	Riparian areas in Rainforest
<i>Belvisia mucronata</i>	Needle-leaf Fern	Dry Rainforest, moist open forest
<i>Floydia praealta</i>	Ball Nut	Rainforest
<i>Grevillea hilliana</i>	White Yiel Yiel	Rainforest
<i>Hicksbeachia pinnatifolia</i>	Red Boppel Nut	Rainforest
<i>Macadamia tetraphylla</i>	Rough-shelled Bush Nut	Rainforest
<i>Knoxia sumatrensis</i>	No Common Name	Rainforest
<i>Randia moorei</i>	Spiny Gardenia	Rainforest
<i>Acronychia littoralis</i>	Scented Acronychia	Rainforest
<i>Bosistoa transversa</i>	Yellow Satinheart	Rainforest
<i>Diploglottis campbellii</i>	Small-leaved Tamarind	Rainforest
<i>Niemeyera whitei</i>	Rusty Plum, Plum Boxwood	Rainforest

Threatened Fauna recorded in Bionet Search Results and their habitats are listed in Table 2.

Table 2: Threatened Fauna recorded in Bionet Search Results and their habitats.

Scientific Name	Common Name	Habitats
<i>Assa darlingtoni</i>	Pouched Frog	Rainforest, Wet Sclerophyll Forest
<i>Crinia tinnula</i>	Wallum Froglet	Acid Wallum Swamps
<i>Anseranas semipalmata</i>	Magpie Goose	Wetlands
<i>Stictonetta naevosa</i>	Freckled Duck	Wetlands
<i>Ptilinopus magnificus</i>	Wompoo Fruit-Dove	Rainforest, Wet Sclerophyll Forest

<i>Ptilinopus regina</i>	Rose-crowned Fruit-Dove	Forest including Camphor Laurel
<i>Ptilinopus superbus</i>	Superb Fruit-Dove	Rainforest, Wet Sclerophyll Forest
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	Wetlands
<i>Botaurus poiciloptilus</i>	Australasian Bittern	Riparian with dense reeds
<i>Ixobrychus flavicollis</i>	Black Bittern	Riparian thickets
<i>Circus assimilis</i>	Spotted Harrier	Open woodland, grasslands
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	Rivers, estuaries, coastal areas
<i>Hieraaetus morphnoides</i>	Little Eagle	Open forest, woodlands
<i>Pandion cristatus</i>	Eastern Osprey	Rivers, estuaries, coastal areas
<i>Falco subniger</i>	Black Falcon	Open forest, woodlands, grasslands
<i>Grus rubicunda</i>	Brolga	Wetlands, grasslands
<i>Amaurornis moluccana</i>	Pale-vented Bush-hen	Wetlands, grasslands
<i>Haematopus longirostris</i>	Pied Oystercatcher	Estuaries, coastlines
<i>Irediparra gallinacea</i>	Comb-crested Jacana	Wetlands
<i>Calyptorhynchus lathamii</i>	Glossy Black-Cockatoo	Eucalypt forests , woodlands with Casuarinas
<i>Lathamus discolor</i>	Swift Parrot	Eucalypt forests , woodlands
<i>Ninox connivens</i>	Barking Owl	Rainforest, Eucalypt forests , woodlands
<i>Tyto novaehollandiae</i>	Masked Owl	Rainforest, Eucalypt forests , woodlands
<i>Tyto tenebricosa</i>	Sooty Owl	Rainforest
<i>Todiramphus chloris</i>	Collared Kingfisher	Mangroves, estuaries
<i>Gavicalis fasciularis</i>	Mangrove Honeyeater	Mangroves, estuaries
<i>Coracina lineata</i>	Barred Cuckoo-shrike	Rainforest, Eucalypt forests , woodlands
<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	Open Eucalypt Forest and woodlands
<i>Carterornis leucotis</i>	White-eared Monarch	Rainforest, Wet Sclerophyll Forest
<i>Petroica boodang</i>	Scarlet Robin	Rainforest, Wet Sclerophyll Forest
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	Rainforest, Wet Sclerophyll Forest
<i>Planigale maculata</i>	Common Planigale	Grassland adjoining forest, forest.
<i>Phascolarctos cinereus</i>	Koala	Forest, woodlands
<i>Potorous tridactylus</i>	Long-nosed Potoroo	Dense heathlands, forest, rainforest
<i>Nyctimene robinsoni</i>	Eastern Tube-nosed Bat	Rainforest

<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	Forests, woodlands, orchards, street trees
<i>Syconycteris australis</i>	Common Blossom-bat	Littoral rainforests and heathlands
<i>Miniopterus australis</i>	Little Bentwing-bat	Rainforest, Eucalypt forests , woodlands
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	Rainforest, Eucalypt forests , woodlands
<i>Myotis macropus</i>	Southern Myotis	Riparian forests
<i>Nyctophilus bifax</i>	Eastern Long-eared Bat	Rainforest, Eucalypt forests , woodlands
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	Eucalypt forests , woodlands

#### 4.3 EPBC Act matters of national environmental significance (mnes)

A search of the federal Department of Environment and Energy protected matters data base recorded the following matters of national environmental significance for a search area based on a point at the centre of the site with a 5km buffer.

#### MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

Endangered Ecological Communities	1
Threatened Species	79
Migratory Species	44

#### OTHER MATTERS PROTECTED BY THE EPBC ACT

Commonwealth lands	2
Listed Marine species	56
Whales and other Cetaceans	1
Commonwealth lands	2

## EXTRA INFORMATION

State and Territory Reserves	1
Regional Forest Agreements	1
Invasive Species	40

See Appendix C for the full EPBC Act search report.

## 5.0 Results—Threatened Species, Endangered Ecological Communities and EPBC Act Protected matters

### 5.1 Threatened flora species

No threatened flora species were identified from the site. Seasonal timing of survey was not optimal for detection of the threatened perennial Hairy-joint Grass *Arthraxon hispidus*, and the species is not recorded from the Bionet Atlas database search area. An unidentified *Cyperus sp.* present was unable to be allocated to species, and may represent the threatened species Missionary Nut-grass *Cyperus semifertilis*. Further survey in the appropriate season is recommended to investigate the possibility of these two species occurring on the site.

### 5.2 Threatened Fauna species

No threatened fauna species were identified from the site, however there is a high probability that fruits of Camphor Laurels of the site are seasonally exploited by threatened Grey-headed Flying-foxes *Pteropus poliocephalus* and Rose-crowned Fruit-doves *Ptilinopus regina*. The blossoms of Willow Bottlebrushes, Broad-leaved Paperbarks and Pink Bloodwood are also likely to be exploited for nectar and pollen by Grey-headed Flying-foxes.

The currently ungrazed western portion of the site includes potential habitat for the Common Planigale *Planigale maculata* and for the Pale-vented Bush-hen *Amaurornis moluccana*. It is also possible that threatened Spotted Harrier *Circus assimilia* or Little Eagle *Hieraetus morphnoides* would occasionally forage over tall grasslands of the site. Wetland habitats may also be occasionally visited by threatened birds, potentially including Magpie Goose *Anseranas semipalmata*, Brolga *Grus rubicunda*, Freckled Duck *Stictonetta naevosa* and Black-necked Stork *Ephippiorhynchus asiaticus*.

However the quantity and quality of threatened species habitats on site is low and likely to provide a minor and occasional resource for individuals, rather than support populations, as the wetlands are seasonal and the grazing regime at times is likely to eliminate or reduce the tall grassland habitat.



Flooding associated with Cyclone Debbie in March 2017 appears to have inundated the entire site, which may have severely adversely affected terrestrial fauna at the site (Ujvari *et al* 2016) including the Common Planigale, if present.

### 5.3 Endangered Ecological Communities

Given the site attributes and location, the possible presence of two NSW listed Endangered Ecological Communities (EECs) was considered in surveys of the site, namely Freshwater Wetlands and Sub-tropical Coastal Floodplain Forest EECs.

Guidelines for identifying the Freshwater Wetlands on Coastal Floodplains (Freshwater Wetlands) EEC include the following list of Key Characteristics.

Table 3: Freshwater Wetlands EEC Guidelines for Identification

Attributes	Response
Is the site on the coastal floodplain of the NSW North Coast, Sydney Basin or South-east Corner Bioregion ?	Yes
Is the site periodically inundated with, or does it maintain a body of semi-permanent or permanent freshwater ?	Three small seasonal wetland areas are present.
Does the site consist of relatively few woody plants ?	Woody plants are sparsely scattered around the site and clustered around the southern wetland
Are more than a few species present at the site listed as characteristic of freshwater wetlands in the table ?	Five flora species from the Freshwater Wetlands characteristic species list were found in the entire site, three of these were present at the eastern wetland.

Guidelines for identifying Sub-tropical Coastal Floodplain Forest EEC include the following list of Key Characteristics.

Table 4: Coastal Floodplains EEC Guidelines for Identification

Attributes	Response
Is the site north of Port Stephens ?	Yes
Is the site on the coastal floodplain ?	Yes
Is the tree layer made up of mixed Eucalypts ?	No

Does the tree layer contain any of the following Forest Red Gum, Grey Ironbark, Pink Bloodwood, or north of the Macleay Floodplain Swamp Turpentine ?	One Pink Bloodwood and 3-4 Swamp Turpentine are present.
Are rainforest trees or shrubs scattered throughout ?	No.
Are there relatively low numbers of <i>Casuarina</i> species, <i>Melaleuca</i> species and Swamp Mahogany ?	A small stand of Broad-leaved Paperbark <i>Melaleuca quinquinervia</i> is present associated with the southern wetland.

#### 5.4 EPBC Act Matters of National Environmental Significance

A search of the federal Department of Environment and Energy protected matters data base recorded the following matters of national environmental significance.

Endangered Ecological Communities	1
Threatened Species	79
Migratory Species	44

Excluding fish, cetaceans, rays and sharks, littoral and marine species, and other species for which there is no habitat present on the site, the likelihood of occurrence of the remaining species is assessed in Table 5, below.

Table 5: EPBC Act Matters of National Environmental Significance

MNES	Relevance
Endangered Ecological Communities	
Lowland Rainforest of Subtropical Australia	Not present
THREATENED SPECIES	
Regent Honeyeater <i>Anthochaera phrygia</i>	Rare migratory nectivore, unlikely occurrence
Red Goshawk <i>Erythrotriorchis radiatus</i>	Rare and highly mobile forager, unlikely to occur.

Swift Parrot <i>Lathamus discolor</i>	Rare migratory nectivore, unlikely occurrence
Koala (combined populations of Queensland, New Vulnerable Species or species habitat South Wales and the Australian Capital Territory) <i>Phascolarctos cinereus</i>	No Koala preferred food trees are present and a low probability exists of Koalas moving through the margins of the site.
Grey-headed Flying-fox <i>Pteropus poliocephalus</i>	Likely occasional and seasonal occurrence in flowering native trees and in fruiting Camphor Laurels
Hairy-joint Grass <i>Arthraxon hispidus</i>	Marginally suitable habitat; summer survey recommended
MIGRATORY SPECIES	
Fork-tailed Swift <i>Apus pacificus</i>	Mobile aerial forager could occur over the site.
Oriental Cuckoo <i>Cuculus optatus</i>	Migratory insectivore, unlikely occurrence
White-throated Needletail <i>Hirundapus caudacutus</i>	Mobile aerial forager likely to occur occasionally over the site.
Latham's Snipe <i>Gallinago hardwickii</i>	Marginally suitable habitat, possible occurrence in ungrazed watercourses.
COMMONWEALTH LANDS	
Commonwealth Land - Australian Postal Commission	Searches are required to determine the presence and/or location of any telecommunication cables or other infrastructure
Commonwealth Land - Australian Telecommunications Commission	
LISTED MARINE SPECIES	
Magpie Goose <i>Anseranas semipalmata</i>	Low probability of occurrence in flooded wetlands
Fork-tailed Swift <i>Apus pacificus</i>	Mobile aerial forager could occur over the site
Great Egret <i>Ardea alba</i>	Possible occurrence in flooded pasture and around wetlands

Cattle Egret <i>Ardea ibis</i>	Observed in flooded pasture and around wetlands
Oriental Cuckoo <i>Cuculus saturatus</i>	Migratory insectivore, unlikely occurrence
Latham's Snipe <i>Gallinago hardwickii</i>	Marginally suitable habitat, possible occurrence in ungrazed watercourses.
White-throated Needletail <i>Hirundapus caudacutus</i>	Mobile aerial forager likely to occur occasionally over the site.
Swift Parrot <i>Lathamus discolor</i>	Rare migratory nectivore, unlikely occurrence
Rainbow Bee-eater <i>Merops ornatus</i>	Observed flying over the site
STATE AND TERRITORY RESERVES	
Brunswick Heads Nature Reserve	Not affected
REGIONAL FOREST AGREEMENTS	
North East NSW RFA	Not affected
INVASIVE SPECIES	
Cane Toad <i>Rhinella marina</i>	Likely to be present
House Mouse <i>Mus musculus</i>	Likely to be present
Rabbit <i>Oryctolagus cuniculus</i>	Likely to be present
Red Fox <i>Vulpes vulpes</i>	Likely to be present
Lantana camara <i>Lantana camara</i>	Present on margins of Saltwater Creek
Fireweed <i>Senecio madagascariensis</i>	Present in pasture

## 6.0 Discussion

The current assessment represents an initial investigation into the biodiversity attributes of part of Lot 22 DP 1073165. While no threatened flora species were identified on site, the status of the threatened perennial Hairy Joint Grass and of Missionary Nut-grass need to be further investigated by survey in an appropriate season.

There is a low probability of the threatened Common Planigale being present in the currently ungrazed western portion of the area under consideration. The presence of flood debris and flood-borne material on fences indicates that the entire site may have been inundated following Cyclone Debbie, in March 2017. This flooding, and the habitat attributes of the surrounding landscape militate against the likelihood of persistence of the Common Planigale on site, but surveys for this species are recommended in the ungrazed western area to be confident of the species presence or absence.

Fruits produced by Camphor Laurels in and fringing the site are likely to be exploited by threatened Grey-headed Flying-foxes and Rose-crowned Fruit-doves. A small number of native trees on site also produce blossom likely to be exploited by native nectivorous fauna, including the threatened Grey-headed Flying-foxes. These are mainly located in association with the southern King's Creek wetland, but include occasional paddock trees in the south of the site.

Consideration of the Identification Guidelines provided for the NSW listed Freshwater Wetlands and Sub-tropical Coastal Floodplain Forest Endangered Ecological Communities in section 5.3 indicates that neither community is currently present. While 5 species from the list of characteristic Freshwater Wetland EEC species are present, they occur scattered across the site. Similarly, ten species from the characteristic Sub-tropical Coastal Floodplain Forest EEC species list are present, but also dispersed across the site. These are indications that these EECs are likely to have been present in the past, but are now represented by relictual and degraded fragments, with no succession or regeneration currently evident.

Several Broad-leaved Paperbarks associated with the southern King's Creek wetland have tree hollows, some of which appear well used, and these may provide shelter sites for native fauna, potentially including threatened Microbat species.

Any proposal which resulted in the removal of native trees would trigger a requirement compensatory plantings under the "No Net Vegetation Loss" provisions of the Byron Biodiversity Conservation Strategy (2004).

## 7.0 Conclusion

While the majority of the site comprises exotic pasture grasses and weeds, the presence of King's Creek and of a tributary of Saltwater Creek, with three associated wetland areas are key ecological attributes of the site. The King's Creek and Saltwater Creek wetlands appear

to be more important and biodiverse areas than the northern wetland, which is a grassy depression. See Site photographs at Appendix E.

Evidence of recent extensive flooding reinforces the importance of hydrological processes on the ecology of this floodplain area.

Remnant native trees located in the south of the site (Broad-leaved Paperbark, Willow Bottlebrush, Swamp Turpentine and Pink Bloodwood) and associated with the King's Creek wetland also provide potential resources for hollow-dependent fauna, and nectivorous fauna.

## 8.0 Recommendations

Field surveys are considered necessary to provide greater confidence of the nature of threatened species distribution if any, and thus to better assess potential impacts of any proposal for development of the site.

- Surveys in appropriate season are recommended for the threatened flora species Hairy-joint Grass and Missionary Nut-grass.
- A survey of the ungrazed western area is also recommended for the Common Planigale. Planigales are usually sampled by pitfall trapping, but may also be detected by the use of drop boards (*i.e.* pieces of ~1m square plywood or sheet metal placed in habitat and checked periodically).
- Remnant native vegetation associated with the southern King's Creek wetland indicates an area with potential for rehabilitation and recovery of the floodplain forest community.
- The eastern wetland on a tributary of Saltwater Creek supports native aquatic vegetation and possesses attributes which indicates an area with potential for rehabilitation and recovery of the freshwater wetland community.
- In the event of any proposal for development, it is recommended that a Vegetation Management Plan or Biodiversity Management Plan be prepared for the site.

## REFERENCES

BSC (1999) Byron Flora and Fauna Study. Prepared for Byron Shire Council by Landmark Ecological Services Pty Ltd., Ecograph and Terrafocus Pty Ltd.

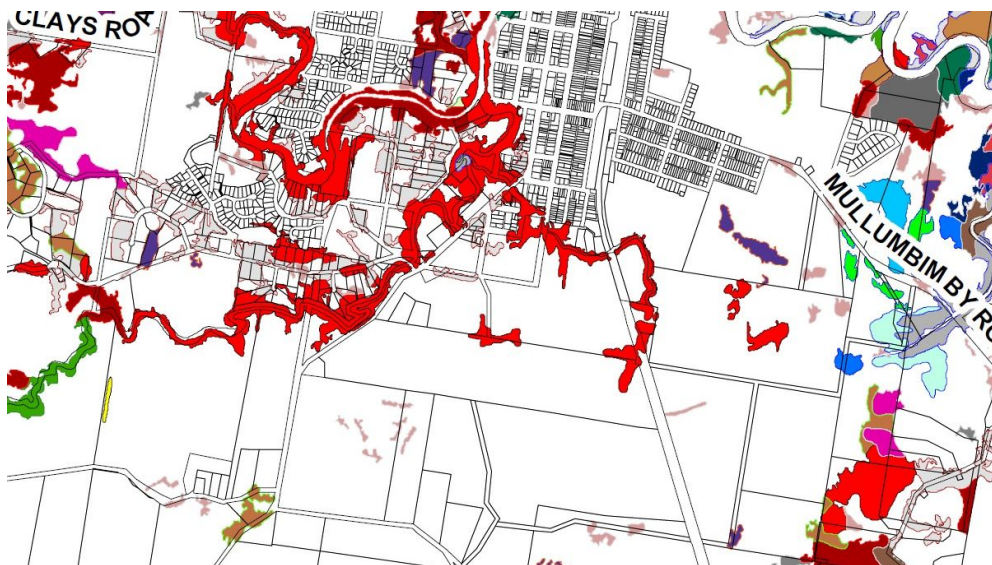
BSC (2004) Byron Biodiversity Conservation Strategy. Byron Shire Council, Station Street Mullumbimby.

Ujvari Beata, Brown Gregory, Madsen Thomas, Shine Richard, (2016) Floods and famine: climate-induced collapse of a tropical predator-prey community. Functional Ecology, Vol 30, Issue 3: March 2016.

Appendix A: Byron Shire Council Environmental Values and Vegetation mapping  
High Conservation Value habitats in green



Vegetation Mapping: 81-100% Camphor Laurel in Red





## Appendix B: Flora species of the site

Species	Family	Common Name	Life Form	Introd.	Abund.
<i>Acacia melanoxylon</i>	Fabaceae	Blackwood	tree	no	2
<i>Adiantum hispidulum</i>	Adiantaceae	Rough Maidenhair Fern	fern	no	1
<i>Ageratina houstonianum</i>	Asteraceae	Bluetop	herb	yes	2
<i>Ambrosia artemisiifolia</i>	Asteraceae	Rag Weed	herb	yes	1
<i>Andropogon virginicus</i>	Poaceae	Whisky Grass	grass	yes	1
<i>Asclepias curassavica</i>	Apocynaceae	Milk Bush	herb	yes	2
<i>Asplenium australasicum</i>	Asleniaceae	Bird's Nest Fern	epiphyte	no	1
<i>Avena fatua</i>	Poaceae	Wild Oats	grass	yes	1
<i>Baccharis halimifolia</i>	Asteraceae	Groundsel Bush	shrub	yes	1
<i>Bidens pilosa</i>	Asteraceae	Farmer's Friends	herb	yes	2
<i>Callistemon (red flower)</i>	Myrtaceae	a Bottlebrush	small tree	no	1
<i>Callistemon salignus</i>	Myrtaceae	Willow Bottle-brush	tree	no	2
<i>Carex appressa</i>	Cyperaceae	Common Carex	sedge	no	2
<i>Centella asiatica</i>	Apiaceae	Pennywort	herb	no	1
<i>Cinnamomum camphora</i>	Lauraceae	Camphor Laurel	tree	yes	2
<i>Cirsium vulgare</i>	Asteraceae	Giant Thistle	herb	yes	2
<i>Commelina cyanea</i>	Commelinaceae	Blue Commelina	herb	no	1
<i>Conyza canadensis</i>	Asteraceae	Fleabane	herb	yes	1
<i>Corymbia intermedia</i>	Myrtaceae	Pink Bloodwood	tree	no	1
<i>Crassocephalum crepidioides</i>	Asteraceae	Thickhead	herb	yes	1
<i>Crotalaria sp</i>	Fabaceae	Rattlepod	herb	yes	1
<i>Cupaniopsis anacardioides</i>	Sapindaceae	Coastal Tuckeroo	tree	no	2
<i>Cuphea carthagenensis</i>	Lythraceae	Columbian Waxweed	herb	yes	3
<i>Cynodon dactylon</i>	Poaceae	Couch Grass	grass	yes	2
<i>Cyperus (sp aff) semifertilis</i>	Cyperaceae	Nut Grass	sedge	no	**
<i>Cyperus polystachyos</i>	Cyperaceae	Bunchy Sedge	sedge	yes	1
<i>Daucus carota</i>	Apiaceae	Wild Carrot	herb	yes	1
<i>Desmodium intortum</i>	Fabaceae	Green-leaf Desmodium	vine	yes	1
<i>Flindersia australis</i>	Rutaceae	Teak	tree	no	1
<i>Gahnia clarkei</i>	Cyperaceae	trailing Gahnia	sedge	no	1
<i>Glycine clandestina</i>	Fabaceae	Forest Glycine	vine	no	1
<i>Gomphocarpus physocarpus</i>	Apocynaceae	Narrow-leaf Cotton Bush	herb	yes	2
<i>Hypochaeris radicata</i>	Asteraceae	Cats-ear	herb	yes	1

<i>Hypolepis muelleri</i>	Dennstaedtiaceae	Ground Fern	fern	no	2
<i>Imperata cylindrica</i>	Poaceae	Blady Grass	grass	no	1
<i>Ipomoea cairica</i>	Convolvulaceae	Five-leaved Ipomoea	vine	yes	2
<i>Juncus effusus</i>	Juncaceae	Common Juncus	sedge	yes	2
<i>Lantana camara</i>	Verbenaceae	Lantana	shrub	yes	1
<i>Lophostemon suaveolens</i>	Myrtaceae	Swamp Box	tree	no	2
<i>Ludwigia peploides ssp. montevidensis</i>	Onagraceae	Water Primrose	herb	no	2
<i>Melaleuca quinquenervia</i>	Myrtaceae	Paperbark	tree	no	2
<i>Myriophyllum aquaticum</i>	Haloragaceae	Parrots Feather	herb	yes	2
<i>Nassella neesiana</i>	Poaceae	Needle Grass	grass	yes	1
<i>Ochna serratifolia</i>	Ochnaceae	Mickey-mouse plant	shrub	yes	1
<i>Oxalis latifolius</i>	Oxalidaceae	Wood Sorrel	herb	yes	1
<i>Parsonia straminea</i>	Apocynaceae	Common Silkpod	vine	no	2
<i>Paspalum mandiocanum</i>	Poaceae	Broad-leaved Paspalum	grass	yes	5
<i>Pennisetum clandestinum</i>	Poaceae	Kikuyu	grass	yes	1
<i>Persicaria hydropiper</i>	Polygonaceae	Water Pepper	herb	no	2
<i>Persicaria strigosa</i>	Polygonaceae	Knot Weed	herb	no	3
<i>Pratia purpurascens</i>	Campanulaceae	White Root	herb	no	1
<i>Ranunculus inundatus</i>	Ranunculaceae	River Buttercup	herb	no	1
<i>Rubus moluccanus</i>	Rosaceae	Qld Bramble	vine	no	1
<i>Rumex brownii</i>	Polygonaceae	Swamp Dock	herb	no	1
<i>Rumex obtusifolius</i>	Polygonaceae	Broad Dock	herb	yes	1
<i>Salvinia molesta</i>	Salviniaceae	Salvinia	herb	yes	3
<i>Schefflera actinophylla</i>	Araliaceae	Schefflera	small tree	yes	1
<i>Senecio madagascariensis</i>	Asteraceae	Fireweed	herb	yes	2
<i>Setaria sphacelata</i>	Poaceae	Setaria	grass	yes	5
<i>Sida rhombifolia</i>	Malvaceae	Paddy's Lucerne	subshrub	yes	1
<i>Sigesbeckia orientalis</i>	Asteraceae	Indian Weed	shrub	no	1
<i>Solanum americanum</i>	Solanaceae	Black-fruited Solanum	shrub	yes	1
<i>Solanum capsicoides</i>	Solanaceae	Devil's Apple	shrub	yes	1
<i>Solanum mauritianum</i>	Solanaceae	Tobacco Bush	shrub	yes	2
<i>Solanum nigrum</i>	Solanaceae	Black-fruited Solanum	shrub	yes	1
<i>Soliva sessilis</i>	Asteraceae	Bindii	herb	yes	2
<i>Taraxacum officinale</i>	Asteraceae	Dandelion	herb	yes	2
<i>Tradescantia fluminensis</i>	Commelinaceae	Wandering Trad	herb	yes	2
<i>Verbena bonariensis</i>	Lamiaceae	Tall Verbena	herb	yes	2

<b>** Sch 1 endangered taxa: collect to confirm (not confirmed)</b>	Abundance scores				
		1	rare		
		2	uncommon		
		3	common		
		4	very common		
		5	dominant		

## Appendix C: EPBC Act protected matters search results

PDF PROVIDED SEPARATELY

Appendix D: Fauna Recorded from the site

Common Name	Scientific Name
FROGS	
Common Eastern Froglet	<i>Crinia signifera</i>
BIRDS	
Australian Figbird	<i>Specotheres vieilloti</i>
Australian Magpie	<i>Cracticus tibicen</i>
Maned Duck	<i>Chenonetta jubata</i>
Masked Lapwing	<i>Vanellus miles</i>
Pacific Black Duck	<i>Anas superciliosa</i>
Pied Butcherbird	<i>Cracticus nigrogularis</i>
Pied Currawong	<i>Strepera graculina</i>
Purple Swamphen	<i>Porphyrio porphyrio</i>
Rainbow Bee-eater	<i>Merops ornatus</i>
Sacred Kingfisher	<i>Todirhamphus sanctus</i>
Scaly-breasted Lorikeet	<i>Trichoglossus chlorolepidota</i>
Striated Pardalote	<i>Pardalotus striatus</i>
White-necked Heron	<i>Ardea pacifica</i>
Willie Wagtail	<i>Rhipidura leucophrys</i>

## Appendix E: Site Photographs

Photo (i): Typical grazed pasture in eastern part; north coast rail in background



Photo (ii) Ungrazed pasture in western part; flood debris in foreground





Photo (iii) Northern wetland on June 19<sup>th</sup> 2017





Photo (iv) Northern Wetland July 7<sup>th</sup> 2017



Photo (v) Eastern wetland looking south, with Pacific Black Ducks





Photo (vi) Eastern Wetland edge trampled by cattle



Photo (vii) Southern (King's Creek) Wetland





Photo (viii) Saltwater Creek and culvert under rail line: southeastern boundary of Lot 22



Photo (ix): Saltwater Creek Southeastern boundary of Lot 22





Photo (x) Camphor Laurel Forest



Photo (xi) Paddock Trees: Willow Bottlebrush *Callistemon salignus*





Photo (xii) Broad-leaved Paperbark with hollows: southern King's Creek wetland



Photo (xiii) Broad-leaved Paperbark with hollows: southern wetland





Photo (xiv) Planted ornamental Bottlebrush and Tuckeroo: western boundary of Lot 22



Photo (xv): Planted Ornamental Bottlebrush; western boundary of Lot 22

Flood debris on fence







# 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.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 19/06/17 09:54:36

[Summary](#)

[Details](#)

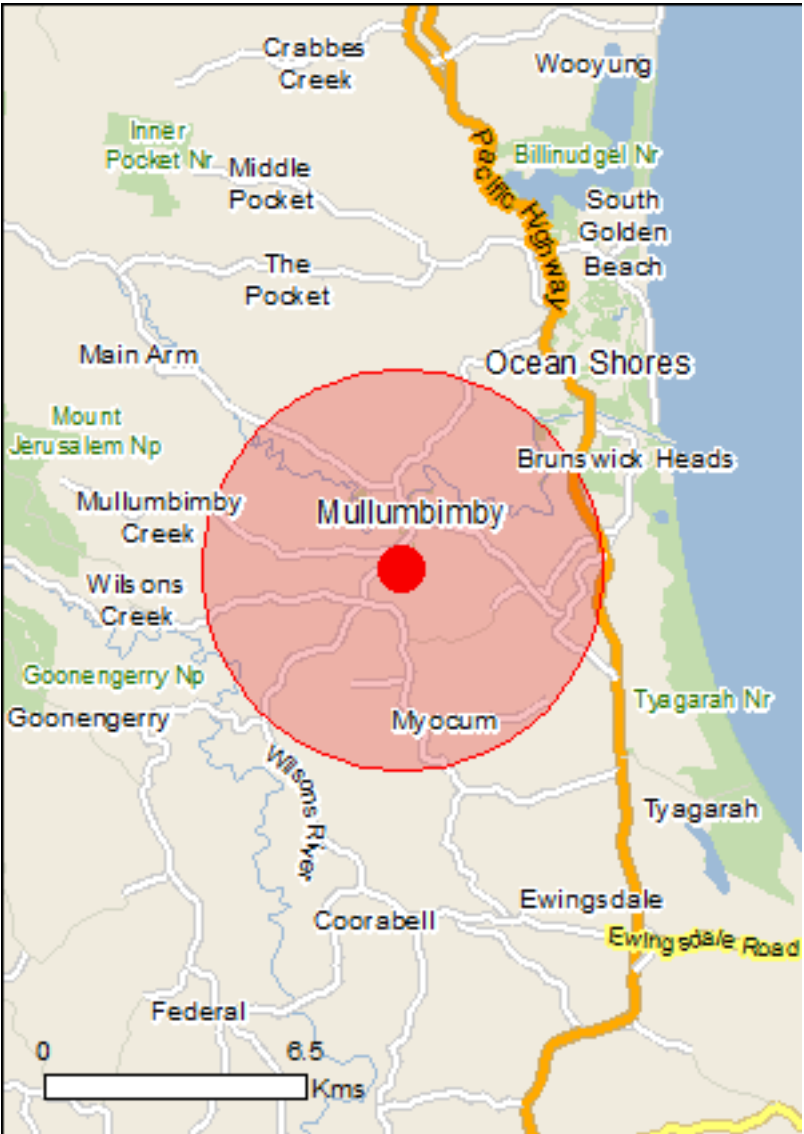
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

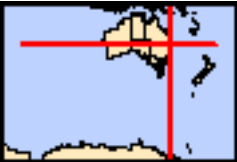
[Acknowledgements](#)



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[Coordinates](#)

[Buffer: 5.0Km](#)





# Summary

## Matters of National Environmental 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:</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>	1
<a href="#">Listed Threatened Species:</a>	79
<a href="#">Listed Migratory Species:</a>	44

## 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 environment anywhere.

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 Land:</a>	2
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	56
<a href="#">Whales and Other Cetaceans:</a>	1
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Commonwealth Reserves Marine:</a>	None

## Extra Information

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

<a href="#">State and Territory Reserves:</a>	1
<a href="#">Regional Forest Agreements:</a>	1
<a href="#">Invasive Species:</a>	40
<a href="#">Nationally Important Wetlands:</a>	None
<a href="#">Key Ecological Features (Marine)</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.

Name	Status	Type of Presence
<a href="#">Lowland Rainforest of Subtropical Australia</a>	Critically Endangered	Community likely to occur within area

Listed Threatened Species

[ Resource Information ]

Name	Status	Type of Presence
Birds		

<a href="#">Anthochaera phrygia</a>		
Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Botaurus poiciloptilus</a>		
Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
<a href="#">Calidris canutus</a>		
Red Knot, Knot [855]	Endangered	Species or species habitat likely to occur within area
<a href="#">Calidris ferruginea</a>		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Cyclopsitta diophthalma coxeni</a>		
Coxen's Fig-Parrot [59714]	Endangered	Species or species habitat known to occur within area
<a href="#">Diomedea antipodensis</a>		
Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area
<a href="#">Diomedea antipodensis gibsoni</a>		
Gibson's Albatross [82270]	Vulnerable	Species or species habitat may occur within area
<a href="#">Diomedea epomophora</a>		
Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area
<a href="#">Diomedea exulans</a>		
Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
<a href="#">Erythroriorchis radiatus</a>		
Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Lathamus discolor</a>		
Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur

Name	Status	Type of Presence
within area		
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Pachyptila turtur subantarctica</a> Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Poephila cincta cincta</a> Southern Black-throated Finch [64447]	Endangered	Species or species habitat may occur within area
<a href="#">Rostratula australis</a> Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
<a href="#">Thalassarche cauta cauta</a> Shy Albatross, Tasmanian Shy Albatross [82345]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche cauta steadi</a> White-capped Albatross [82344]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Thalassarche eremita</a> Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche salvini</a> Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area
<a href="#">Turnix melanogaster</a> Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area
Fish		
<a href="#">Epinephelus daemeli</a> Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area
Frogs		
<a href="#">Litoria olongburensis</a> Wallum Sedge Frog [1821]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Mixophyes iteratus</a> Giant Barred Frog, Southern Barred Frog [1944]	Endangered	Species or species habitat may occur within area
Insects		
<a href="#">Phyllodes imperialis smithersi</a> Pink Underwing Moth [86084]	Endangered	Breeding may occur within area
Mammals		

Name	Status	Type of Presence
<a href="#">Chalinolobus dwyeri</a> Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within 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 likely to occur within area
<a href="#">Petauroides volans</a> Greater Glider [254]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Petrogale penicillata</a> Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within 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]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Potorous tridactylus tridactylus</a> Long-nosed Potoroo (SE mainland) [66645]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Pseudomys novaehollandiae</a> New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Pteropus poliocephalus</a> Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area
<a href="#">Xeromys myoides</a> Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat likely to occur within area
Other		
<a href="#">Thersites mitchellae</a> Mitchell's Rainforest Snail [66774]	Critically Endangered	Species or species habitat known to occur within area
Plants		
<a href="#">Acronychia littoralis</a> Scented Acronychia [8582]	Endangered	Species or species habitat likely to occur within area
<a href="#">Allocasuarina defungens</a> Dwarf Heath Casuarina [21924]	Endangered	Species or species habitat likely to occur within area
<a href="#">Arthraxon hispidus</a> Hairy-joint Grass [9338]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Baloghia marmorata</a> Marbled Balogia, Jointed Baloghia [8463]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Bosistoa transversa</a> Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Bulbophyllum globuliforme</a> Miniature Moss-orchid, Hoop Pine Orchid [6649]	Vulnerable	Species or species habitat may occur within area
<a href="#">Corokia whiteana</a> [17820]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Cryptocarya foetida</a> Stinking Cryptocarya, Stinking Laurel [11976]	Vulnerable	Species or species habitat known to occur within area



Name	Status	Type of Presence
<a href="#">Cryptostylis hunteriana</a> Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area
<a href="#">Cynanchum elegans</a> White-flowered Wax Plant [12533]	Endangered	Species or species habitat may occur within area
<a href="#">Davidsonia jerseyana</a> Davidson's Plum [67219]	Endangered	Species or species habitat likely to occur within area
<a href="#">Davidsonia johnsonii</a> Smooth Davidsonia, Smooth Davidson's Plum, Small-leaved Davidson's Plum [67178]	Endangered	Species or species habitat likely to occur within area
<a href="#">Desmodium acanthocladum</a> Thorny Pea [17972]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Diospyros mabacea</a> Red-fruited Ebony, Silky Persimmon, Ebony [18548]	Endangered	Species or species habitat likely to occur within area
<a href="#">Diploglottis campbellii</a> Small-leaved Tamarind [21484]	Endangered	Species or species habitat likely to occur within area
<a href="#">Elaeocarpus williamsianus</a> Hairy Quandong [8956]	Endangered	Species or species habitat likely to occur within area
<a href="#">Endiandra floydii</a> Floyd's Walnut [52955]	Endangered	Species or species habitat likely to occur within area
<a href="#">Endiandra hayesii</a> Rusty Rose Walnut, Velvet Laurel [13866]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Floydia praealta</a> Ball Nut, Possum Nut, Big Nut, Beefwood [15762]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Gossia fragrantissima</a> Sweet Myrtle, Small-leaved Myrtle [78867]	Endangered	Species or species habitat likely to occur within area
<a href="#">Hicksbeachia pinnatifolia</a> Monkey Nut, Bopple Nut, Red Bopple, Red Bopple Nut, Red Nut, Beef Nut, Red Apple Nut, Red Boppel Nut, Ivory Silky Oak [21189]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Isoglossa eranthemoides</a> Isoglossa [16663]	Endangered	Species or species habitat likely to occur within 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
<a href="#">Macadamia tetraphylla</a> Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Marsdenia longiloba</a> Clear Milkvine [2794]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Ochrosia moorei</a> Southern Ochrosia [11350]	Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
<a href="#">Owenia cepiodora</a> Onionwood, Bog Onion, Onion Cedar [11344]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Phaius australis</a> Lesser Swamp-orchid [5872]	Endangered	Species or species habitat likely to occur within area
<a href="#">Randia moorei</a> Spiny Gardenia [10577]	Endangered	Species or species habitat likely to occur within area
<a href="#">Sophora fraseri</a> [8836]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Syzygium hodgkinsoniae</a> Smooth-bark Rose Apple, Red Lilly Pilly [3539]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Syzygium moorei</a> Rose Apple, Coolamon, Robby, Durobby, Watermelon Tree, Coolamon Rose Apple [12284]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Thesium australe</a> Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area

Reptiles		
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Congregation or aggregation known to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Delma torquata</a> Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Lepidochelys olivacea</a> Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat likely to occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Saiphos reticulatus</a> Three-toed Snake-tooth Skink [88328]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species		[ <a href="#">Resource Information</a> ]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
<a href="#">Anous stolidus</a> Common Noddy [825]		Species or species habitat likely to occur within area
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur

Name	Threatened	Type of Presence
		within area
<a href="#">Ardenna carneipes</a> Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area
<a href="#">Calonectris leucomelas</a> Streaked Shearwater [1077]		Species or species habitat known to occur within area
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
<a href="#">Fregata ariel</a> Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
<a href="#">Fregata minor</a> Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche cauta</a> Tasmanian Shy Albatross [89224]	Vulnerable*	Species or species habitat may occur within area
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Migratory Marine Species		
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Congregation or aggregation known to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Lamna nasus</a> Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area
<a href="#">Lepidochelys olivacea</a> Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat likely to occur within area
<a href="#">Manta alfredi</a> Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]		Species or species habitat known to occur within area
<a href="#">Manta birostris</a> Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray		Species or species habitat may occur within

Name	Threatened	Type of Presence
[84995] <a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	area
<a href="#">Sousa chinensis</a> Indo-Pacific Humpback Dolphin [50]		Species or species habitat known to occur within area
Migratory Terrestrial Species		
<a href="#">Cuculus optatus</a> Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]		Species or species habitat known to occur within area
<a href="#">Monarcha melanopsis</a> Black-faced Monarch [609]		Species or species habitat known to occur within area
<a href="#">Monarcha trivirgatus</a> Spectacled Monarch [610]		Species or species habitat known to occur within area
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat likely to occur within area
<a href="#">Myiagra cyanoleuca</a> Satin Flycatcher [612]		Species or species habitat known to occur within area
<a href="#">Rhipidura rufifrons</a> Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat likely to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]		Foraging, feeding or related behaviour may occur within area
<a href="#">Gallinago megala</a> Swinhoe's Snipe [864]		Foraging, feeding or related behaviour likely to occur within area
<a href="#">Gallinago stenura</a> Pin-tailed Snipe [841]		Foraging, feeding or related behaviour likely to occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species



Name	Threatened	Type of Presence
<a href="#">Numenius minutus</a> Little Curlew, Little Whimbrel [848]		habitat may occur within area  Foraging, feeding or related behaviour likely to occur within area
<a href="#">Numenius phaeopus</a> Whimbrel [849]		Foraging, feeding or related behaviour known to occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat known to occur within area
<a href="#">Pluvialis fulva</a> Pacific Golden Plover [25545]		Foraging, feeding or related behaviour known to occur within area
<a href="#">Tringa brevipes</a> Grey-tailed Tattler [851]		Foraging, feeding or related behaviour known to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land	[ Resource Information ]
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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.

Name
Commonwealth Land - Australian Postal Commission
Commonwealth Land - Australian Telecommunications Commission

Listed Marine Species	[ Resource Information ]
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\* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		

<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area
<a href="#">Anous stolidus</a> Common Noddy [825]		Species or species habitat likely to occur within area
<a href="#">Anseranas semipalmata</a> Magpie Goose [978]		Species or species habitat may occur within area
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Ardea alba</a> Great Egret, White Egret [59541]		Breeding known to occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Breeding likely to occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat likely to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
<a href="#">Calonectris leucomelas</a> Streaked Shearwater [1077]		Species or species habitat known to occur within area
<a href="#">Charadrius ruficapillus</a> Red-capped Plover [881]		Foraging, feeding or related behaviour known to occur within area
<a href="#">Cuculus saturatus</a> Oriental Cuckoo, Himalayan Cuckoo [710]		Species or species habitat may occur within area
<a href="#">Diomedea antipodensis</a> Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area
<a href="#">Diomedea epomophora</a> Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area
<a href="#">Diomedea exulans</a> Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
<a href="#">Diomedea gibsoni</a> Gibson's Albatross [64466]	Vulnerable*	Species or species habitat may occur within area
<a href="#">Fregata ariel</a> Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
<a href="#">Fregata minor</a> Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area
<a href="#">Gallinago hardwickii</a> Latham's Snipe, Japanese Snipe [863]		Foraging, feeding or related behaviour may occur within area
<a href="#">Gallinago megala</a> Swinhoe's Snipe [864]		Foraging, feeding or related behaviour likely to occur within area
<a href="#">Gallinago stenura</a> Pin-tailed Snipe [841]		Foraging, feeding or related behaviour likely to occur within area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
<a href="#">Heteroscelus brevipes</a> Grey-tailed Tattler [59311]		Foraging, feeding or related behaviour known to occur within area
<a href="#">Himantopus himantopus</a> Black-winged Stilt [870]		Foraging, feeding or related behaviour known to occur within area

Name	Threatened	Type of Presence
<a href="#">Hirundapus caudacutus</a> White-throated Needletail [682]		Species or species habitat known to occur within area
<a href="#">Lathamus discolor</a> Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Macronectes halli</a> Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area
<a href="#">Monarcha melanopsis</a> Black-faced Monarch [609]		Species or species habitat known to occur within area
<a href="#">Monarcha trivirgatus</a> Spectacled Monarch [610]		Species or species habitat known to occur within area
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat likely to occur within area
<a href="#">Myiagra cyanoleuca</a> Satin Flycatcher [612]		Species or species habitat known to occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Numenius minutus</a> Little Curlew, Little Whimbrel [848]		Foraging, feeding or related behaviour likely to occur within area
<a href="#">Numenius phaeopus</a> Whimbrel [849]		Foraging, feeding or related behaviour known to occur within area
<a href="#">Pachyptila turtur</a> Fairy Prion [1066]		Species or species habitat known to occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat known to occur within area
<a href="#">Pluvialis fulva</a> Pacific Golden Plover [25545]		Foraging, feeding or related behaviour known to occur within area
<a href="#">Puffinus carneipes</a> Flesh-footed Shearwater, Fleshy-footed Shearwater [1043]		Species or species habitat likely to occur within area
<a href="#">Rhipidura rufifrons</a> Rufous Fantail [592]		Species or species habitat known to occur within area
<a href="#">Rostratula benghalensis (sensu lato)</a> Painted Snipe [889]	Endangered*	Species or species habitat may occur within area

Name	Threatened	Type of Presence
<a href="#">Thalassarche cauta</a> Tasmanian Shy Albatross [89224]	Vulnerable*	Species or species habitat may occur within area
<a href="#">Thalassarche eremita</a> Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
<a href="#">Thalassarche impavida</a> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche melanophris</a> Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche salvini</a> Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche steadi</a> White-capped Albatross [64462]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area

Reptiles		
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Congregation or aggregation known to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Lepidochelys olivacea</a> Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat likely to occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area

Whales and other Cetaceans		[ Resource Information ]
Name	Status	Type of Presence
Mammals		
<a href="#">Sousa chinensis</a> Indo-Pacific Humpback Dolphin [50]		Species or species habitat likely to occur within area



Extra Information

State and Territory Reserves	[ Resource Information ]
Name	State
Brunswick Heads	NSW

Regional Forest Agreements	[ Resource Information ]
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Note that all areas with completed RFAs have been included.

Name	State
<a href="#">North East NSW RFA</a>	New South Wales

Invasive Species	[ Resource Information ]
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Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Pycnonotus jocosus Red-whiskered Bulbul [631]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species

Name	Status	Type of Presence
		habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Alternanthera philoxeroides Alligator Weed [11620]		Species or species habitat likely to occur within area
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643] Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425] Asparagus plumosus Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171] Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera subsp. rotundata Bitou Bush [16332]		Species or species habitat likely to occur within area
Dolichandra unguis-cati Cat's Claw Vine, Yellow Trumpet Vine, Cat's Claw Creeper, Funnel Creeper [85119]		Species or species habitat likely to occur within area
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Hymenachne amplexicaulis Hymenachne, Olive Hymenachne, Water Stargrass,		Species or species

Name	Status	Type of Presence
West Indian Grass, West Indian Marsh Grass [31754]		habitat likely to occur within area
Lantana camara		
Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Pinus radiata		
Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Protasparagus densiflorus		
Asparagus Fern, Plume Asparagus [5015]		Species or species habitat likely to occur within area
Protasparagus plumosus		
Climbing Asparagus-fern, Ferny Asparagus [11747]		Species or species habitat likely to occur within area
Rubus fruticosus aggregate		
Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla		
Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salvinia molesta		
Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis		
Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus		
Asian House Gecko [1708]		Species or species habitat likely to occur within area

# Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

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.

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

Where very little information is available for 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 reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

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

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

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

# Coordinates

-28.56294 153.4967



# 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

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

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