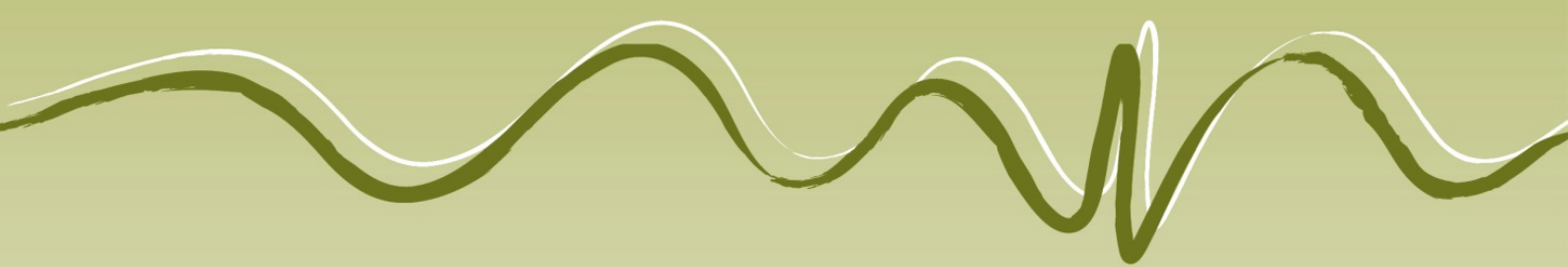


Biodiversity Assessment

Sugarmill Road, Sapphire Beach – Proposed Rezoning



PO Box 119
Lennox Head NSW 2478
T 02 6687 7666

PO Box 1446
Coffs Harbour NSW 2450
T 02 6651 7666

PO Box 1267
Armidale NSW 2350
T 02 6772 0454

PO Box 229
Lismore NSW 2480
T 02 6621 6677

info@geolink.net.au

Prepared for: Grahame Fry
© GeoLINK, 2021

<i>UPR</i>	<i>Description</i>	<i>Date Issued</i>	<i>Issued By</i>
3978-1003	First issue - draft	29 October 2021	Jessica O'Leary
3978-1013	Second issue - final	4 November 2021	Jessica O'Leary



Table of Contents

1.	Introduction	1
1.1	Background	1
1.2	The Site	1
1.3	Biodiversity Value Land	1
1.4	The Proposal	2
2.	Methodology	8
2.1	Desktop Review	8
2.2	Field Assessment	8
3.	Flora Results	9
3.1	Desktop Analysis	9
3.1.1	Database Search Results	9
3.2	Site Features	9
3.2.1	Vegetation	9
3.2.2	Threatened Flora	10
3.2.3	Threatened Ecological Communities (TECs)	10
3.2.4	Other Vegetation Types	10
3.2.5	Weeds	10
3.2.6	Condition	10
4.	Fauna Habitat Results	14
4.1	Desktop Analysis	14
4.1.1	Database Search Results	14
4.2	Site Features	14
4.2.1	Habitat Values	14
4.2.2	Hollow-bearing Trees (HBT)	14
4.2.3	Aquatic habitat	14
4.3	Threatened Fauna	15
4.3.1	Potential for Threatened Fauna Species Occurrence	15
5.	Impacts and Mitigation	16
5.1	Avoid and Minimise	16
5.2	Potential Impacts of Rezoning and Development	16
5.2.1	Clearing of Native Vegetation	16
5.2.2	Indirect Impacts	16
5.2.3	Prescribed Impacts	17
5.3	Recommendations	18
5.4	Future Requirements	19

6.	Statutory Requirements	20
6.1	State Environmental Planning Policy (SEPP) Koala Habitat Protection 2021	20
6.2	Coffs Harbour Development Control Plan (DCP) 2015	21
6.3	Biodiversity Conservation Act 2016 (BC Act)	22
6.4	Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	22

Illustrations

Illustration 1.1	Site Locality	3
Illustration 1.2	Biodiversity Value Land	4
Illustration 1.3	Site and Subdivision Concept sheets 1 to 3	5
Illustration 3.1	Biodiversity Constraints Mapping	11

Tables

Table 3.1	Vegetation Communities	9
Table 5.1	Prescribed impacts	17
Table 6.1	High Conservation Value Vegetation Types (as per DCP 2015)	21
Table 6.2	Assessment of MNES	22

Appendices

Appendix A	Site Photographs
Appendix B	Database Search Results
Appendix C	Flora Inventory
Appendix D	Fauna Inventory
Appendix E	Hollow-bearing Tree Data
Appendix F	Potential for Threatened Fauna Occurrence



Executive Summary

The Site and Proposal

GeoLINK has been engaged to prepare a Biodiversity Assessment Report (BAR) to inform a rezoning planning proposal for the following three properties on Sugarmill Road, Sapphire Beach (the site).

- 28 Sugarmill Road - Lot 12 DP 243972 (PN 1549900) (2.031 hectares (ha))
- 35 Sugarmill Road - Lot 91 DP 786155 (PN 129896) (2.366 ha)
- 89 Sugarmill Road - Lot 17 DP 249273 (PN 1461200) (2.032 ha)

The combined property area 6.429 ha with the land currently managed as part of existing residential development which includes prevalent landscape plantings and regularly mown/ slashed grassland. Areas of intact native eucalypt forest occur on the periphery of each Lot.

The site is currently zoned RU2 (Rural Landscape) under the Coffs Harbour Local Environmental Plan (CHLEP) 2013.

Biodiversity Value Land

Of the three subject Lots, Lot 12 is depicted as Biodiversity Value (BV) land, the remaining Lots (17 and 91) are not mapped as BV land.

It is noted that any impact on BV mapped land would trigger the Biodiversity Offset Scheme (BOS) and the need for a Biodiversity Development Assessment Report (BDAR) at the development application stage. Based on the concept layout for rezoning it is unlikely that future development of these lots would trigger entry into the BOS and require a BDAR.


Results of Field Assessment

Results of field assessment are as follows:

- No threatened flora species listed under the *Biodiversity Conservation Act 2016* or *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* occur at the site.
- No TECs listed under the BC or EPBC Act occur at the site.
- No State Environmental Planning Policy Coastal Management (2018) (littoral rainforest or coastal wetlands) (DPIE, 2021), over-cleared vegetation types, high value arboreal habitats or old growth forests (CHCC, 2021) occur at the site.
- Four discreet areas of native vegetation are recommended for rezoning as E2 Environmental Conservation.
- Koala (*Phascolarctos cinereus*) scats were detected beneath three Swamp Mahogany at Lot 17. Koalas are listed as *Vulnerable* under both the BC and EPBC Act.
- The site provides a range of good quality potential fauna habitats including native vegetation, hollow-bearing trees and aquatic habitats. While no significant habitat for threatened fauna occurs at the site, the site provides potential habitat for a number of locally occurring threatened fauna species.

Potential Impacts

The rezoning (and future development) of the site may result in the following potential biodiversity impacts, which based on the subdivision concept design may include:

- 
- Minor loss of native vegetation
 - Minor loss of preferred Koala feed trees
 - Minor loss of HBTs
 - Minor intensification of human occupation with regard to native fauna (e.g. minor increase in traffic movements).
 - Introduction of weed species during the construction period.
 - Disturbance to fauna during construction and ongoing occupation.
 - Fauna roadkill from a minor increase in vehicular traffic.

Recommendations


To minimise biodiversity impacts which may result from the proposed rezoning and future development of the site, the following measures should be considered:

- Proposed E2 zoned areas should be adopted to provide future development controls within areas of consolidated native vegetation and threatened species habitat.
- Clearing of native vegetation (mapped PCTs) should be avoided in the final design of subdivision with building envelopes and associated infrastructure (including boundary fences) to be located within cleared areas.
- Where native vegetation, tree hollows and/or Koala habitat requires removal, compensation will be required as per the CHDCP.
- Vegetation Management Plans (VMPs) should be required as a condition of consent for those lots including future E2 zoned land. The VMPs should include measures to protect and enhance native vegetation/ habitat within all E2 zoned land.

Statutory Matters

Review of statutory instruments relevant to the proposed rezoning was completed as follows:

- *State Environmental Planning Policy (SEPP) (Koala Habitat Protection) 2021* applies to all LGAs listed under Schedule 1, which includes the Coffs Harbour LGA. Where an approved Comprehensive Koala Plan of Management (CKPoM) is in place the SEPP defers to this plan. The *Coffs Harbour City Koala Plan of Management (CHCKPoM)* was prepared in accordance with the requirements of the SEPP and introduced in January 1995. Koala Habitat mapping indicates no mapped primary Koala habitat occurs at the site however areas of secondary and tertiary habitat are associated with vegetation on the site. While impacts to mapped Koala habitat is considered unlikely based on the current concept design, compensatory plantings as outlined in the Coffs Harbour DCP would be required for impacts to secondary Koala habitat.
- *Coffs Harbour Development Control Plan - (DCP - Part E1.2 (1) of the DCP outlines compensatory planting requirements for the removal of high conservation value vegetation. According to Part E1.2 (Compensatory Requirements) of the DCP, some of the vegetation at the subject site is considered high conservation value habitat, although unlikely to be impacted by the proposal. Compensatory planting is triggered by removal of the following habitat types on site:*
 - Hollow-bearing trees - 1:20 replacement rate required.
 - Secondary Koala Habitat (not adjacent to primary koala habitat) - 1:3 replacement rate required
 - Riparian Zones - 1:10 replacement rate required
 - Steep Land - 1:3 replacement rate required.
- *Biodiversity Conservation Act 2016 (BC Act):* As part of any future development application the following additional reporting would be required:

- 
- For those new lots which impact on BV mapped land and/ or require clearing of over 0.25 ha the BOS will be triggered and a BDAR will be required. It is noted that this includes impacts associated with APZs and future boundary/ fence lines. The BDAR determines biodiversity credits which are required to be purchased by the proponent to offset impacts of the development.
 - For those lots which don't trigger the BOS a revised Biodiversity Assessment Report (BAR) will be required to assess impacts of the final subdivision design. This report would be required to include updated statutory assessments including tests of significance (five-part tests) for potentially impacted threatened species/ TECs as required under the BC Act.
- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act): review of Matters of Environmental Significance (MNES) listed in the Act indicates that rezoning and subsequent development of the site is unlikely to significantly affect threatened species or communities listed in the EPBC Act.



1. Introduction

1.1 Background

GeoLINK has been engaged to prepare a Biodiversity Assessment Report (BAR) to inform a rezoning planning proposal for three properties on Sugarmill Road, Sapphire Beach (the site).

The site locality is shown at **Illustration 1.1**.

This assessment has been prepared to:

- Identify any ecological constraints to the proposed rezoning (e.g. habitat for threatened species or communities listed in the *Biodiversity Conservation Act 2016* (BC Act) or *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);
- Identify any significant trees or fauna habitat features of biodiversity importance; and
- Examine the proposal against relevant statutory requirements.

GeoLINK previously provided advice, which identified biodiversity values/ constraints on the site including areas of High Environmental Value (HEV land) to inform the design of the rezoning and future subdivision including the nomination of suitable land for Environment zoning.

1.2 The Site

The site comprises the following three properties:

- 28 Sugarmill Road - Lot 12 DP 243972 (PN 1549900) (2.031 hectares (ha))
- 35 Sugarmill Road - Lot 91 DP 786155 (PN 129896) (2.366 ha)
- 89 Sugarmill Road - Lot 17 DP 249273 (PN 1461200) (2.032 ha)

The combined property area 6.429 ha and is currently managed as part of existing residential development which includes prevalent landscape plantings and regularly mown/ slashed grassland. Areas of intact native eucalypt forest occur on the periphery of each Lot.

The site is currently zoned RU2 (Rural Landscape) under the Coffs Harbour Local Environmental Plan (CHLEP) 2013.

Photographs of the site are provided at **Appendix A**.

1.3 Biodiversity Value Land

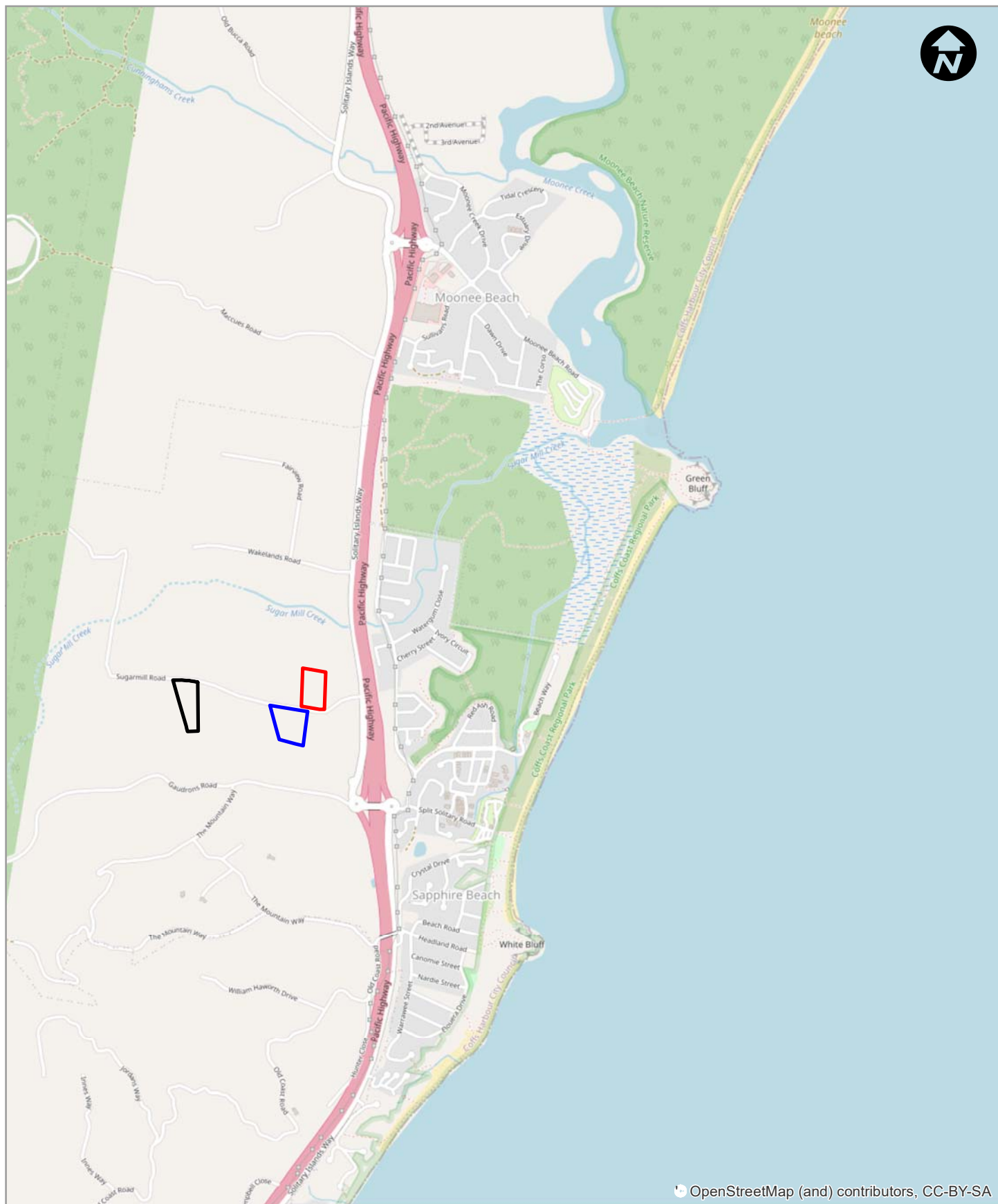
Of the three subject Lots, Lot 12 is depicted as Biodiversity Value (BV) land (refer to **Illustration 1.2**, the remaining Lots (17 and 91) are not mapped as BV land.

It is noted that any impact on BV mapped land would trigger the Biodiversity Offset Scheme (BOS) and the need for a Biodiversity Development Assessment Report (BDAR) to be prepared at the development application stage. Based on the concept layout for rezoning it is unlikely that future development of Lot 12 would impact on an area of BV mapped land.



1.4 The Proposal

The proposal is for rezoning of the subject land from RU2 Rural Landscape to R5 Large Lot Residential and E2 Environmental Conservation where appropriate. The proposal also seeks to amend the minimum lot size from 40 ha to permit the creation of additional lots with a minimum lot size of 0.6 hectares or less. A concept design for the proposed subdivision is shown in **Illustration 1.3**.



OpenStreetMap (and) contributors, CC-BY-SA

GDA 1994 MGA Zone 56

- LEGEND**
- 28 Sugarmill Road
 - 35 Sugarmill Road
 - 89 Sugarmill Road

0 500 Metres



LEGEND

 28 Sugarmill Road	 Cadastre
 35 Sugarmill Road	 Biodiversity Values mapping
 89 Sugarmill Road	





- LEGEND**
- Lot boundary
 - Cadastre
 - Watercourse
 - Concept plan**
 - BAL 12.5
 - BAL 19
 - BAL 29
 - Building envelope
 - Lot subdivision

The Site and Subdivision Concept
28 Sugarmill Road
Illustration 1.3 - Sheet 1 of 3



- LEGEND**
- Lot boundary
 - Cadastre
 - Watercourse
- Concept plan**
- BAL 12.5
 - BAL 19
 - BAL 29
 - Building envelope
 - Lot subdivision

0 20 Metres



- LEGEND**
- Lot boundary
 - Cadastral
 - Watercourse
 - Concept plan**
 - BAL 12.5
 - BAL 19
 - BAL 29
 - Building envelope
 - Lot subdivision

The Site and Subdivision Concept
89 Sugarmill Road
Illustration 1.3 - Sheet 3 of 3



2. Methodology

2.1 Desktop Review

The following desktop review was completed prior to field assessment:

- A search of the BioNet Wildlife Atlas (10 km x 10 km grid centred on the site); completed May 2021.
- A search of the Protected Matters Search Tool (PMST) for Matters of National Environmental Significance (MNES) within a 5 km radius of the site; completed May 2021.
- Review of Biodiversity Value mapping (as per the OEH Biodiversity Values Map and Threshold Tool).

Results of database searches are attached at **Appendix B**.

2.2 Field Assessment

Field assessment was completed on the 2nd and 3rd June 2021, using the following methodology:

- Walking survey to identify/ map native vegetation types and identify threatened flora or ecological communities listed in the BC Act or EPBC Act.
- GPS location of isolated paddock trees occurring on the site.
- The Koala Spot Assessment Technique (Phillips and Callaghan, 2011) was employed at the site with three SAT plots surveyed, one on each existing lot.
- Identification of hollow-bearing trees (HBTs) (or other significant habitat features) and potential habitat for threatened fauna.
- Opportunistic fauna survey.

Given that the site is relatively disturbed and generally lacking high quality vegetation/ fauna habitat, the scope of assessment is considered adequate.

3. Flora Results

3.1 Desktop Analysis

3.1.1 Database Search Results

BioNet search results identified records of 17 threatened flora species (including seven species also listed in the EPBC Act) and up to 12 threatened ecological communities (eight of which are listed under the EPBC Act) within the locality. PMST results identified habitat for 19 threatened flora species and four threatened ecological communities within the locality. Search results are provided at **Appendix B**.

3.2 Site Features


3.2.1 Vegetation

Whilst the site has been subject to historical selective clearing, forested parts of the site comprise a mature native canopy including several old growth trees. Native vegetation communities occurring on the site are summarised in **Table 3.1** with vegetation mapping provided at **Illustration 3.1**. Vegetation communities are aligned with plant community types (PCTs) in the BioNet Vegetation Classification based on characteristic species and geographical distribution.

A flora inventory is provided at **Appendix C**.

Table 3.1 Vegetation Communities

Relevant Lot number	Plant Community Type Name	Description
Lots 12 and 17	PCT 827 Flooded Gum – Tallowwood – Brush Box moist open forest of the coastal ranges of the North Coast	Associated with the low-lying parts of Lots 12 and 17. Dominant canopy trees comprise Flooded Gum (<i>Eucalyptus grandis</i>), Brush Box (<i>Lephostemon confertus</i>), Tallowwood (<i>Eucalyptus microcorys</i>) and Turpentine (<i>Syncarpia glomulifera</i>). Mid-storey species comprise Scentless Rosewood (<i>Synoum glandulosum</i>), White Aspen (<i>Acronychia oblongifolia</i>), Sweet Pittosporum (<i>Pittosporum undulatum</i>), Large Mock-Olive (<i>Notelaea longifolia</i>) and Willow Bottlebrush (<i>Callistemon salignus</i>). Groundcover and vine species comprise Rainbow Fern (<i>Calochlaena dubia</i>), Mat Rush (<i>Lomandra longifolia</i>), Rasp Fern (<i>Doodia aspera</i>), Native Yam (<i>Dioscorea transversa</i>) and Climbing Guinea Flower (<i>Hibbertia scandens</i>).
Lot 91	PCT 695 Blackbutt – Turpentine – Tallowwood shrubby open forest of the coastal foothills of the central NSW North Coast Bioregion	Occurs in the north and south of Lot 91 connected by a planted row of native and introduced trees. The understorey is removed from the patch closer to the road and maintained by mowing. Dominant canopy trees comprise Blackbutt (<i>Eucalyptus pilularis</i>), Turpentine and Tallowwood with occasional Red Mahogany (<i>Eucalyptus resinifera</i>), Grey Ironbark (<i>Eucalyptus siderophloia</i>), Small-fruited Grey Gum (<i>Eucalyptus propinqua</i>) and Pink Bloodwood (<i>Corymbia gummifera</i>). The Mid-storey comprises Sweet Pittosporum, Large Mock-Olive, Scentless Rosewood, Forest Oak (<i>Allocasuarina torulosa</i>), Orange Thorn (<i>Pittosporum multiflorum</i>) and Bolwarra (<i>Eupomatia laurina</i>). Groundcover and vine species comprise Gristle Fern (<i>Blechnum cartilagineum</i>), Blue Flax-lily (<i>Dianella caerulea</i>), Blady grass (<i>Imperata cylindrica</i>), Lawyer Vine (<i>Smilax australis</i>),



Relevant Lot number	Plant Community Type Name	Description
		Climbing Guinea Flower and Sweet Morinda (<i>Gynochthodes jasminoides</i>).
All lots	Planted garden ornamentals comprising introduced and native species Does not align with any PCT	Associated with the planted ornamental gardens generally surrounding the existing dwellings. Various planted trees and shrubs including Mango (<i>Mangifera indica</i>), Tibouchina (<i>Tibouchina granulosa</i>), Leopard Tree (<i>Libidibia ferrea</i>), various palms and a variety of fruit trees including Citrus spp.
Lot 89	Infestation of Cadaghi/ Slash Pine/ Lantana/ Winter Senna Does not align with any PCT	A patch of forest occurs at the southern end of Lot 17 dominated by Cadaghi (<i>Corymbia torelliana</i>), Slash Pine (<i>Pinus elliotii</i>), Lantana and Winter Senna (<i>Senna pendula</i> var. <i>glabrata</i>) and Crofton Weed (<i>Ageratina adenophora</i>).
All lots	Mowed Grasslands Does not align with any PCT	Associated with cleared areas of the site, dominated by introduced pasture grasses and herbaceous weeds including Vasey Grass (<i>Paspalum urveilli</i>), <i>Sporobolus</i> sp. Pigeon Grass (<i>Setaria sphacelata</i>) Broad-leaved Paspalum (<i>Paspalum mandiocanum</i>), Blue Billy Goat (<i>Ageratum houstonianum</i>), Cobblers Pegs (<i>Bidens Pilosa</i>) and Flat Weed (<i>Hypochoeris radicata</i>).

3.2.2 Threatened Flora

No threatened flora species listed under the BC Act or EPBC Act occur at the site.

3.2.3 Threatened Ecological Communities (TECs)

No TECs listed under the BC or EPBC Act occur at the site.

3.2.4 Other Vegetation Types

No *State Environmental Planning Policy Coastal Management* (2018) (littoral rainforest or coastal wetlands) (DPIE, 2021), over-cleared vegetation types, high value arboreal habitats or old growth forests (CHCC, 2021) occur at the site.

3.2.5 Weeds

A number of agricultural and environmental weeds occur as well as the following Priority Weeds as listed in the *Biosecurity Act 2015*:

- Lantana (*Lantana camara*).
- Bitou Bush (*Chrysanthemoides monilifera* subsp. *Rotundata*)

Relevant biosecurity duties must be enacted by land managers for weeds listed as Priority Weeds under the Biosecurity Act.

Weed species recorded at each site are shown in **Appendix C**.

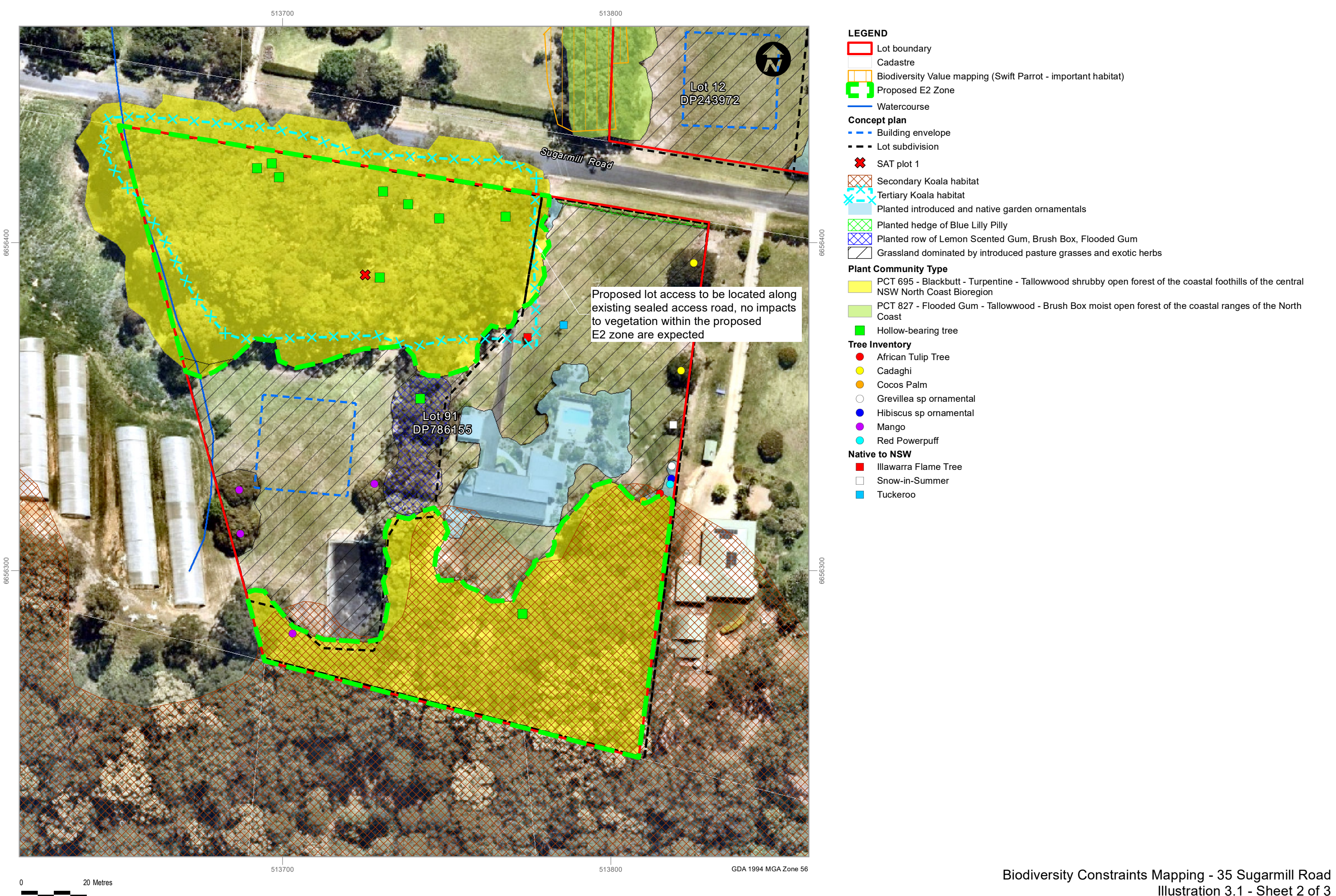
3.2.6 Condition

Parts of the sites are highly modified and disturbed from historic clearing and ongoing residential maintenance. Areas of eucalypt forest associated with the site are in moderate to good condition however have been subject to selective logging and encroachment of introduced species where the mid-storey has been historically disturbed.



- LEGEND**
- Lot boundary
 - Cadastre
 - Biodiversity Value mapping (Swift Parrot - important habitat)
 - Proposed E2 Zone
 - Farm dam
 - Watercourse
- Concept plan**
- Building envelope
 - Lot subdivision
 - SAT plot 2
- Plant Community Type**
- Secondary Koala habitat
 - Tertiary Koala habitat
 - Planted introduced and native garden ornamentals
 - Planted hedge of Blue Lilly Pilly
 - Grassland dominated by introduced pasture grasses and exotic herbs
- Plant Community Type**
- PCT 695 - Blackbutt - Turpentine - Tallowwood shrubby open forest of the coastal foothills of the central NSW North Coast Bioregion
 - PCT 827 - Flooded Gum - Tallowwood - Brush Box moist open forest of the coastal ranges of the North Coast
 - Hollow-bearing tree
- Tree Inventory**
- Banana Leaf Fig
 - Cadaghi
 - Crepe Myrtle
 - Ficus Tree
 - Lemon Myrtle
 - Leopard Tree (Libidibia ferrea)
- Native to NSW**
- Cheese Tree
 - Flooded gum
 - Native Frangipani
 - Willow Bottlebrush

Biodiversity Constraints Mapping - 28 Sugarmill Road
Illustration 3.1 - Sheet 1 of 3



- LEGEND**
- Lot boundary
 - Cadastral
 - Biodiversity Value mapping (Swift Parrot - important habitat)
 - Proposed E2 Zone
 - Watercourse
- Concept plan**
- Building envelope
 - Lot subdivision
 - SAT plot 1
 - Secondary Koala habitat
 - Tertiary Koala habitat
 - Planted introduced and native garden ornamentals
 - Planted hedge of Blue Lilly Pilly
 - Planted row of Lemon Scented Gum, Brush Box, Flooded Gum
 - Grassland dominated by introduced pasture grasses and exotic herbs
- Plant Community Type**
- PCT 695 - Blackbutt - Turpentine - Tallowwood shrubby open forest of the coastal foothills of the central NSW North Coast Bioregion
 - PCT 827 - Flooded Gum - Tallowwood - Brush Box moist open forest of the coastal ranges of the North Coast
 - Hollow-bearing tree
- Tree Inventory**
- African Tulip Tree
 - Cadaghi
 - Cocos Palm
 - Grevillea sp ornamental
 - Hibiscus sp ornamental
 - Mango
 - Red Powerpuff
- Native to NSW**
- Illawarra Flame Tree
 - Snow-in-Summer
 - Tuckeroo





4. Fauna Habitat Results

4.1 Desktop Analysis

4.1.1 Database Search Results

BioNet search results identified records of 54 threatened fauna species (including 19 species also listed in the EPBC Act) within the locality. PMST results identified habitat for 82 threatened fauna species and 60 migratory fauna species within the locality (refer to search results at **Appendix B**).

4.2 Site Features

4.2.1 Habitat Values

The site provides a range of good quality potential fauna habitats summarised as follows:

- *Myrtaceae* species occurring within forested areas provide nectar, pollen and foliage resources for a range of fauna species including birds, flying-foxes, gliders and invertebrates.
- Fruit forage resources from a range of mid-storey rainforest plants for frugivorous fauna species.
- Consolidated areas of vegetation which have connectivity to large areas of native forest within the broader locality for highly mobile species.
- Grassland areas which provide a general foraging resource for locally occurring birds or macropods.
- Swamp Mahogany and Tallowwood provide preferred foraging resources for Koalas.

A fauna inventory is provided at **Appendix D**.

4.2.2 Hollow-bearing Trees (HBT)

Fourteen HBTs were located on the site (five at Lot 12 and nine at Lot 91, refer to **Illustration 3.1**). A moderate number of small to large sized hollows provide potential resources for hollow-obligate species such as nesting birds, arboreal mammals, reptiles and microbats including a range of threatened fauna species. Hollow-bearing tree data is shown in **Appendix E**.

No raptor nests were recorded at the site.

4.2.3 Aquatic habitat

Lot 12: an unnamed tributary of Sugar Mill Creek flows through the northwest corner of Lot 12. A small farm dam also occurs along the western lot boundary.

Lot 17: contains a small farm which is fed by an ephemeral 2nd order drainage line.

These features would provide habitat for aquatic species including turtles, native fish, eels, amphibians and invertebrates and a drinking water resource for a range of fauna species.



4.3 Threatened Fauna

During SAT plot surveys Koala scats were detected at one site (Lot 17), beneath three Swamp Mahogany trees in the north-western corner of the site. Based on the small area of suitable habitat at the site the vegetation is most likely to provide opportunistic foraging resources and connectivity values through the landscape as opposed to core habitat values for Koalas. As per the CHCKPoM Secondary and Tertiary Koala habitat occurs at the site at Lots 12 and 91 (refer to **Illustration 3.1**).

Due to the occurrence of several flowering and fruiting trees in the myrtaceae family, potential foraging habitat for the Grey-headed Flying-fox occurs. Several species of microchiropteran bats may forage within the site on an opportunistic or seasonal basis as part of broader areas of similar aerial foraging habitat occurring within the locality.

Suitable foraging habitat for Southern Myotis occurs at Lots 12 and 17 (waterway and farm dam) with HBTs at Lots 12 and 91 providing potential roosting/ breeding habitat.

Foraging habitat occurs within the consolidated native vegetation communities for a range of threatened birds including forest owls and rainforest pigeons. Forest Oak, a key diet species for Glossy Black-cockatoo occurs at Lot 91.

Eucalyptus forest provides foraging habitat for threatened glider species, HBTs provide suitable denning/ breeding resources.

4.3.1 Potential for Threatened Fauna Species Occurrence

As per the Important Habitat Map in the Biodiversity Offset Assessment Management System (BOAMS), part of Lot 12 is mapped as 'Important Habitat for Swift Parrot'.

Based on habitats present and BioNet Wildlife Atlas records, a number of threatened fauna species have potential to occur at the site (refer to **Appendix F**). Some of which would require targeted survey as part of the biodiversity assessment required for a future development application. They include (but are not limited to):

- | | |
|-----------------------------------|---|
| ■ Giant Barred Frog | ■ Grey-headed Flying-fox (foraging habitat) |
| ■ Little Lorikeet | ■ Southern Myotis |
| ■ Glossy Black-Cockatoo | ■ Eastern Coastal Free-tailed Bat |
| ■ Powerful Owl (foraging habitat) | ■ Little Bent-winged Bat |
| ■ Sooty Owl (foraging habitat) | ■ Large Bent-winged Bat |
| ■ Barred Cuckoo Shrike | ■ Wompoo Fruit-dove |
| ■ Squirrel Glider | ■ Rose-crowned Fruit-Dove |
| ■ Yellow-bellied Glider | ■ Yellow-bellied Sheath-tailed Bat |
| ■ Swift Parrot (foraging habitat) | ■ Koala |
| ■ White-throated Needletail | |



5. Impacts and Mitigation

5.1 Avoid and Minimise

Biodiversity constraints at the site include:

- Area of consolidated native vegetation
- Associated areas of fauna habitat
- Aquatic habitats, farm dams and waterways
- Hollow-bearing trees.

As part of the planning proposal and to inform concept subdivision design GeoLINK prepared advice nominating areas of higher conservation value for retention and rezoning to Environmental Conservation (E2). This advice was used to inform the current subdivision concept designs which shows Asset Protection zones (APZ), dwelling envelopes and site access to be located outside of consolidated areas of native forest communities. Thereby avoiding and minimising impacts on biodiversity.

Areas proposed for E2 zoning are shown in **Illustration 3.1**.

5.2 Potential Impacts of Rezoning and Development

5.2.1 Clearing of Native Vegetation

Based on the current concept subdivision layout (refer to **Illustration 1.3**) rezoning and future development of the site would incur a very minor loss of planted native vegetation for purposes of access into the proposed new Lot 91'A'. One hollow-bearing Flooded Gum may be impacted.

Recommendations to avoid or minimise impacts to consolidated forest vegetation have been provided in **sections 5.3** and **5.4** of this report and should be incorporated into subsequent subdivision design prior to finalising.

Final clearing areas would need to be determined at the time of submitting a development application based on final subdivision designs.

5.2.2 Indirect Impacts

Indirect impacts are development related activities not associated with clearing for the development footprint and may include matters such as increased noise, dust, light spill, weeds and pathogens and edge effects that can be reasonably attributed to the development. Based on the construction requirements and nature of the proposed development (residential development), anticipated indirect development may include:

1. Minor short-term disturbance (noise, human activity, machine operations) to locally occurring urban-adapted fauna species during development, construction and operation.
2. Minor potential for reduced water quality and altered hydrology due to works.
3. Minor increased risk of roadkill from increased vehicular movements on surrounding roads. It is noted that this is likely to be very minor given the small number of additional residents likely.

4. Ongoing disturbance to local fauna during occupation of the site from noise, light, human presence.
5. Potential for weeds to be imported to the site and surrounding environments during the construction stage of the proposal.
6. Potential for additional minor impacts on native fauna from additional roaming domestic animals.

5.2.3 Prescribed Impacts


Prescribed impacts are those that may affect biodiversity values in addition to, or instead of, impacts from clearing vegetation, and include (as per cl. 6.1 of the BC Regulation):

- *the impacts of development on the habitat of threatened species or ecological communities associated with:*
 - *karst, caves, crevices, cliffs and other geological features of significance*
 - *rocks*
 - *human made structures*
 - *non-native vegetation*
- *the impacts of development on the connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range*
- *the impacts of development on movement of threatened species that maintains their life cycle*
- *the impacts of development on water quality, waterbodies and hydrological processes that sustain threatened species and threatened ecological communities (including from subsidence or upsidence resulting from underground mining or other development)*
- *the impacts of wind turbine strikes on protected animals*
- *the impacts of vehicle strikes on threatened species of animals or on animals that are part of a threatened ecological community.*

An analysis of prescribed impacts is detailed in **Table 5.1**.

Table 5.1 Prescribed impacts

Prescribed impact	Response
<i>the impacts of development on the habitat of threatened species or ecological communities associated with:</i> <ul style="list-style-type: none"> - <i>karst, caves, crevices, cliffs and other geological features of significance</i> - <i>rocks</i> - <i>human made structures</i> - <i>non-native vegetation</i> 	<p>The site does not support karst geology and no rock features are evident. Human-made structures occur on the site but do not represent habitat for threatened species.</p> <p>Non-native vegetation includes landscaping plantings, gardens and lawns associated with existing residences. This vegetation does not represent likely habitat for any threatened species, with the exception of the introduced Mango trees which may provide forage resources to Grey-headed Flying-fox when preferred nectar recourses are scarce.</p>



Prescribed impact	Response
<i>the impacts of development on the connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range</i>	The proposed rezoning and future subdivision of the site represents a relatively minor intensification of existing land uses on the site. Additional clearing may be required in parts of the site. The proposal is considered unlikely to adversely affect connectivity for locally occurring threatened species. It is noted that the adoption of proposed E2 zones would provide for the protection of vegetation which would contribute to maintaining connectivity for threatened species.
<i>the impacts of development on movement of threatened species that maintains their life cycle</i>	Refer above
<i>the impacts of development on water quality, waterbodies and hydrological processes that sustain threatened species and threatened ecological communities (including from subsidence or upsidence resulting from underground mining or other development)</i>	The most substantial waterbody associated with the site is an unnamed tributary of Sugar Mill Creek within Lot 12 which is proposed to be protected with associated vegetation as part of an E2 zone providing a buffer to any adjacent construction works.
<i>the impacts of wind turbine strikes on protected animals</i>	The Proposal is not a wind farm development.
<i>the impacts of vehicle strikes on threatened species of animals or on animals that are part of a threatened ecological community</i>	The Proposal may result in a very minor increase in vehicular traffic on surrounding roads however this given the additional small volume of traffic the change in risk of vehicle strike is considered to be negligible.

5.3 Recommendations

To minimise biodiversity impacts which may result from the proposed rezoning and future development of the site, the following measures should be considered:

- Proposed E2 zoned areas (as shown in **Illustration 3.1**) should be adopted to provide future development controls within areas of consolidated native vegetation and threatened species habitat.
- Clearing of native vegetation (mapped PCTs) should be avoided in the final design of subdivision with building envelopes and associated infrastructure (including boundary fences) to be located within cleared areas.
- Where native vegetation, tree hollows and/or Koala habitat requires removal, compensation will be required (refer to **Section 5.4**).
- Vegetation Management Plans (VMPs) should be required as a condition of consent for those lots including future E2 zoned land. The VMPs should include measures to protect and enhance native vegetation/ habitat within all E2 zoned land.



5.4 Future Requirements

Based on the site assessment the proposed rezoning and future redevelopment of the site would have relatively low impacts on biodiversity, due mainly to future development avoiding most areas of forested vegetation. In the event the rezoning proposal is accepted, the following requirements would need to be addressed for any future proposal to develop the site:

- Incorporate the recommendations in this assessment (**Section 5.3**) as part of future design.
- As part of any future development application the following additional reporting would be required:
 - For those new lots which impact on BV mapped land and/ or require clearing of over 0.25 ha the BOS will be triggered and a BDAR will be required. It is noted that this includes impacts associated with APZs and future boundary/ fence lines. The BDAR determines biodiversity credits which are required to be purchased by the proponent to offset impacts of the development. It is considered unlikely the BOS will be triggered due to the current concept design largely avoiding impacts to native vegetation or BV land.
 - For those lots which don't trigger the BOS a revised Biodiversity Assessment Report (BAR) will be required to assess impacts of the final subdivision design. This report would be required to include updated statutory assessments including tests of significance (five-part tests) for potentially impacted threatened species/ TECs.
- The BDAR or BAR to be prepared for a future development application will need to address Council's DCP and as such will need to determine compensation requirements and/or vegetation management measures to offset the loss of native vegetation (in addition to Koala habitat) where relevant.

6. Statutory Requirements

The following sections examine the findings of the site assessment with regard to relevant statutory requirements which require consideration for the development application.

6.1 State Environmental Planning Policy (SEPP) Koala Habitat Protection 2021

State Environmental Planning Policy (Koala Habitat Protection) 2021 applies to all LGAs listed under Schedule 1, which includes the Coffs Harbour LGA. Where an approved Comprehensive Koala Plan of Management (CKPoM) is in place the SEPP defers to this plan. The Coffs Harbour City Koala Plan of Management (CHCKPoM) was prepared in accordance with the requirements of the SEPP and introduced in January 1995.

Koala Habitat mapping for the site as per the CHCKPoM is shown in **Figure 6.1**. No mapped primary Koala habitat occurs at the site however areas of secondary and tertiary habitat are associated with vegetation at the site. Compensatory plantings as outlined in the Coffs Harbour DCP would be required for impacts to secondary Koala habitat (refer to **Section 6.2**) however it is noted that no impacts to secondary Koala habitat are currently proposed as part of the current concept design.

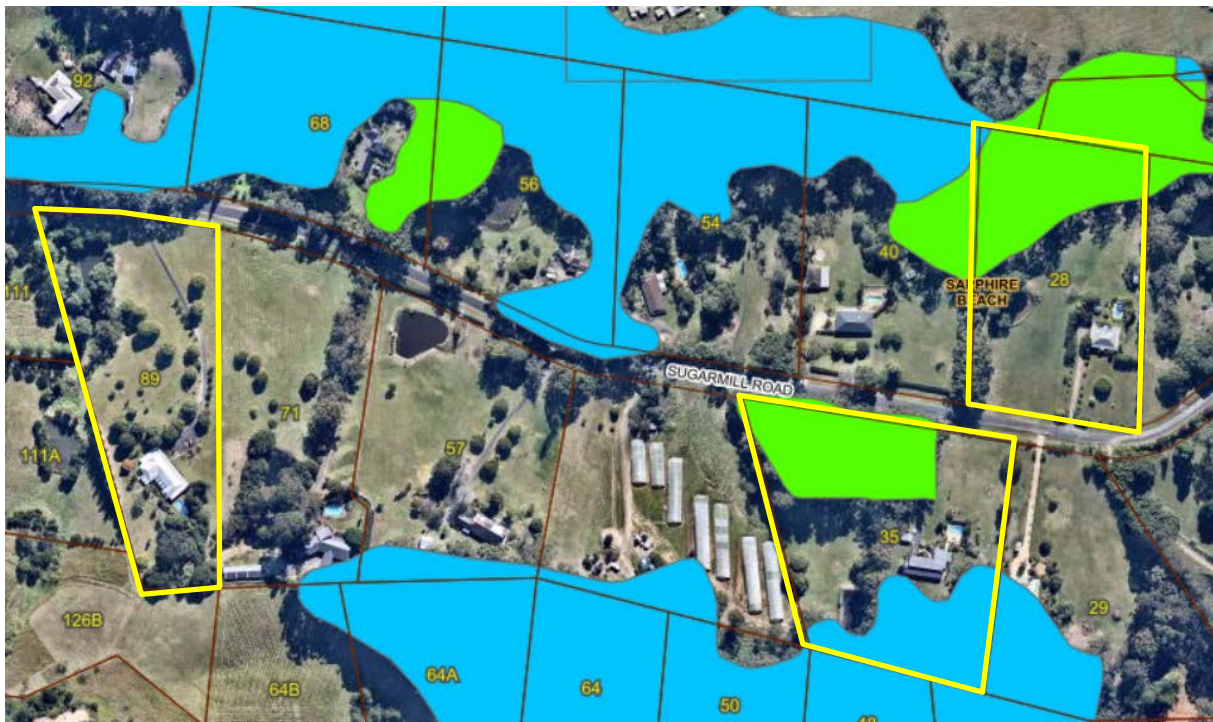


Figure 6.1 CHCKPoM Koala Habitat Mapping in relation to the site (yellow polygon) (secondary habitat – blue, tertiary habitat - green)

6.2 Coffs Harbour Development Control Plan (DCP) 2015

Part E1.2 (1) of DCP 2015 outlines compensatory planting requirements for the removal of high conservation value vegetation (refer to definitions in **Table 6.1**). According to Part E1.2 (Compensatory Requirements) of the DCP, the vegetation at the subject site is considered high conservation value habitat. Compensatory planting is triggered by removal of the following habitat types on site:

- Hollow-bearing trees - 1:20 replacement rate required
- Secondary Koala Habitat (not adjacent to primary koala habitat) - 1:3 replacement rate required
- Riparian Zones - 1:10 replacement rate required
- Steep Land - 1:3 replacement rate required.

Table 6.1 High Conservation Value Vegetation Types (as per DCP 2015)

<i>Description of Habitat Type</i>	<i>Replacement Rate</i>	<i>Does the vegetation to be impacted align with the high conservation value vegetation type description or require compensatory planting?</i>
Native old growth, hollow-bearing or ecologically/aesthetically significant tree	1:20	Possible – a number of HBTs occur at the site. However only one hollow-bearing tree occurs within the development footprint associated with access to Lot 91'A'. Clearing of HBTs would require compensatory plantings at a ratio of 1:20. Numbers of compensatory plantings will be determined at the development application stage.
Endangered Ecological Community, Over-Cleared Vegetation Types and High Value Arboreal Habitats	1:10	No – the vegetation to be impacted by the proposal does not align with this habitat type description and does not trigger the need for compensatory planting.
Primary Koala Habitat	1:5	No – the vegetation to be impacted by the proposal does not align with this habitat type description and does not trigger the need for compensatory planting.
Secondary Koala Habitat (adjacent to primary koala habitat)	1:5	No – the vegetation to be impacted by the proposal does not align with this habitat type description and does not trigger the need for compensatory planting.
Secondary Koala Habitat (not adjacent to primary koala habitat)	1:3	Possible but unlikely – Secondary Koala habitat occurs at both Lots 12 and 91, however it is unlikely this vegetation will be impacted due to proposed E2 zone protections. Should removal of Secondary Koala habitat be unavoidable, compensatory plantings of native trees within relevant Lots will be required at a 1:3 ratio. Numbers of compensatory plantings will be determined at the development application stage.
Riparian Zones	1:10	Possible but unlikely – the vegetation to be impacted by the proposal does not align with this habitat type description and does not trigger the need for compensatory planting. Although riparian vegetation occurs at Lots 12 and 17 associated with ephemeral and permanent waterways.
Steep Land	1:3	Possible but unlikely - the vegetation to be impacted by the proposal does not align with this habitat type description and does not trigger the need for compensatory planting. Although a small portion of the southern end of Lot 17 is mapped as 'steep and erodible lands' under the DCP.
Other	1:2	n/a

6.3 Biodiversity Conservation Act 2016 (BC Act)

As part of any future development application the following additional reporting would be required:

- For those new lots which impact on BV mapped land and/ or require clearing of over 0.25 ha the BOS will be triggered and a BDAR will be required. It is noted that this includes impacts associated with APZs and future boundary/ fence lines. The BDAR determines biodiversity credits which are required to be purchased by the proponent to offset impacts of the development.
- For those lots which don't trigger the BOS a revised Biodiversity Assessment Report (BAR) will be required to assess impacts of the final subdivision design. This report would be required to include updated statutory assessments including tests of significance (five-part tests) for potentially impacted threatened species/ TECs as required under the BC Act.

6.4 Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)


The EPBC Act protects/ regulates matters of national environmental significance (MNES), including:

- World heritage properties
- National heritage places
- Wetlands of international importance
- Nationally threatened species and ecological communities
- Migratory species
- Commonwealth marine areas
- The Great Barrier Reef Marine Park
- Nuclear actions (including uranium mining)
- A water resource, in relation to coal seam gas development and large coal mining development.

Based on the search results and site assessment, significant impacts to any MNES would not be likely to result from the proposal (refer to **Table 6.2**).

Table 6.2 Assessment of MNES

Matter	Potential impact
<i>Any impact on a World Heritage property?</i>	
No World Heritage properties occur within a 5 km radius of the site.	Nil
<i>Any impact on a National Heritage place?</i>	
No National Heritage places occur within a 5 km radius of the site.	Nil
<i>Any impact on a Wetland of International Importance?</i>	
No wetlands of international importance (Ramsar sites) occur within a 5 km radius of the site.	Nil
<i>Any impact on the Great Barrier Reef Marine Park?</i>	
The Great Barrier Reef Marine park is distant from the site.	Nil
<i>Any impact on a Commonwealth marine area?</i>	
No Commonwealth marine areas occur within a 5 km radius of the site.	Nil



Matter	Potential impact
<p><i>Any impact on nationally threatened species and ecological communities?</i></p> <p>Habitat for four threatened ecological communities and 82 threatened species is identified within a 5 km radius of the site. No EPBC listed ecological communities occur at the site. Evidence of Koala use at the site scats beneath Swamp Mahogany (which will not be impacted by the proposal). The Grey-headed Flying-fox may use the site on an opportunistic or seasonal basis when myrtaceous trees are in flower. Given the relatively fragmented and disturbed habitat within the site, the proposal would be unlikely result in the removal of habitat important to any threatened fauna species in a local context and would not contribute significantly to any listed key threatening processes.</p>	<p>Minor</p>
<p><i>Any impact on Migratory species?</i></p> <p>Habitat for 60 migratory species is identified within a 5km radius of the site. Given the relatively fragmented and disturbed habitat present at the site, migratory species are unlikely to be significantly affected by the proposal.</p>	<p>Minor</p>



References

Biodiversity Conservation Division (2021). *Biodiversity Values Map and Threshold Tool (Version 11)*. Viewed October 2021. {<https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap>}.

Coffs Harbour City Council online mapping portal. Viewed October 2021.

{<https://enterprise.mapimage.net/intramaps97/default.htm?configId=002f3dcb-246d-4ce9-9a12-ce55e9df910f&project=CoffsHarbour%20Public&module=General%20Enquiry>}

Coffs Harbour Development Control Plan (2015). Viewed October 2021. {https://chcc-icon.saas.t1cloud.com/public/pages/plan/book.aspx?exhibit=chcc_standard_exhibition_dcp_2015}

Department of the Environment and Energy (2021). *Protected Matters Search Tool*. Viewed May 2021.

Department of the Environment and Energy (2021). SEPP Coastal Management 2018 online mapping portal. Viewed October 2021.

{https://webmap.environment.nsw.gov.au/PlanningHtml5Viewer/?viewer=SEPP_CoastalManagement}

Environment, Energy and Science (2021) Biodiversity Offsets and Agreement Management System (BOAMS) Important Habitat Maps. [Accessed July 2021].

Lunney, D., Moon, C., Matthews, A. & Turbill, J. (1999). *Coffs Harbour City Koala Plan of Management (Part A: The Plan)*. National Parks and Wildlife Service and Coffs Harbour City Council, NSW.

NSW Department of Planning, Industry and Environment (2021). *NSW BioNet Database Search Tool*. [Accessed May 2021]. <http://www.bionet.nsw.gov.au/>

NSW Department of Planning, Industry and Environment (2020). *Threatened Species Profiles*. [Accessed October 2021]. <https://www.environment.nsw.gov.au/threatenedspeciesapp/>



Copyright and Usage

©GeoLINK, 2021

This document, including associated illustrations and drawings, was prepared for the exclusive use of Grahame Fry. It is not to be used for any other purpose or by any other person, corporation or organisation without the prior consent of GeoLINK. GeoLINK accepts no responsibility for any loss or damage suffered howsoever arising to any person or corporation who may use or rely on this document for a purpose other than that described above.

This document, including associated illustrations and drawings, may not be reproduced, stored, or transmitted in any form without the prior consent of GeoLINK. This includes extracts of texts or parts of illustrations and drawings.

The information provided on illustrations is for illustrative and communication purposes only. Illustrations are typically a compilation of data supplied by others and created by GeoLINK. Illustrations have been prepared in good faith, but their accuracy and completeness are not guaranteed. There may be errors or omissions in the information presented. In particular, illustrations cannot be relied upon to determine the locations of infrastructure, property boundaries, zone boundaries, etc. To locate these items accurately, advice needs to be obtained from a surveyor or other suitably-qualified professional.



Appendix A

Site Photographs

Photographs of 28 Sugarmill Road - Lot 12 DP 243972



Plate 1 PCT 827 Flooded Gum – Tallowwood – Brush Box moist open forest associated with the farm dam (foreground) and unnamed tributary of Sugar Mill Creek (background) on existing Lot 12 DP 243972. View to the northwest.



Plate 2 Yellow line indicates proposed new lot adjacent to existing Lot 12 DP 243972. View to the north.



Plate 3 Yellow line indicates the proposed lot boundary. Eucalyptus vegetation (PCT 827) is mapped BV land, not to be impacted by the proposal. View to the northwest.

Photographs of 35 Sugarmill Road - Lot 91 DP 786155



Plate 4 Shows the existing lot and dwelling with cleared land in the foreground, ornamental species associated with landscaped gardens and *PCT 695 Blackbutt – Turpentine – Tallowwood shrubby open forest* in the background. View to the southwest.



Plate 5 Shows the proposed lot with yellow line indicating the proposed dwelling envelope. Proposed lot access will be from the east (left of image). View to the south.



Plate 6 Shows the proposed lot with yellow line indicating the proposed dwelling envelope. Proposed lot access will be from the east (right of image). *PCT 695* in background. View to the south.

Photographs of 89 Sugarmill Road - Lot 17 DP 249273



Plate 7 Shows the existing lot with yellow line indicating the proposed lot boundary (left of image). The proposed existing lot access is shown in pink. View to the north.



Plate 8 Shows Swamp Mahogany where Koala scats were recorded. Proposed to be zoned E2. View to the southwest.

































Plate 9 Shows the existing farm dam and PCT 827. Proposed to be zoned E2. View to the northwest.































Appendix B

Database Search Results

Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Public Report of all Valid Records of Threatened (listed on BC Act 2016) or Commonwealth listed Entities in selected area [North: -30.18 West: 153.09 East: 153.19 South: -30.28] returned a total of 1,702 records of 71 species.
Report generated on 26/05/2021 9:47 AM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Animalia	Amphibia	Myobatrachida e	3075	<i>Mixophyes iteratus</i>		Giant Barred Frog	E1,P,2	E	31	
Animalia	Amphibia	Hylidae	3169	<i>Litoria brevipalmata</i>		Green-thighed Frog	V,P		3	
Animalia	Reptilia	Cheloniidae	2004	<i>Caretta caretta</i>		Loggerhead Turtle	E1,P	E	2	
Animalia	Reptilia	Cheloniidae	2007	<i>Chelonia mydas</i>		Green Turtle	V,P	V	3	
Animalia	Reptilia	Cheloniidae	2008	<i>Eretmochelys imbricata</i>		Hawksbill Turtle	P	V	3	
Animalia	Reptilia	Elapidae	2677	<i>Hoplocephalus stephensii</i>		Stephens' Banded Snake	V,P		9	
Animalia	Aves	Casuariidae	0001	<i>Dromaius novaehollandiae</i>		Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area	E2,P		1	
Animalia	Aves	Columbidae	0025	<i>Ptilinopus magnificus</i>		Wompoo Fruit-Dove	V,P		64	
Animalia	Aves	Columbidae	0021	<i>Ptilinopus regina</i>		Rose-crowned Fruit-Dove	V,P		19	
Animalia	Aves	Apodidae	0334	<i>Hirundapus caudacutus</i>		White-throated Needletail	P	V,C,J,K	55	
Animalia	Aves	Procellariidae	0971	<i>Pterodroma solandri</i>		Providence Petrel	V,P		1	
Animalia	Aves	Ciconiidae	0183	<i>Ephippiorhynchus asiaticus</i>		Black-necked Stork	E1,P		6	
Animalia	Aves	Ardeidae	0196	<i>Ixobrychus flavicollis</i>		Black Bittern	V,P		6	
Animalia	Aves	Accipitridae	0226	<i>Haliaeetus leucogaster</i>		White-bellied Sea-Eagle	V,P		44	
Animalia	Aves	Accipitridae	0225	<i>Hieraaetus morphnoides</i>		Little Eagle	V,P		6	
Animalia	Aves	Accipitridae	0230	<i>Lophoictinia isura</i>		Square-tailed Kite	V,P,3		3	
Animalia	Aves	Accipitridae	8739	<i>Pandion cristatus</i>		Eastern Osprey	V,P,3		23	
Animalia	Aves	Gruidae	0177	<i>Grus rubicunda</i>		Brolga	V,P		1	
Animalia	Aves	Burhinidae	0175	<i>Esacus magnirostris</i>		Beach Stone-curlew	E4A,P		3	
Animalia	Aves	Haematopodida e	0131	<i>Haematopus fuliginosus</i>		Sooty Oystercatcher	V,P		21	
Animalia	Aves	Haematopodida e	0130	<i>Haematopus longirostris</i>		Pied Oystercatcher	E1,P		10	
Animalia	Aves	Laridae	0117	<i>Sternula albifrons</i>		Little Tern	E1,P	C,J,K	2	
Animalia	Aves	Cacatuidae	0268	<i>Callocephalon fimbriatum</i>		Gang-gang Cockatoo	V,P,3		1	
Animalia	Aves	Cacatuidae	0265	<i>Calyptorhynchus lathami</i>		Glossy Black-Cockatoo	V,P,2		63	
Animalia	Aves	Psittacidae	0260	<i>Glossopsitta pusilla</i>		Little Lorikeet	V,P		29	
Animalia	Aves	Psittacidae	0309	<i>Lathamus discolor</i>		Swift Parrot	E1,P,3	CE	19	
Animalia	Aves	Strigidae	0246	<i>Ninox connivens</i>		Barking Owl	V,P,3		1	
Animalia	Aves	Strigidae	0248	<i>Ninox strenua</i>		Powerful Owl	V,P,3		4	
Animalia	Aves	Tytonidae	0252	<i>Tyto longimembris</i>		Eastern Grass Owl	V,P,3		1	
Animalia	Aves	Tytonidae	0250	<i>Tyto novaehollandiae</i>		Masked Owl	V,P,3		1	
Animalia	Aves	Tytonidae	9924	<i>Tyto tenebricosa</i>		Sooty Owl	V,P,3		10	
Animalia	Aves	Climacteridae	8127	<i>Climacteris picumnus victoriae</i>		Brown Treecreeper (eastern subspecies)	V,P		1	
Animalia	Aves	Meliphagidae	0603	<i>Anthochaera phrygia</i>		Regent Honeyeater	E4A,P	CE	3	
Animalia	Aves	Neosittidae	0549	<i>Daphoenositta chrysoptera</i>		Varied Sittella	V,P		11	
Animalia	Aves	Campephagida e	0428	<i>Coracina lineata</i>		Barred Cuckoo-shrike	V,P		4	
Animalia	Aves	Artamidae	8519	<i>Artamus cyanopterus cyanopterus</i>		Dusky Woodswallow	V,P		4	
Animalia	Aves	Petroicidae	0380	<i>Petroica boodang</i>		Scarlet Robin	V,P		2	
Animalia	Mammalia	Dasyuridae	1008	<i>Dasyurus maculatus</i>		Spotted-tailed Quoll	V,P	E	1	
Animalia	Mammalia	Dasyuridae	1017	<i>Phascogale tapoatafa</i>		Brush-tailed Phascogale	V,P		1	
Animalia	Mammalia	Dasyuridae	1045	<i>Planigale maculata</i>		Common Planigale	V,P		2	
Animalia	Mammalia	Phascolarctida e	1162	<i>Phascolarctos cinereus</i>		Koala	V,P	V	109	
Animalia	Mammalia	Petauridae	1136	<i>Petaurus australis</i>		Yellow-bellied Glider	V,P		11	
Animalia	Mammalia	Petauridae	1137	<i>Petaurus norfolcensis</i>		Squirrel Glider	V,P		8	

Animalia	Mammalia	Pseudocheiridae	1133	<i>Petauroides volans</i>	Greater Glider	P	V	1	
Animalia	Mammalia	Pteropodidae	1280	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V,P	V	33	
Animalia	Mammalia	Pteropodidae	1294	<i>Syconycteris australis</i>	Common Blossom-bat	V,P		9	
Animalia	Mammalia	Emballonuridae	1321	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheathtail-bat	V,P		2	
Animalia	Mammalia	Molossidae	1329	<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	V,P		3	
Animalia	Mammalia	Vespertilionidae	1357	<i>Myotis macropus</i>	Southern Myotis	V,P		7	
Animalia	Mammalia	Vespertilionidae	1369	<i>Phoniscus papuensis</i>	Golden-tipped Bat	V,P		4	
Animalia	Mammalia	Miniopteridae	1346	<i>Miniopterus australis</i>	Little Bent-winged Bat	V,P		24	
Animalia	Mammalia	Miniopteridae	3330	<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	V,P		4	
Animalia	Mammalia	Balaenopteridae	1575	<i>Megaptera novaeangliae</i>	Humpback Whale	V,P	V	2	
Animalia	Insecta	Hesperiidae	1023	<i>Ocybadistes knightorum</i>	Black Grass-dart Butterfly	E1		29	
Plantae	Flora	Apocynaceae	1233	<i>Marsdenia longiloba</i>	Slender Marsdenia	E1	V	68	
Plantae	Flora	Apocynaceae	9505	<i>Parsonsia dorrigoensis</i>	Milky Silkpod	V	E	1	
Plantae	Flora	Araceae	10749	<i>Typhonium sp. aff. brownii</i>	Stinky Lily	E1,3		1	
Plantae	Flora	Fabaceae (Faboideae)	2897	<i>Kennedia retrorsa</i>		V	V	2	
Plantae	Flora	Fabaceae (Faboideae)	11644	<i>Pultenaea maritima</i>	Coast Headland Pea	V		9	
Plantae	Flora	Fabaceae (Faboideae)	3032	<i>Sophora tomentosa</i>	Silverbush	E1		5	
Plantae	Flora	Lindsaeaceae	8128	<i>Lindsaea incisa</i>	Slender Screw Fern	E1,3		20	
Plantae	Flora	Myrtaceae	4283	<i>Rhodamnia rubescens</i>	Scrub Turpentine	E4A		31	
Plantae	Flora	Myrtaceae	4284	<i>Rhodomyrtus psidioides</i>	Native Guava	E4A		15	
Plantae	Flora	Orchidaceae	9027	<i>Diuris praecox</i>	Rough Doubletail	V,P,2	V	1	
Plantae	Flora	Poaceae	8979	<i>Alexfloydia repens</i>	Floyd's Grass	E1		8	
Plantae	Flora	Proteaceae	9680	<i>Macadamia integrifolia</i>	Macadamia Nut		V	1	
Plantae	Flora	Rutaceae	9496	<i>Zieria prostrata</i>	Headland Zieria	E1	E	3	
Plantae	Flora	Rutaceae	5847	<i>Zieria smithii</i>	Low growing form of Z. smithii, Diggers Head	E2		2	
Plantae	Flora	Santalaceae	5871	<i>Thesium australe</i>	Austral Toadflax	V	V	8	
Plantae	Flora	Sapotaceae	11957	<i>Niemeyera whitei</i>	Rusty Plum, Plum Boxwood	V		222	
Plantae	Flora	Simaroubaceae	9497	<i>Quassia sp. Moonee Creek</i>	Moonee Quassia	E1	E	585	

Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Public Report of all Valid Records of Threatened (listed on BC Act 2016) or Commonwealth listed Communities in selected area [North: -30.18 West: 153.09 East: 153.19 South: -30.28] returned 0 records for 12 entities.

Report generated on 26/05/2021 9:48 AM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Community				<i>Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>		Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3	V	K	
Community				<i>Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>		Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3		K	
Community				<i>Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>		Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3	CE	K	
Community				<i>Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions</i>		Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions	E3	CE	K	
Community				<i>Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion</i>		Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion	E3	CE	K	
Community				<i>Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions</i>		Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	E3	E	K	
Community				<i>Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion</i>		Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion	E3		K	
Community				<i>Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>		Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3	E	K	
Community				<i>Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>		Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3		K	
Community				<i>Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions</i>		Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions	E3		K	

Community	<i>White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and</i>	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and	E4B	CE	P	
Community	<i>White Gum Moist Forest in the NSW North Coast Bioregion</i>	White Gum Moist Forest in the NSW North Coast Bioregion	E3		K	



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: 05/07/21 08:02:50

[Summary](#)

[Details](#)

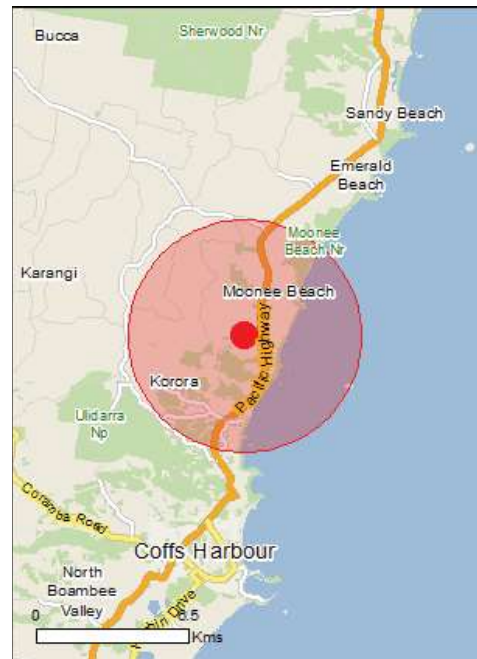
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



This map may contain data which are
©Commonwealth of Australia
(Geoscience Australia), ©PSMA 2015

[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](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	4
Listed Threatened Species:	82
Listed Migratory Species:	60

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.

Commonwealth Land:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	89
Whales and Other Cetaceans:	12
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	6
Regional Forest Agreements:	1
Invasive Species:	40
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	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
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community likely to occur within area
Littoral Rainforest and Coastal Vine Thickets of Eastern Australia	Critically Endangered	Community likely to occur within area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community likely to occur within area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area

Listed Threatened Species

[[Resource Information](#)]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area
Atrichornis rufescens Rufous Scrub-bird [655]	Endangered	Species or species habitat may occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Name	Status	Type of Presence
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Erythroriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area
Fregetta grallaria grallaria White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438]	Vulnerable	Species or species habitat likely to occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area
Phoebastria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area
Pterodroma leucoptera leucoptera Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area
Pterodroma neglecta neglecta Kermadec Petrel (western) [64450]	Vulnerable	Foraging, feeding or related behaviour may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area

Name	Status	Type of Presence
Thalassarche bulleri_platei Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thinornis cucullatus_cucullatus Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat may occur within area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat may occur within area
Fish		
Epinephelus daemeli Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area
Hippocampus whitei White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat likely to occur within area
Frogs		
Litoria olongburensis Wallum Sedge Frog [1821]	Vulnerable	Species or species habitat may occur within area
Mixophyes balbus Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat likely to occur within area
Mixophyes iteratus Giant Barred Frog, Southern Barred Frog [1944]	Endangered	Species or species habitat known to occur within area
Insects		
Argynnis hyperbius_inconstans Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area
Phyllodes imperialis_smithersi Pink Underwing Moth [86084]	Endangered	Species or species habitat may occur within area
Mammals		
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat likely to occur within area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE Mainland) [66645]	Vulnerable	Species or species habitat likely to occur within area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Plants		
Acronychia littoralis Scented Acronychia [8582]	Endangered	Species or species habitat likely to occur within area
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat likely to occur within area
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area
Cynanchum elegans White-flowered Wax Plant [12533]	Endangered	Species or species habitat likely to occur within area
Haloragis exalata subsp. velutina Tall Velvet Sea-berry [16839]	Vulnerable	Species or species habitat may occur within area
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat known to occur within area
Macadamia tetraphylla Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat likely to occur within area
Marsdenia longiloba Clear Milkvine [2794]	Vulnerable	Species or species habitat known to occur within area

Name	Status	Type of Presence
Parsonsia dorrigoensis Milky Silkpod [64684]	Endangered	Species or species habitat likely to occur within area
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat may occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat likely to occur within area
Plectranthus nitidus Nightcap Plectranthus, Silver Plectranthus [55742]	Endangered	Species or species habitat may occur within area
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat known to occur within area
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat known to occur within area
Samadera sp. Moonee Creek (J.King s.n. Nov. 1949) [86885]	Endangered	Species or species habitat known to occur within area
Sarcochilus fitzgeraldii Ravine Orchid [19131]	Vulnerable	Species or species habitat may occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat known to occur within area
Tylophora woollsii [20503]	Endangered	Species or species habitat likely to occur within area
Zieria prostrata Headland Zieria [56782]	Endangered	Species or species habitat likely to occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Coeranoscincus reticulatus Three-toed Snake-tooth Skink [59628]	Vulnerable	Species or species habitat may occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area
Sharks		
Carcharias taurus (east coast population) Grey Nurse Shark (east coast population) [68751]	Critically Endangered	Species or species habitat likely to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species

Name	Status	Type of Presence
Rhincodon typus Whale Shark [66680]	Vulnerable	habitat known to occur within area Species or species habitat may occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area
Ardenna grisea Sooty Shearwater [82651]		Species or species habitat likely to occur within area
Ardenna pacifica Wedge-tailed Shearwater [84292]		Breeding known to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat may occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Phoebastria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area
Sternula albifrons Little Tern [82849]		Species or species habitat may occur within

Name	Threatened	Type of Presence area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Migratory Marine Species		
Balaena glacialis australis Southern Right Whale [75529]	Endangered*	Species or species habitat likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Dugong dugon Dugong [28]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Manta alfredi 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
Manta birostris Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Sousa chinensis Indo-Pacific Humpback Dolphin [50]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat likely to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area
Gallinago megala Swinhoe's Snipe [864]		Foraging, feeding or related behaviour likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Foraging, feeding or related behaviour likely to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Foraging, feeding or related behaviour likely to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [\[Resource Information \]](#)

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 Telecommunications Commission

Listed Marine Species [\[Resource Information \]](#)

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat likely to occur within area
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur

Name	Threatened	Type of Presence
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	within area Species or species habitat likely to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat may occur within area
Catharacta skua Great Skua [59472]		Species or species habitat may occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Diomedea gibsoni Gibson's Albatross [64466]	Vulnerable*	Foraging, feeding or related behaviour likely to occur within area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area
Gallinago megala Swinhoe's Snipe [864]		Foraging, feeding or related behaviour likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Foraging, feeding or related behaviour likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Foraging, feeding or related behaviour likely to occur within area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Phoebastria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area
Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [1043]		Foraging, feeding or related behaviour likely to occur within area
Puffinus griseus Sooty Shearwater [1024]		Species or species habitat likely to occur within area
Puffinus pacificus Wedge-tailed Shearwater [1027]		Breeding known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Sterna albifrons Little Tern [813]		Species or species habitat may occur within area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within

Name	Threatened	Type of Presence area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thalassarche sp. nov. Pacific Albatross [66511]	Vulnerable*	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Thinornis rubricollis rubricollis Hooded Plover (eastern) [66726]	Vulnerable*	Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area
Fish		
Acentronura tentaculata Shortpouch Pygmy Pipehorse [66187]		Species or species habitat may occur within area
Campichthys tryoni Tryon's Pipefish [66193]		Species or species habitat may occur within area
Corythoichthys amplexus Fijian Banded Pipefish, Brown-banded Pipefish [66199]		Species or species habitat may occur within area
Corythoichthys ocellatus Orange-spotted Pipefish, Ocellated Pipefish [66203]		Species or species habitat may occur within area
Festucalex cinctus Girdled Pipefish [66214]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Hippichthys cyanospilos Blue-speckled Pipefish, Blue-spotted Pipefish [66228]		Species or species habitat may occur within area
Hippichthys heptagonus Madura Pipefish, Reticulated Freshwater Pipefish [66229]		Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within

Name	Threatened	Type of Presence area
Hippocampus kelloggi Kellogg's Seahorse, Great Seahorse [66723]		Species or species habitat may occur within area
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area
Hippocampus trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area
Hippocampus whitei White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat likely to occur within area
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area
Micrognathus andersonii Anderson's Pipefish, Shortnose Pipefish [66253]		Species or species habitat may occur within area
Micrognathus brevirostris thorntail Pipefish, Thorn-tailed Pipefish [66254]		Species or species habitat may occur within area
Microphis manadensis Manado Pipefish, Manado River Pipefish [66258]		Species or species habitat may occur within area
Solegnathus dunckeri Duncker's Pipehorse [66271]		Species or species habitat may occur within area
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solegnathus spinosissimus Spiny Pipehorse, Australian Spiny Pipehorse [66275]		Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
Solenostomus paradoxus Ornate Ghostpipefish, Harlequin Ghost Pipefish, Ornate Ghost Pipefish [66184]		Species or species habitat may occur within area
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area

Mammals

Dugong dugon Dugong [28]		Species or species habitat may occur within area
---	--	--

Reptiles

Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Hydrophis elegans Elegant Seasnake [1104]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area
Pelamis platurus Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area

Whales and other Cetaceans

[Resource Information]

Name	Status	Type of Presence
Mammals		
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area

Name	Status	Type of Presence
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Sousa chinensis Indo-Pacific Humpback Dolphin [50]		Species or species habitat likely to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Bruxner Park	NSW
Coffs Coast	NSW
Kororo	NSW
Moonee Beach	NSW
Split Solitary Island	NSW
UNE Special Management Zone No1	NSW

Regional Forest Agreements	[Resource Information]
----------------------------	--------------------------

Note that all areas with completed RFAs have been included.

Name	State
North East NSW RFA	New South Wales

Invasive Species	[Resource Information]
------------------	--------------------------

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 Resources 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

Name	Status	Type of Presence
Passer domesticus House Sparrow [405]		within area 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
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat known 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 habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species 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		

Name	Status	Type of Presence
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]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
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]		Species or species habitat likely to occur within area
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
Cytisus scoparius Broom, English Broom, Scotch Broom, Common Broom, Scottish Broom, Spanish Broom [5934]		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
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
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
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		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

Name	Status	Type of Presence 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

-30.22356 153.1402

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.



Appendix C

Flora Inventory



Table C.1 Flora Inventory

* Introduced species, ** Species native to Queensland, (P) Planted garden ornamental or native vegetation

Family	Scientific Name	Common Name	28 Sugarmill Road (Lot 12)	35 Sugarmill Road (Lot 91)	89 Sugarmill Road (Lot 17)
Acanthaceae	<i>Pseuderanthemum variabile</i>	Pastel Flower	N	Y	N
Acanthaceae	<i>Thunbergia grandiflora</i> *	Blue Trumpet Flower	N	Y (P)	N
Aizoaceae	<i>Tetragonia tetragonioides</i>	Warrigal Greens	N	N	Y
Altingiaceae	<i>Liquidamber styraciflua</i> *	Liquidamber	N	N	Y (P)
Amaryllidaceae	<i>Agapanthus africanus</i> *	Lilly of the Nile	N	Y	N
Anacardiaceae	<i>Mangifera indica</i> *	Mango	N	Y (P)	Y (P)
Apiaceae	<i>Centella asiatica</i>	Indian Pennywort	Y	Y	Y
Apocynaceae	<i>Gomphocarpus physocarpus</i> *	Cotton Balloon Bush	N	Y	Y
Apocynaceae	<i>Marsdenia rostrata</i>	Milk Vine	Y	Y	N
Apocynaceae	<i>Parsonsia straminea</i>	Common Silkpod	Y	N	N
Apocynaceae	<i>Plumeria sp.</i> *	Frangipani	N	Y (P)	N
Apocynaceae	<i>Tabernaemontana pandacaqui</i>	Banana Bush	N	Y	N
Araceae	<i>Philodendron xanadu</i> *	Xanadu	Y (P)	N	N
Araceae	<i>Syngonium podophyllum</i> *	Arrowhead Plant	Y (P)	N	N
Araliaceae	<i>Schefflera actinophylla</i> *	Umbrella Tree	Y	Y	Y
Araucariaceae	<i>Araucaria cunninghamii</i>	Hoop Pine	N	N	Y
Arecaceae	<i>Archontophoenix cunninghamiana</i>	Bangalow Palm	Y	N	N
Arecaceae	<i>Dypsis lutescens</i> *	Golden Can Palm	Y (P)	Y (P)	N
Arecaceae	<i>Syagrus romanzoffiana</i> *	Cocos Palm	Y	Y	N
Asparagaceae	<i>Agave attenuate</i> *	Foxtail Agave	Y (P)	Y (P)	Y (P)
Asparagaceae	<i>Asparagus aethiopicus</i> *	Asparagus Fern	Y	Y	Y
Asphodelaceae	<i>Geitonoplesium cymosum</i>	Scrambling Lily	Y	Y	N


Family	Scientific Name	Common Name	28 Sugarmill Road (Lot 12)	35 Sugarmill Road (Lot 91)	89 Sugarmill Road (Lot 17)
Asteraceae	<i>Ageratina adenophora</i> *	Crofton Weed	Y	N	Y
Asteraceae	<i>Ageratum houstonianum</i> *	Blue Billygoat Weed	Y	Y	Y
Asteraceae	<i>Bidens pilosa</i> *	Cobblers Pegs	Y	Y	Y
Asteraceae	<i>Chrysanthemoides monilifera</i> subsp. <i>Rotundata</i> **	Bitou Bush	Y	N	N
Asteliaceae	<i>Cordyline fructosa</i> *	Cordyline	Y	Y	N
Asteliaceae	<i>Cordyline stricta</i>	Narrow-leaved Palm Lily	N	Y	Y
Asteraceae	<i>Hypochaeris radicata</i> *	Cats ear	Y	Y	Y
Asteraceae	<i>Ozothamnus diosmifolius</i>	White Dogwood	N	Y	N
Asteraceae	<i>Sphagneticola trilobata</i> *	Singapore Daisey	N	N	Y
Bignoniaceae	<i>Jacaranda caerulea</i> *	Jacaranda	N	Y (P)	Y (P)
Bignoniaceae	<i>Pyrostegia venusta</i> *	Flamevine	N	N	Y (P)
Bignoniaceae	<i>Spathodea campanulata</i> *	African Tuplip Tree	N	Y (P)	N
Blechnaceae	<i>Blechnum cartilagineum</i>	Gristle Fern	Y	Y	N
Blechnaceae	<i>Doodia aspera</i>	Prickly Rasp Fern	Y	N	N
Campanulaceae	<i>Lobelia purpurascens</i>	Whiteroot	Y	Y	N
Casuarinaceae	<i>Allocasuarina torulosa</i>	Forest Oak	N	Y	N
Commelinaceae	<i>Commelina cyanea</i>	Scurvy Weed	N	Y	N
Convolvulaceae	<i>Dichondra repens</i>	Kidney Weed	Y	Y	Y
Cyperaceae	<i>Gahnia aspera</i>	Rough Saw-sedge	Y	Y	N
Dennstaedtiaceae	<i>Histiopteris incisa</i>	Bat's Wing Fern	Y	N	N
Dicksoniaceae	<i>Calochlaena dubia</i>	Rainbow Fern	N	Y	N
Dilleniaceae	<i>Hibbertia scandens</i>	Climbing Guinea Flower	Y	Y	Y
Dioscoreaceae	<i>Dioscorea transversa</i>	Native Yam	Y	N	N
Elaeocarpaceae	<i>Elaeocarpus reticulatus</i>	Blueberry Ash	Y	N	Y
Ericaceae	<i>Trochocarpa laurina</i>	Tree Heath	Y	Y	Y
Ericaceae	<i>Rhododendron azalea</i> *	Azalea	N	N	Y (P)

Family	Scientific Name	Common Name	28 Sugarmill Road (Lot 12)	35 Sugarmill Road (Lot 91)	89 Sugarmill Road (Lot 17)
Euphorbiaceae	<i>Euphorbia pulcherrima</i> *	Poinsettia	N	N	Y (P)
Euphorbiaceae	<i>Euphorbia leucocephala</i> *	Snowflake Bush	Y (P)	N	Y (P)
Eupomatiaceae	<i>Eupomatia laurina</i> *	Bolwarra	Y	Y	N
Fabaceae	<i>Libidibia ferrea</i> *	Leopard Tree	Y (P)	N	N
Fabaceae (Caesalpinioideae)	<i>Senna pendula</i> var. <i>glabrata</i> *	Winter Senna	Y	Y	Y
Fabaceae (Faboideae)	<i>Glycine clandestina</i>	Twining Glycine	N	Y	N
Geraniaceae	<i>Geranium solanderi</i>	Native Geranium	N	Y	N
Iridaceae	<i>Dietes</i> sp.*	Lily	Y (P)	N	Y (P)
Lauraceae	<i>Cinnamomum camphora</i> *	Camphor Laurel	Y	Y	Y
Lauraceae	<i>Cryptocarya microneura</i>	Murrogun	N	Y	N
Lauraceae	<i>Cryptocarya rigida</i>	Forest Maple	Y	Y	Y
Lauraceae	<i>Cryptocarya triplinervis</i> var. <i>triplinervis</i>	Three-veined Laurel	Y	N	N
Lomandraceae	<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	Y	Y	Y
Lomariopsidaceae	<i>Nephrolepis cordifolia</i> *	Fishbone Fern	N	Y	N
Luzuriagaceae	<i>Geitonoplesium cymosum</i>	Scrambling Lily	Y	Y	N
Magnoliaceae	<i>Ornamental Magnolia</i> sp.*	Magnolia	N	N	Y (P)
Malvaceae	<i>Brachychiton acerifolius</i>	Illawarra Flame Tree	N	Y (P)	Y (P)
Malvaceae	<i>Ornamental Hibiscus</i> sp.*	Hibiscus	N	Y (P)	Y (P)
Melastomataceae	<i>Tibouchina aspera</i> *	Tibouchina	N	N	Y (P)
Meliaceae	<i>Synoum glandulosum</i> subsp. <i>glandulosum</i>	Scentless Rosewood	Y	Y	Y
Meliaceae	<i>Dysoxylum mollissimum</i> subsp. <i>molle</i>	Red bean	Y	N	N
Menispermaceae	<i>Stephania japonica</i> var. <i>discolor</i>	Snake Vine	Y	Y	N
Mimosoideae	<i>Acacia melanoxylon</i>	Blackwood	Y	N	Y
Mimosoideae	<i>Acacia podalyriifolia</i>	Queensland Silver Wattle	N	Y	N
Monimiaceae	<i>Wilkiea huegeliana</i>	Veiny Wilkiea	Y	Y	N
Moraceae	<i>Ficus coronata</i>	Creek Sandpaper Fig	Y	N	N
Moraceae	<i>Ficus rubiginosa</i>	Port Jackson Fig	Y	N	N

Family	Scientific Name	Common Name	28 Sugarmill Road (Lot 12)	35 Sugarmill Road (Lot 91)	89 Sugarmill Road (Lot 17)
Moraceae	<i>Maclura cochinchinensis</i>	Cockspur Thorn	N	Y	N
Moraceae	<i>Morus rubra</i> *	Mulberry	Y	N	N
Myrtaceae	<i>Angophora costata</i>	Smooth-barked Apple	N	Y	N
Myrtaceae	<i>Archirhodomyrtus beckleri</i>	Rose Myrtle	N	Y	N
Myrtaceae	<i>Callistemon salignus</i>	Willow Bottlebrush	Y	N	N
Myrtaceae	<i>Corymbia citriodora</i> **	Lemon Scented Gum	N	Y (P)	N
Myrtaceae	<i>Corymbia intermedia</i>	Pink Bloodwood	N	Y	N
Myrtaceae	<i>Corymbia torelliana</i> **	Cadaghi	Y	Y	Y
Myrtaceae	<i>Eucalyptus grandis</i>	Flooded Gum	Y	Y	N
Myrtaceae	<i>Eucalyptus microcorys</i>	Tallowwood	Y	Y	N
Myrtaceae	<i>Eucalyptus pilularis</i>	Blackbutt	N	Y	N
Myrtaceae	<i>Eucalyptus propinqua</i>	Small-fruited Grey Gum	N	Y	N
Myrtaceae	<i>Eucalyptus resinifera</i>	Red Mahogany	N	Y	N
Myrtaceae	<i>Eucalyptus robusta</i>	Swamp Mahogany	N	N	Y
Myrtaceae	<i>Eucalyptus siderophloia</i>	Northern Grey Ironbark	N	Y	N
Myrtaceae	<i>Leptospermum sp.</i>	Tea Tree	N	N	Y (P)
Myrtaceae	<i>Lophostemon confertus</i>	Brush Box	Y	Y	Y
Myrtaceae	<i>Syncarpia glomulifera</i>	Turpentine	Y	Y	N
Myrtaceae	<i>Syzygium luehmannii</i>	Riberry	N	Y (P)	N
Myrtaceae	<i>Tristaniopsis laurina</i>	Water Gum	N	Y (P)	N
Myrtaceae	<i>Waterhousea floribunda</i>	Weeping Lily Pily	N	N	Y (P)
Myrtaceae	<i>Xanthostemon chrysanthus</i> **	Golden Penda	N	Y (P)	N
Nymphaeaceae	<i>Nymphaea capensis</i> *	Cape Waterlily	N	N	Y
Ochnaceae	<i>Ochna serrulata</i> *	Mickey Mouse Plant	Y	Y	N
Oleaceae	<i>Ligustrum sinense</i> *	Small-leaved Privet	Y	Y	Y
Oleaceae	<i>Notelaea longifolia</i>	Large Mock-olive	Y	Y	N
Oxalidaceae	<i>Oxalis rubens</i> or <i>exilis</i>	-	N	N	Y

Family	Scientific Name	Common Name	28 Sugarmill Road (Lot 12)	35 Sugarmill Road (Lot 91)	89 Sugarmill Road (Lot 17)
Pandanaceae	<i>Pandanus tectorius</i>	Screw Pine	N	Y (P)	N
Passifloraceae	<i>Passiflora edulis</i> *	Passionfruit	Y	N	N
Passifloraceae	<i>Passiflora suberosa</i> *	Corky Passionflower	Y - 4	N	N
Passifloraceae	<i>Passiflora subpeltata</i> *	White Passionflower	N	Y	Y
Phormiaceae	<i>Dianella caerulea</i>	Blue Flax-lily	Y	Y	Y
Phyllanthaceae	<i>Breynia oblongifolia</i>	Coffee Bush	Y	Y	N
Phyllanthaceae	<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	Cheese Tree	Y	Y	N
Pinaceae	<i>Pinus elliotii</i> *	Slash Pine	N	N	Y
Pittosporaceae	<i>Hymenosporum flavum</i> *	Native Frangipani	Y (P)	N	N
Pittosporaceae	<i>Pittosporum multiflorum</i>	Orange Thorn	Y	N	N
Pittosporaceae	<i>Pittosporum revolutum</i>	Rough Fruit Pittosporum	N	N	Y
Pittosporaceae	<i>Pittosporum undulatum</i>	Sweet Pittosporum	Y	Y	Y
Plantaginaceae	<i>Plantago lanceolata</i> *	Plantain	Y	Y	Y
Poaceae	<i>Bambuseae</i> sp. *	Clumping Bamboo	N	N	Y (P)
Poaceae	<i>Capillipedium spicigerum</i>	Scented Top	N	N	Y
Poaceae	<i>Cenchrus clandestinus</i> *	Kikuyu	Y	Y	Y
Poaceae	<i>Chloris gayana</i> *	Rhodes Grass	N	N	Y
Poaceae	<i>Echinopogon ovatus</i>	Forest Hedgehog Grass	N	Y	N
Poaceae	<i>Entolasia stricta</i>	Wiry Panic	Y	Y	N
Poaceae	<i>Imperata cylindrica</i>	Blady Grass	Y	Y	Y
Poaceae	<i>Oplismenus aemulus</i>	Basket Grass	Y	Y	N
Poaceae	<i>Paspalum mandiocanum</i> *	Broad-leaf Paspalum	Y	Y - 2	N
Poaceae	<i>Paspalum urvillei</i> *	Vasey Grass	Y	Y	Y
Poaceae	<i>Setaria sphacelata</i> *	Pigeon Grass	N	Y	Y
Polypodiaceae	<i>Platynerium bifurcatum</i>	Elkhorn Fern	Y	Y - 4	N
Primulaceae	<i>Ardisia crenata</i> *	Coral berry	Y	Y	N
Primulaceae	<i>Myrsine variabilis</i>	Muttonwood	Y	N	N

Family	Scientific Name	Common Name	28 Sugarmill Road (Lot 12)	35 Sugarmill Road (Lot 91)	89 Sugarmill Road (Lot 17)
Proteaceae	<i>Grevillea robusta</i>	Silky Oak	N	N	Y (P)
Proteaceae	<i>Grevillea baileyana</i> **	Brown Silky Oak	Y	N	N
Proteaceae	<i>Orites excelcus</i>	Mountain Silky Oak	Y	N	N
Proteaceae	<i>Ornamental Grevillea sp.</i>	Grevillea	N	Y (P)	N
Pteridaceae	<i>Adiantum aethiopicum</i>	Maidenhair Fern	N	Y	N
Rhamnaceae	<i>Alphitonia excelsa</i>	Red Ash	Y	N	N
Rosaceae	<i>Photinia robusta</i> *	Red Tip Photinia	Y (P)	N	N
Rosaceae	<i>Rubus parvifolius</i>	Native Raspberry	N	N	Y
Rubiaceae	<i>Gynochthodes jasminoides</i>	Sweet Morinda	Y	Y	Y
Rubiaceae	<i>Psychotria loniceroides</i>	Hairy Psychotria	Y	N	N
Rutaceae	<i>Acronychia wilcoxiana</i>	Silver Aspen	Y	Y	N
Rutaceae	<i>Bergera koenigii</i>	Curry Leaf Tree	N	N	Y (P)
Rutaceae	<i>Citrus x latifolia</i> *	Tahitian Lime	N	Y (P)	N
Rutaceae	<i>Citrus x limon</i> *	Lemon	N	Y (P)	N
Rutaceae	<i>Citrus hystrix</i> *	Kaffir Lime	N	Y (P)	N
Rutaceae	<i>Citrus x taitensis</i> *	Bush Lemon	Y	N	N
Rutaceae	<i>Melicope elleryana</i>	Pink Doughwood	Y	N	Y
Rutaceae	<i>Murraya paniculata</i> *	Orange Jessamine	N	Y (P)	N
Rutaceae	<i>Zieria smithii</i>	Sandfly Zieria	N	Y	N
Sapindaceae	<i>Cupaniopsis anacardioides</i>	Tuckeroo	Y	Y	Y
Sapindaceae	<i>Guioa semiglauca</i>	Guioa	N	Y	N
Sapindaceae	<i>Jagera pseudorhus</i>	Foam Bark Tree	Y	N	N
Smilacaceae	<i>Smilax australis</i>	Lawyer Vine	Y	Y	Y
Smilacaceae	<i>Smilax glycyphylla</i>	Sweet Sarsparilla	N	Y	N
Solanaceae	<i>Cestrum parqui</i> *	Green Cestrum	Y	N	N
Solanaceae	<i>Solanum mauritianum</i> *	Tobacco Bush	N	N	Y
Strelitziaceae	<i>Ravenala madagascariensis</i> *	Travellers Palm	N	Y (P)	N



Family	Scientific Name	Common Name	28 Sugarmill Road (Lot 12)	35 Sugarmill Road (Lot 91)	89 Sugarmill Road (Lot 17)
Strelitziaceae	<i>Strelitzia reginae</i> *	Bird of Paradise	N	Y (P)	Y (P)
Theaceae	<i>Camellia sp.</i> *	Camellia	N	N	Y (P)
Verbenaceae	<i>Citharexylum spinosum</i> *	Spiny Fiddlewood	N	N	Y
Verbenaceae	<i>Duranta erecta</i> *	Sky Flower	N	N	Y (P)
Verbenaceae	<i>Lantana camara</i> **	Lantana	Y	Y	Y
Vitaceae	<i>Cayratia clematidea</i>	Native Grape	N	N	Y
Vitaceae	<i>Cissus antarctica</i>	Kangaroo Vine	Y	Y	N
Vitaceae	<i>Cissus hypoglauca</i>	Water Vine	Y	Y	N
Zingiberaceae	<i>Alpinia zerumbet</i> *	Variegated Shell Ginger	Y (P)	N	N




Appendix D

Fauna Inventory

Table D.1 Fauna Inventory

Order	Scientific Name	Common Name	28 Sugarmill Road	35 Sugarmill Road	89 Sugarmill Road
Avifauna	<i>Chenonetta jubata</i>	Wood Duck	Observed and heard	-	Observed
	<i>Calyptorhynchus funereus</i>	Yellow-tailed Black Cockatoo	Observed flying over site	Observed flying over site	Observed flying over site
	<i>Corvus orru</i>	Toresian Crow	-	-	Heard
	<i>Cracticus nigrogularis</i>	Pied Butcher Bird	-	-	Observed and heard
	<i>Dacelo novaeguineae</i>	Kookaburra	Observed	-	Observed and heard
	<i>Entomyzon cyanotis</i>	Blue-faced Honeyeater	Observed and heard	Observed and heard	Observed and heard
	<i>Eolophus roseicapillus</i>	Galah	-	-	Observed flying over site
	<i>Grallina cyanoleuca</i>	Magpie-lark	-	-	
	<i>Gymnorhina tibicen</i>	Magpie	Observed and heard	-	Observed and heard
	<i>Manorina melanocephala</i>	Noisy Minor	Observed and heard	Observed and heard	-
	<i>Meliphaga lewinii</i>	Lewin's Honeyeater	Heard	Observed and heard	-
	<i>Pardalotus striatus</i>	Striated Pardalote	-	Heard	Heard
	<i>Philemon corniculatus</i>	Noisy Friar Bird	-	Observed and heard	-
	<i>Platycercus eximius</i>	Eastern Rosella	-	Observed and heard	-
	<i>Rhipidura albiscapa</i>	Grey Fantail	Observed and heard	-	Observed and heard
	<i>Rhipidura leucophrys</i>	Willie Wagtail	-	-	Observed and heard
	<i>Strepera graculina</i>	Pied Currawong	-	-	Observed and heard
	<i>Trichoglossus chlorolepidotus</i>	Scaly Breasted Lorikeet	-	Observed and heard	Heard
	<i>Trichoglossus haematodus</i>	Rainbow Lorikeet	Observed and heard	Observed and heard	Observed and heard
	<i>Vanellus miles</i>	Masked Lapwing	Observed and heard	-	-
Mammalia	<i>Lepus europaeus</i>	European Hare	Observed	-	-
	<i>Phascogaleos cinereus</i>	Koala	-	-	Scat
	<i>Wallabia bicolor</i>	Swamp Wallaby	Scat	Scat	Scat



	Trichosurus vulpecula	Common Brushtail Possum	Scat	-	Scat
	Oryctolagus cuniculus	European Rabbit	-	Scat	-



Appendix E

Hollow-bearing Tree Data

Table E.1 Habitat Tree Data

Common Name	Scientific Name	Tree Height	Diameter at Breast Height (cm)	Total Hollows	Small Limb Hollow	Medium Limb Hollow	Large Limb Hollow	Small Trunk Hollow	Medium Trunk Hollow	Large Trunk Hollow	Comments	Easting	Northing
Blackbutt	<i>Eucalyptus pilularis</i>	25	98	1	0	1	0	0	0	0	Activity within the hollow from 3 Eastern Rosellas	513730	6656389
Blackbutt	<i>Eucalyptus pilularis</i>	25	142	10	4	5	1	0	0	0	Large old growth tree with significant hollow features	513748	6656407
Flooded Gum	<i>Eucalyptus grandis</i>	18	40	1	0	0	0	1	0	0	Signs of chewing and wear at entry point	513768	6656408
Small-fruited Grey Gum	<i>Eucalyptus propinqua</i>	20	60	6	3	2	0	0	1	0	-	513731	6656416
Small-fruited Grey Gum	<i>Eucalyptus propinqua</i>	20	70	3	1	1	0	1	0	0	-	513738	6656412
Small-fruited Grey Gum	<i>Eucalyptus propinqua</i>	20	70	2	0	2	0	0	0	0	Scratches on trunk	513699	6656420
Blackbutt	<i>Eucalyptus pilularis</i>	30	117	3	2	1	0	0	0	0	-	513692	6656423
Blackbutt	<i>Eucalyptus pilularis</i>	25	112	1	0	0	0	0	1	0	-	513773	6656287
Flooded Gum	<i>Eucalyptus grandis</i>	20	55	1	0	0	0	1	0	0	-	513742	6656352
Small-fruited Grey Gum	<i>Eucalyptus propinqua</i>	17	40	1	0	0	0	1	0	0	-	513697	6656424
Stag	<i>n/a</i>	8	40	1	0	0	0	0	0	0	Broken trunk potential microbat habitat	513841	6656590
Stag	<i>n/a</i>	20	45	5	2	2	0	0	1	0	-	513854	6656595
Stag	<i>n/a</i>	8	40	2	0	0	0	1	0	1	-	513878	6656599
Stag	<i>n/a</i>	10	~40	3	1	1	0	1	0	0	-	513888	6656596
Flooded Gum	<i>Eucalyptus grandis</i>	25	~50	2	0	2	0	0	0	0	-	513812	6656573



Appendix F

Potential for Threatened Fauna Occurrence

Table F.1 Threatened Fauna Potential Occurrence Assessment*

*Migratory/pelagic marine species identified in the search results are not assessed as no habitat occurs at the site

Scientific name	Common name	BC Act	EPBC Act	Habitat requirement	Suitability of site habitat	Potential occurrence	Need for five-part test
Amphibians							
<i>Litoria brevipalmata</i>	Green-thighed Frog	V	-	Rainforest, moist to dry eucalypt forest and heath, typically where surface water gathers after rain.	Marginal habitat associated with tributary of Sugar Mill creek.	Low	No
<i>Litoria olongburensis</i>	Olongburra Frog	V	V	Paperbark swamps and sedge swamps of the coastal 'wallum' country amongst sedges and rushes.	No suitable habitat at the site.	Low – no Bionet records detected within 10km	No
<i>Mixophyes balbus</i>	Stuttering Frog	E	V	Cool rainforest, moist eucalypt forest and occasionally along creeks in dry eucalypt forest. Typically at elevations between 200 and 1420m above sea level in their northern range.	Marginal habitat associated with tributary of Sugar Mill Creek, however site is at a lower elevation than typical range.	Low – no Bionet records detected within 10km	No
<i>Mixophyes iteratus</i>	Giant Barred Frog	E	E	Deep, damp leaf litter in rainforests, moist eucalypt forest and near dry eucalypt forest.	Suitable foraging and dispersal habitat and moderate breeding habitat associated with tributary of Sugar Mill Creek.	Moderate	Yes - should suitable habitat (PCT 827 and/or farm dams) be affected by the final subdivision design.
Aves							
<i>Anthochaera phrygia</i>	Regent Honeyeater	CE	CE	Dry open forest and woodland with an abundance of nectar-producing eucalypts, particularly box-ironbark woodland, swamp mahogany forests, and riverine sheoak woodlands.	No suitable habitat at the site.	Low – no Bionet records detected within 10km	No
<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	V	-	Woodlands and dry open sclerophyll forests, usually dominated by eucalypts; also recorded in shrublands, heathlands and various modified habitats.	Marginal foraging habitat associated with the site.	Low	No
<i>Atrichornis rufescens</i>	Rufous Scrub-bird	V	E	Subtropical, warm temperate, cool temperate rainforest and moist eucalypt forest with rainforest mid-storey. Moist, densely vegetated lower levels with deep leaf litter.	Marginal habitat associated with tributary of Sugar Mill Creek, however site is at a lower elevation than range.	Low – no Bionet records detected within 10km	No
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	E	Permanent freshwater wetlands with tall dense vegetation, particularly bullrushes and spikerushes.	No suitable habitat at the site.	Low – no Bionet records detected within 10km	No
<i>Calidris canutus</i>	Red Knot	-	E	Sheltered coasts on mudflats and sandbars of estuaries, harbors, lagoons; occasionally on beaches, reefs.	No suitable habitat at the site.	Low – no Bionet records detected within 10km	No

Scientific name	Common name	BC Act	EPBC Act	Habitat requirement	Suitability of site habitat	Potential occurrence	Need for five-part test
<i>Calidris ferruginea</i>	Curllew Sandpiper	E	CE	Tidal mudflats, sandy ocean shores and occasionally inland freshwater or salt-lakes.	No suitable habitat at the site.	Low – no Bionet records detected within 10km	No
<i>Collocephalon fimbriatum</i>	Gang-gang Cockatoo	V	-	Wetter forests and woodlands, timbered watercourses, coastal scrub.	Low quality habitat at the site.	Low – no Bionet records detected within 10km	No
<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	V	-	Sheoaks in coastal forests and woodlands, timbered watercourses, and moist and dry eucalypt forests of the coast and the Great Divide up to 1,000 m.	Foraging habitat associated with occasional Forest Oaks within PCT 695 within Lot 91 (35 Sugarmill Road).	Moderate	No – negligible impacts likely
<i>Climacteris picumnus</i>	Brown Treecreeper	V	-	Eucalypt forests and woodlands of inland plains and slopes of the Great Dividing Range, and less commonly on coastal plains and ranges.	Marginal foraging habitat associated with the site.	Low	No
<i>Coracina lineata</i>	Barred Cuckoo-shrike	V	-	Rainforest, eucalypt woodlands, swamp woodlands and timber along watercourses.	Suitable foraging habitat associated with forested areas.	Moderate	No – negligible impacts likely
<i>Daphoenositta chrysoptera</i>	Varied Sittella	V	-	Inhabits eucalypt forests and woodlands, especially rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland.	Marginal foraging habitat associated with the site.	Low	No
<i>Dromaius novaehollandiae</i>	Emu population in the NSW North Coast Bioregion and Port Stephens LGA	E	-	Open forest, woodland, coastal heath, coastal dunes, wetland areas, tea tree plantations and open farmland, and occasionally in littoral rainforest.	No suitable habitat at the site.	Low – no Bionet records detected within 10km	No
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	E	-	Swamps, mangroves, mudflats, dry floodplains.	No suitable habitat at the site.	Low	No
<i>Erythrotriorchis radiatus</i>	Red Goshawk	CE	V	Open woodland and forest, preferring a mosaic of vegetation types, a large population of birds as a source of food, and permanent water. Typically found in riparian habitats along or near watercourses or wetlands. Population in NSW is naturally small (probably only one pair), and lies at extreme of the natural range of the species in Australia.	Marginal foraging habitat associated with the site.	Low – no Bionet records detected within 10km	No

Scientific name	Common name	BC Act	EPBC Act	Habitat requirement	Suitability of site habitat	Potential occurrence	Need for five-part test
<i>Esacus magnirostris</i>	Beach Stone-curlew	CE	-	Tidal flats at the mouth of estuaries or on open beaches.	No suitable habitat at the site.	Low	No
<i>Falco hypoleucos</i>	Grey Falcon	E	V	The Grey Falcon is sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range.	Marginal foraging habitat associated with the site.	Low – no Bionet records detected within 10km	No
<i>Glossopsitta pusilla</i>	Little Lorikeet	V	-	Forages in open Eucalyptus forest and woodland; also feeds on Angophora, Melaleuca and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity.	Suitable foraging habitat at the site. Hollow-bearing trees (Breeding habitat occurs at the site).	Moderate	Yes – should suitable foraging habitat or HBTs be impacted by the final subdivision design. One HBT may require removal for access to the proposed lot at Lot 91.
<i>Grantiella picta</i>	Painted Honeyeater	V	V	Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests. Specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus Amyema.	No suitable habitat at the site.	Low – no Bionet records detected within 10km	No
<i>Grus rubicunda</i>	Brolga	V	-	Shallow swamps, floodplains, grasslands and pastoral lands, usually in pairs or parties.	No suitable habitat at the site.	Low	No
<i>Haematopus fuliginosus</i>	Sooty Oystercatcher	V	-	Intertidal rocky and coral reefs, mostly ocean shores.	No suitable habitat at the site.	Low	No
<i>Haematopus longirostris</i>	Pied Oystercatcher	E	-	Open beaches, intertidal flats, sandbanks and occasionally rocky headlands.	No suitable habitat at the site.	Low	No
<i>Haliaeetus leucogaster</i>	White-bellied Sea-eagle	V	-	Coastal habitats and around terrestrial wetlands characterised by the presence of large areas of open water (larger rivers, swamps, lakes, ocean). Habitats may include freshwater swamps, lakes, reservoirs, billabongs, saltmarsh and sewage ponds in addition to bays and inlets, beaches, reefs, lagoons, estuaries and mangroves.	No suitable foraging habitat at the site. No nests occur at the site.	Low	No

Scientific name	Common name	BC Act	EPBC Act	Habitat requirement	Suitability of site habitat	Potential occurrence	Need for five-part test
<i>Hieraaetus morphnoides</i>	Little Eagle	V	-	Open eucalypt forest, woodland or open woodland. Sheoak or acacia woodlands and riparian woodlands of interior NSW are also used.	Potential to occur foraging over the site as part of broader home range.	Moderate	No – suitable habitat unlikely to be impacted.
<i>Hirundapus caudacutus</i>	White-throated Needletail	-	V	Most often recorded aerial foraging above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy. Breeding does not occur in Australia.	Potential to occur foraging over the site.	Moderate	No – unlikely to be impacted
<i>Ixobrychus flavicollis</i>	Black Bittern	V	-	Dense vegetation fringing and in streams, swamps, tidal creeks and mudflats, particularly amongst swamp sheoaks and mangroves.	No suitable habitat at the site.	Low	No
<i>Lathamus discolor</i>	Swift Parrot	E	CE	On mainland Australia foraging occurs where eucalypts are flowering profusely or where abundant lerp infestations occur. Favoured feed trees include winter flowering species such as Swamp Mahogany <i>Eucalyptus robusta</i> , Spotted Gum <i>Corymbia maculata</i> , Red Bloodwood <i>C. gummifera</i> , Forest Red Gum <i>E. tereticornis</i> , Mugga Ironbark <i>E. sideroxylon</i> , and White Box <i>E. albens</i> . Commonly used lerp infested trees include Inland Grey Box <i>E. microcarpa</i> , Grey Box <i>E. moluccana</i> , Blackbutt <i>E. pilularis</i> and Yellow Box <i>E. melliodora</i> .	Suitable foraging habitat at the site. Lot 91 is mapped as important Swift Parrot foraging habitat (within BOAMS). Suitable foraging habitat occurs within forest vegetation at Lots 12 and 17.	Moderate	Yes - should suitable foraging habitat be affected by the final subdivision.
<i>Limosa lapponica baueri</i>	Black-tailed Godwit (baueri)	-	V	Found mainly in coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. Less frequently it occurs in salt lakes and brackish wetlands, sandy ocean beaches and rock platforms. Often occurs around beds of seagrass, and sometimes in nearby saltmarsh or the outer margins of mangrove areas.	No suitable habitat at the site.	Low – no Bionet records detected within 10km	No

Scientific name	Common name	BC Act	EPBC Act	Habitat requirement	Suitability of site habitat	Potential occurrence	Need for five-part test
<i>Lophoictinia isura</i>	Square-tailed Kite	V	-	Dry woodland and open forest, particularly along major rivers and belts of trees in urban or semi-urban areas. Home ranges can extend over at least 100 km ² .	Marginal foraging habitat, low potential to occur over the site as part of broader range.	Low	No
<i>Ninox connivens</i>	Barking Owl	V	-	Eucalypt woodland, open forest, swamp woodlands and timber along watercourses.	Marginal foraging habitat occurs at the site, no suitable breeding/nesting habitat would be affected by the activity.	Low, only 1 Bionet record within the search area.	No
<i>Ninox strenua</i>	Powerful Owl	V	-	Woodland and open forest to tall moist forest and rainforest. Requires large tracts of forest or woodland habitat but may also occur in fragmented landscapes.	No suitable nesting habitat on the site. Suitable foraging habitat present.	Moderate	No – suitable habitat unlikely to be impacted by the proposal.
<i>Numenius madagascariensis</i>	Eastern Curlew	-	CE	Estuaries, bays, harbours, inlets and coastal lagoons, intertidal mudflats and sometimes saltmarsh of sheltered coasts.	No suitable habitat at the site.	Low – no Bionet records detected within 10km	No
<i>Pandion cristatus</i>	Eastern Osprey	V	-	Littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. Typically occur in coastal areas but occasionally travel inland along major rivers. Wetland habitats include inshore waters, reefs, bays, coastal cliffs, beaches, estuaries, mangrove swamps, broad rivers, reservoirs and large lakes and waterholes.	No suitable habitat at the site.	Low	No
<i>Petroica boodang</i>	Scarlet Robin	V	-	Dry eucalypt forests and woodlands with an open and grassy understorey with few scattered shrubs. Both mature and regrowth vegetation are utilised; habitat usually contains abundant logs and fallen timber.	No suitable habitat at the site.	Low	No
<i>Ptilinopus magnificus</i>	Wompoo Fruit-dove	V	-	Rainforests, low-elevation moist eucalypt forest, and Brush Box forests.	Suitable habitat occurs at the site.	High	No – suitable habitat unlikely to be impacted by the proposal.
<i>Ptilinopus regina</i>	Rose-crowned Fruit-dove	V	-	Subtropical and dry rainforest, moist eucalypt forest and swamp forest.	Suitable habitat occurs at the site.	Moderate	No – suitable habitat unlikely to be impacted by the proposal.

Scientific name	Common name	BC Act	EPBC Act	Habitat requirement	Suitability of site habitat	Potential occurrence	Need for five-part test
<i>Rostratula australis</i>	Australian Painted Snipe	E	E	Well-vegetated shallows and margins of wetlands, dams, sewage ponds, wet pastures, marshy areas, irrigation systems, lignum, tea-tree scrub, and open timber.	No suitable habitat at the site.	Low – no Bionet records detected within 10km	No
<i>Sternula albifrons</i>	Little Tern	E	-	Coastal waters, bays, shallow inlets, salt or brackish lakes.	No suitable habitat at the site.	Low	No
<i>Sternula nereis nereis</i>	Australian Fairy Tern		V	Nests on sheltered sandy beaches, spits and banks above the high tide line and below vegetation. Feeds in Coastal waters.	No suitable habitat at the site.	Low – no Bionet records detected within 10km	No
<i>Thinornis rubricollis rubricollis</i>	Hooded Plover	CE	V	Open flat sandy beaches and sand dunes. Occasionally tidal bays and estuaries, rock platforms and rocky or sand-covered reefs	No suitable habitat at the site.	Low – no Bionet records detected within 10km	No
<i>Turnix melanogaster</i>	Black-breasted Button-quail	CE	V	Drier rainforests and vine scrubs, often in association with Hoop Pine and a deep moist leaf litter layer. During drought it may move to adjacent wetter rainforests.	No suitable habitat at the site.	Low – no Bionet records detected within 10km	No
<i>Tyto longimembris</i>	Eastern Grass Owl	V	-	Areas of tall grass, including tussocks in swampy areas, grassy plains, swampy heath, cane grass, sedges on flood plains.	No suitable habitat at the site.	Low	No
<i>Tyto novaehollandiae</i>	Masked Owl	V	-	Dry eucalypt forest and woodlands.	No suitable habitat at the site.	Low	No
<i>Tyto tenebricosa</i>	Sooty Owl	V	-	Dry, subtropical and warm temperate rainforests and wet eucalypt forests. Nest in large tree hollows.	No suitable nesting habitat on the site. Suitable foraging habitat present.	Moderate	No – negligible impact likely
Mammals							
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V	V	Near cave entrances and crevices in cliffs.	No caves/ cliffs near the site.	Low – no Bionet records detected within 10km	No
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V	E	Dry and moist eucalypt forests and rainforests, fallen hollow logs, large rocky outcrops.	Small areas of marginal foraging habitat associated with the site.	Low	No – negligible impact likely

Scientific name	Common name	BC Act	EPBC Act	Habitat requirement	Suitability of site habitat	Potential occurrence	Need for five-part test
<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	V	-	Occurs in dry sclerophyll forest and woodland east of the Great Dividing Range. Roosts in tree hollows.	Potential aerial foraging habitat associated with the site.	Moderate	Yes – should suitable foraging habitat or HBTs be impacted by the final subdivision design. One HBT may require removal for access to the proposed lot at Lot 91.
<i>Miniopterus australis</i>	Little Bent-winged Bat	V	-	Moist eucalypt forest, rainforest and dense coastal scrub.	Suitable roosting habitat within tree hollows and foraging habitat present.	High	Yes – should suitable foraging habitat or HBTs be impacted by the final subdivision design. One HBT may require removal for access to the proposed lot at Lot 91.
<i>Myotis macropus</i>	Southern Myotis	V	-	Bodies of water, rainforest streams, large lakes, reservoirs.	Suitable roosting habitat within tree hollows and foraging habitat associated with tributary of Sugar Mill Creek and farm dams.	High	Yes – should suitable foraging habitat or HBTs be impacted by the final subdivision design. One HBT may require removal for access to the proposed lot at Lot 91.
<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	V	-	Forest or woodland, roost in caves, old mines and stormwater channels.	Potential aerial foraging habitat associated with the site.	Moderate	No – negligible impact likely.
<i>Petrogale penicillata</i>	Brush-tailed Rock Wallaby	E	V	North-facing cliffs and dry eucalypt forest and woodland, inhabiting rock crevices, caves, overhangs during the day, and foraging in grassy areas nearby at night.	No suitable habitat at the site.	Low – no Bionet records detected within 10km	No
<i>Petauroides volans</i>	Greater Glider	-	V	Ranges and coastal plains of eastern Australia, where it inhabits a variety of eucalypt forests and woodlands.	Marginal habitat -no suitable denning hollows present.	Low, only 1 Bionet record within the search area.	No

Scientific name	Common name	BC Act	EPBC Act	Habitat requirement	Suitability of site habitat	Potential occurrence	Need for five-part test
<i>Petaurus australis</i>	Yellow-bellied Glider	V	-	Tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Dens in tree hollows of large trees, often in family groups. Forest type preferences vary with latitude and elevation; mixed coastal forests to dry escarpment forests in the north; moist coastal gullies and creek flats to tall montane forests in the south.	Suitable foraging and denning habitat occurs however forest vegetation at the site is relatively isolated from larger tracts of good quality vegetation.	Low to Moderate	No
<i>Petaurus norfolcensis</i>	Squirrel Glider	V	-	Blackbutt, bloodwood and ironbark eucalypt forest with heath understorey in coastal areas, and box-ironbark woodlands and River Red Gum forest inland.	Suitable foraging and denning habitat occurs however forest vegetation at the site is relatively isolated from larger tracts of good quality vegetation.	Low to Moderate	No
<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	V	-	Drier forests and woodlands with hollow-bearing trees and sparse ground cover.	No suitable habitat at the site.	Low	No
<i>Phascolarctos cinereus</i>	Koala	V	V	Appropriate food trees in forests and woodlands, and treed urban areas.	Suitable feed trees at the site.	Known – faecal pellets detected during site survey.	Yes
<i>Phoniscus papuensis</i>	Golden-tipped Bat	V	-	Rainforest and adjacent sclerophyll forest. Roosts in abandoned hanging Yellow-throated Scrubwren and Brown Gerygone nests.	Potential aerial foraging habitat associated with the site.	Moderate	No – negligible impact likely
<i>Planigale maculata</i>	Common Planigale	V	-	Rainforest, eucalypt forest, heathland, marshland, grassland and rocky areas with surface cover close to water.	Suitable foraging habitat associated with Tributary of Sugar Mill Creek.	Low within the subdivision footprint	No – habitat would not be impacted
<i>Potorous tridactylus</i>	Long-nosed Potoroo	V	V	Cool temperate rainforest, moist and dry forests, and wet heathland, inhabiting dense layers of grass, ferns, vines and shrubs.	Suitable habitat at the site.	Low – no Bionet records detected within 10km	No
<i>Pseudomys novaehollandiae</i>	New Holland Mouse	-	V	Occurs in open heathlands, open woodlands with a heathland understorey, and vegetated sand dunes.	No suitable habitat at the site.	Low – no Bionet records detected within 10km	No
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V	Subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.	Suitable foraging habitat present. No roost habitat occurs at the site.	High	Yes

Scientific name	Common name	BC Act	EPBC Act	Habitat requirement	Suitability of site habitat	Potential occurrence	Need for five-part test
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	V	-	Forages in a variety of habitats, roosts in tree hollows and buildings.	Suitable roosting habitat within tree hollows and foraging habitat present.	High	Yes
<i>Syconycteris australis</i>	Common Blossom-bat	V	-	Feeds in heathland and paperbark swamps; roosts in littoral rainforest. Also recorded in subtropical rainforest, wet sclerophyll forest and other coastal forests.	Suitable foraging habitat associated with tributary of Sugar Mill Creek	Low within the subdivision footprint	No – negligible impact likely
Reptiles							
<i>Coeranoscincus reticulatus</i>	Three-toed Snake-tooth Skink	V	E	Rainforest and occasionally moist eucalypt forest, on loamy or sandy soils.	Poor quality habitat at the site.	Low – no Bionet records detected within 10km	No
<i>Hoplocephalus stephensii</i>	Stephens' Banded Snake	V	-	Rainforest and eucalypt forests and rocky areas up to 950 m.	Poor quality habitat at the site.	Low – no Bionet records detected within 10km	No
Insects							
<i>Argynnis hyperbius</i>	Australian Fritillary	E	CE	Open swampy coastal habitat where the caterpillar's food plant, Arrowhead Violet (<i>Viola betonicifolia</i>) occurs.	No suitable habitat at the site. Arrowhead Violet was not detected at the site.	Low – no Bionet records detected within 10km	No
<i>Ocybadistes knightorum</i>	Black Grass-dart Butterfly	E	-	Confined to coastal stands of Swamp Oak and Paperbark where Floyd's Grass grows edging the upper tidal areas of mangroves.	No suitable habitat at the site. Floyd's Grass was not detected at the site.	Low	No
<i>Phyllodes imperialis</i> (southern subspecies)	Pink Underwing Moth	E	E	Undisturbed subtropical rainforest below 600 m. Breeding habitat is restricted to areas where the caterpillar's food plant, a native rainforest vine, <i>Carronia multiseppalea</i> , grows in a collapsed shrub-like form.	No suitable habitat at the site. <i>C. multiseppalea</i> was not detected at the site.	Low – no Bionet records detected within 10km	No