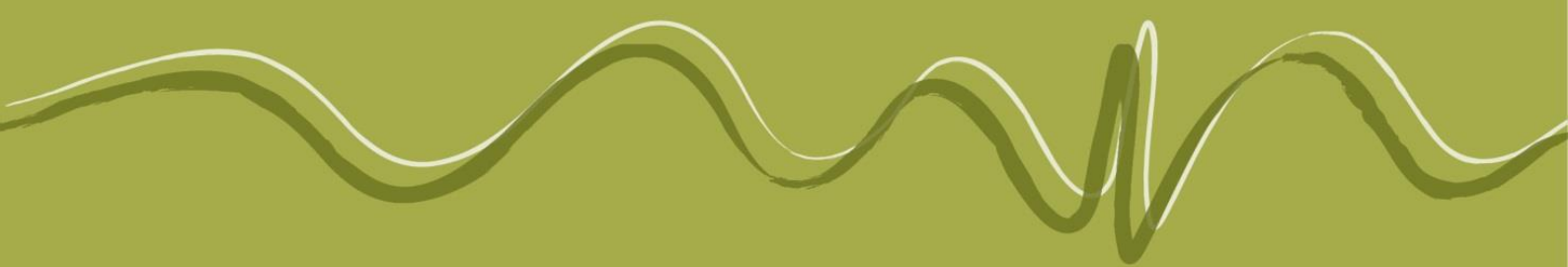


Biodiversity Assessment

Super Lot 5 – Epiq Lennox



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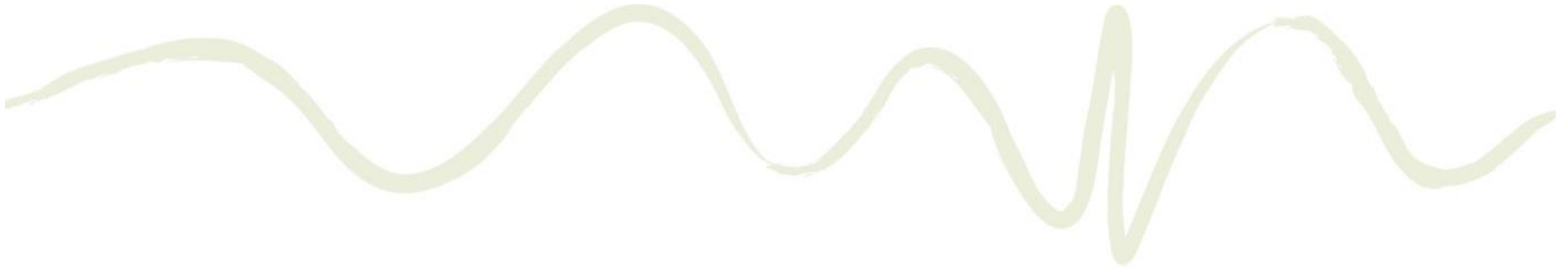
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Table of Contents

1.	Introduction	1
1.1	Background	1
1.2	The Site and Study Area	1
1.3	The Proposal	2
2.	Methodology	4
2.1	Personnel	4
2.2	Desktop Review	4
2.3	Assessment	4
3.	Flora	5
3.1	Desktop Analysis	5
3.1.1	Database Searches	5
3.1.2	Previous Studies	5
3.2	Assessment	6
3.2.1	Vegetation	6
3.2.2	Threatened Flora	6
3.2.3	Threatened Ecological Communities	6
4.	Fauna	7
4.1	Desktop Analysis	7
4.1.1	Database Searches	7
4.1.2	Previous Studies	7
4.2	Habitat Assessment	7
4.2.1	Threatened Fauna	7
4.2.2	Habitat Values	7
4.2.3	Wildlife Corridors	8
4.2.4	Potential for Threatened Species Occurrence	8
5.	Impacts and Mitigation	9
5.1	Potential Impacts of the Proposal	9
5.2	Mitigation	9
6.	Statutory Assessment	10
6.1	State Environmental Planning Policy (SEPP) 14 – Coastal Wetland	10
6.2	State Environmental Planning Policy (SEPP) 26 – Littoral Rainforest	10
6.3	State Environmental Planning Policy (SEPP) 44 – Koala Habitat Protection	10
6.4	Biodiversity Conservation Act 2016 (BC Act)	11
6.5	Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	11
7.	Conclusion	13



Illustrations

<u>Illustration 1.1</u>	<u>Site and Study Area</u>	<u>3</u>
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Tables

<u>Table 3.1</u>	<u>Threatened Flora and Communities Recorded at the Site from Previous Studies.....</u>	<u>5</u>
<u>Table 4.1</u>	<u>Threatened Fauna Recorded at the Site</u>	<u>7</u>
<u>Table 6.1</u>	<u>Assessment of MNES.....</u>	<u>12</u>

Appendices

<u>Appendix A Super Lot 5 Concept Plan</u>
<u>Appendix B Search Results</u>
<u>Appendix C Threatened Flora & TEC Records</u>
<u>Appendix D Site Photographs</u>
<u>Appendix E Potential for Threatened Fauna Occurrence</u>
<u>Appendix F BC Act Tests of Significance</u>



1. Introduction

1.1 Background

GeoLINK has prepared this Biodiversity Assessment on behalf of Clarence Property to support a Statement of Environmental Effects (SEE) for the modification of Super Lot 5 ('SL5') of the Epiq Lennox development site (previously known as Pacific Pines). The proposed modification seeks to undertake amendments to the Concept Approval (MP 07_0026) prepared under Part 3A of the *Environmental Planning and Assessment Act 1979* (EPA Act) and approved October 2008.

While Secretary's Environmental Assessment Requirements (SEARs) were requested for the proposed modification, the SEARs did not specify any requirements with regard to biodiversity matters.

The aim of this assessment is to identify any significant biodiversity matters relevant to the proposed modification, which may include:

- Habitat for threatened species or populations listed in the *Biodiversity Conservation Act 2016* (BC Act).
- Koala habitat (as per State Environmental Planning Policy [SEPP] 44 – Koala Habitat Protection).
- Threatened species or communities listed in the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

1.2 The Site and Study Area

The Epiq Lennox site comprises Lot 54 DP1222919 Hutley Drive Lennox Head within the Ballina Local Government Area (LGA). Lot 54 comprises former grazing land which has been historically cleared and disturbed, with some small areas of remnant vegetation retained (refer to **Illustration 1.1**). The site has been subject to ongoing earthworks and construction as part of site development for the past two years. A significant drainage corridor runs through the central portion of the site and drains to North Creek to the west. This area lies within the approved Conservation Zone (as per (MP 07_0026), established for the retention, protection and management of threatened communities and threatened species habitat.

The study area (SL5) comprises a small area in the south of Lot 54 accessed from Montwood Drive. The study area is flanked by the Conservation Zone to the east, west and south (refer to **Illustration 1.1**). SL5 has been substantially cleared and filled and is an active construction site. The northern portion of the study area comprises gravel/hardstand associated with the road construction. A large detention basin occurs along the northern portion of the study area, with the residue comprising seeded grassland following previous filling and shaping works.



1.3 The Proposal

The proposal comprises an amendment to the Concept Approval for Super Lot 5 of Epiq Lennox as follows (refer to **Appendix A**):

- Amending the development concept for Super Lot 5 from 'retirement community' to 'small lot integrated housing';
- Establishing detailed design guidelines for the proposed subdivision and development of Super Lot 5 to supersede the current retirement community design guidelines; and
- Amending the lot layout and road network to respond to the revised proposal.

The modified proposal seeks to provide subdivide the subject land into 145 torrens title allotments with sizes ranging between 123 m² to 672 m², with a 'typical' area ranging between 125 m² to 225 m². Internal public roads and pedestrian pathways will provide a modified grid pattern, whilst on-street parking is also afforded within the public road design.

The proposed modification requires several discharge points to wetlands within the Conservation Zone, which feeds into the constructed treatment ponds to the west. All stormwater controls will be completed in accordance with the approved Stormwater Management Plan. No headwalls or infrastructure will be located within the Conservation Zone.



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2. Methodology

2.1 Personnel

The site was assessed by GeoLINK Senior Ecologist Ian Colvin on 8 March 2018.

2.2 Desktop Review

Prior to assessment of the study area, the following desktop analysis was completed:

- Review of previous ecological assessments and reporting (James Warren and Associates 2003, GeoLINK 2007, 2013, 2015a, 2015b, 2017).
- A search of the BioNet Wildlife Atlas (10 km x 10 km grid centred on the site).
- A search of the Protected Matters Search Tool for Matters of National Environmental Significance (MNES) within a 5 km radius of the site.

2.3 Assessment

The assessment of the study area utilised the following methodology:

- Random meander of SL5 and completing a general flora inventory using a modified Braun-Blanquet index.
- Opportunistic survey of all fauna based on visual or aural observations.

Given that a number of detailed ecological assessments have undertaken at the Epiq site and that the study area is small in area, highly disturbed and lacking significant habitat, the scope of assessment is considered adequate.

3. Flora

3.1 Desktop Analysis

3.1.1 Database Searches

BioNet search results identified:

- Records of 16 threatened flora species within 5 km of the site, including 12 species listed in the EPBC Act (refer to search results at **Appendix B**).
- Records of ten EECs from within the Ballina LGA; three of these communities are listed under the EPBC Act (refer to **Appendix B**).

Protected Matters Search Tool results identified:

- Habitat for 23 threatened flora species within 5 km of the site (refer to **Appendix B**).
- Habitat for two threatened communities within 5 km of the site (refer to **Appendix B**).

3.1.2 Previous Studies

Seven threatened flora species and four threatened communities have been identified and mapped (refer to **Table 3.1** and **Appendix C**). Of the species/ communities recorded to date, none occur within SL5.

Table 3.1 Threatened Flora and Communities Recorded at the Site from Previous Studies

Scientific Name	Common Name	BC Act	EPBC Act
THREATENED FLORA			
<i>Archidendron hendersonii</i>	White Laceflower	V	-
<i>Arthraxon hispidus</i>	Hairy Jointgrass	V	V
<i>Eleocharis tetraquetra</i>	Square-stemmed Spike-rush	E	-
<i>Macadamia tetraphylla</i>	Rough-shelled Bush Nut	V	V
<i>Syzygium hodgkinsoniae</i>	Red Lilly Pilly	V	V
<i>Tinospora tinosporoides</i>	Arrow-head Vine	V	-
<i>Xylosma terrae-reginae</i>	Queensland Xylosma	E	-
THREATENED COMMUNITIES			
Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions		E	-
Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions		E	CE
Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions		E	-
Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions		E	-

CE = Critically Endangered, E = Endangered, V = Vulnerable



3.2 Assessment

3.2.1 Vegetation

Vegetation within SL5 comprises closed grassland (seeded over areas of fill). Grassland areas are dominated by Summer Grass (*Digitaria ciliaris*) and Cuphea (*Cuphea carthagenensis*) with occasional Vasey Grass (*Paspalum urvillei*). The detention pond contains fringing Vasey Grass and Paddy's Lucerne (*Sida rhombifolia*). No native vegetation occurs.

Photographs of SL5 are provided at **Appendix D**.

3.2.2 Threatened Flora

No threatened flora species occur within the study area.

3.2.3 Threatened Ecological Communities

Vegetation within the study area is not characteristic of any Threatened Ecological Communities (TECs) listed in the BC Act or EPBC Act. Four TECs occur proximate to SL5 within the Conservation Zone:

- *Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*
- *Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*
- *Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*
- *Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions.*

4. Fauna

4.1 Desktop Analysis

4.1.1 Database Searches

BioNet search results identified records of 60 threatened fauna species within 5 km of the site, including 17 species listed in the EPBC Act (refer to **Appendix A**). Protected Matters Search Tool results identified habitat for 56 threatened fauna species and 71 migratory species within 5 km of the site (refer to **Appendix A**).

4.1.2 Previous Studies

Five threatened fauna species have been recorded at the site (refer to **Table 4.1**). It is likely that a number of additional threatened fauna may utilise the site for foraging on an opportunistic or seasonal basis including the Black-necked Stork, Brolga, Eastern Grass Owl and several microchiropteran bat species.

Table 4.1 Threatened Fauna Recorded at the Site

Scientific Name	Common Name	BC Act	EPBC Act
<i>Amaurornis moluccana</i> *	Pale-vented Bush-hen	V	-
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	E
<i>Daphoenositta chrysoptera</i>	Varied Sittella	V	-
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V	-

E = Endangered, V = Vulnerable

* recorded by GeoLINK during vegetation monitoring in the west of the site in 2017


4.2 Habitat Assessment

4.2.1 Threatened Fauna

No threatened fauna species listed under the BC Act or EPBC Act have been recorded within SL5 and none were observed during the site inspection. Given the small size and disturbed condition of the study area it is unlikely that any threatened fauna species would depend on resources within the study area for key life cycle requirements (foraging, roosting, breeding).

4.2.2 Habitat Values

The Epiq Lennox site comprises disturbed farmland which is under construction and subject to ongoing noise, disturbance and earthworks. Nevertheless, the site as a whole is likely to support a range of common frog, bird and mammal species, with wetland areas providing habitat for frogs and waterfowl. Flowering rainforest trees and paperbarks provide resources for fruit and nectar feeding birds (honeyeaters, friarbirds, lorikeets, figbirds etc) and also support insect feeding species such as thornbills, fantails etc. The site may provide habitat for a limited range of mammals, with dense grass



cover providing refuge for introduced ground dwelling species such as the House Mouse and Black Rat, while arboreal mammals such as the Ringtail and Brushtail Possum may occur.

SL5 has very low fauna habitat values due to significant earthworks, ongoing construction and lack of any habitat attributes. The detention basin provides opportunistic habitat for waterfowl (eg. Wood Duck, Masked Lapwing) following rainfall events. No hollow-bearing trees (or significant habitat features) or primary Koala feed trees occur.

4.2.3 Wildlife Corridors

The site occurs within the Lennox regional corridor as per Scotts (2003) and is described as a 'coastal corridor/ very patchy section of coastal corridor/ patchy key habitats'.

4.2.4 Potential for Threatened Species Occurrence

Based on the desktop analysis, habitat present and previous records, the potential for threatened fauna to occur has been assessed¹ (refer to **Appendix E**). Due to the absence of significant habitat within SL5 and that ongoing noise and disturbance occur on a daily basis, no habitat of importance (ie. core foraging or breeding habitat) for any threatened fauna species occurs.

¹ Marine species for which no habitat occurs at the site are not considered.



5. Impacts and Mitigation

5.1 Potential Impacts of the Proposal

Impacts of the proposal are very low on the basis that SL5 comprises an active construction site with no native vegetation or significant habitat. Biodiversity impacts may include:

Construction phase

- Minor localised disturbance to fauna (this is already occurring).
- Potential for spread and/ or introduction of weeds and pathogens.
- Potential for sedimentation or disturbance within the Conservation Zone.

Occupation phase

- Resident activity within the Conservation Zone.
- Stormwater impacts (increased nutrients, weed propagules, contaminants, sediment) on wetland environments within the Conservation Zone.

5.2 Mitigation

To minimise ecological impacts which may result from the proposal, the following mitigation measures are prescribed:

Construction phase

- Measures to minimise the potential for the spread of weeds must be implemented during construction.
- Sediment fencing and erosion controls must be implemented and maintained for the duration of the works.
- Construction work limits must be clearly marked prior to commencement of works and para-webbing or similar must be placed along the boundary of the Conservation Zone with signage stating '*Protected vegetation – keep out*' or words of similar intention. The requirement to avoid vegetation disturbance or damage must be clearly explained to all personnel and subcontractors during the induction process prior to construction works.
- Stormwater infrastructure works must be designed and sited so that works are not required within the Conservation Zone and must comply with prescriptions in the approved Stormwater Management Plan.

Occupation phase

To protect high conservation habitat within the Conservation Zone, the following prescriptions apply:

- Permanent boundary markings (eg. bollards) shall be installed along the boundary of the Conservation Zone to restrict access. Signage stating "*Conservation Zone - entry prohibited*" (or words of similar intention) shall be placed along the fencing.
- If fencing of the Conservation Zone is completed it must be permeable to permit fauna movement (eg. post and rail fencing) and barbed wire must not be utilised.



6. Statutory Assessment

The following sections assess the findings of the site assessment with regard to relevant statutory requirements.

6.1 State Environmental Planning Policy (SEPP) 14 – Coastal Wetland

SEPP 14 aims to ensure that coastal wetlands are preserved and protected in the environmental and economic interests of the State. SEPP 14 No. 88 is located to the immediate south-west of the site and extends from Ross Lane in the north to Cumbalum in the south and covers 665 ha of mangroves, swamp sclerophyll forest and saltmarsh. SEPP 14 No. 87 also occurs approximately 2 km to the north of the site.

The proposed SL5 development is located approximately 200 m north-east of the SEPP 14 coastal wetland No. 88. Sports fields, a water quality control pond and internal roads separate residential development from the wetland. Stormwater management measures have been designed to ensure that all site run-off is captured and treated prior to discharge to the wetland. On this basis, the proposed development is unlikely to impact upon this significant vegetation.

6.2 State Environmental Planning Policy (SEPP) 26 – Littoral Rainforest


SEPP 26 aims to provide a mechanism for the consideration of applications for development likely to damage or destroy littoral rainforest areas with a view to the preservation of those areas in their natural state. The north-western corner of the site occurs within the designated 100 m buffer to SEPP 26 No. 39. SL5 is approximately >500 m from the SEPP 26 Littoral Rainforest and would not impact upon this significant vegetation.

6.3 State Environmental Planning Policy (SEPP) 44 – Koala Habitat Protection

SEPP 44 applies to all LGAs listed under Schedule 1, which includes Ballina LGA. The Policy applies to areas of land at least one hectare in size and may include adjoining land under the same ownership. Ballina Shire Council have completed the *Ballina Shire Koala Management Strategy* (2017) under the provisions of SEPP 44 which applies to areas of land designated as Koala Planning Areas (KPAs). Where land is not within a KPA, the 'standard' Policy applies. Epiq Lennox is not within a KPA, so a standard SEPP 44 assessment has been completed as follows.

SEPP 44 listed Schedule 2 listed Koala feed tree species are as follows:

- Bimble Box (*Eucalyptus populnea*)
- Broad-leaved Scribbly Gum (*Eucalyptus haemastoma*)
- Forest Red Gum (*Eucalyptus tereticornis*)
- Large-fruited Grey Gum (*Eucalyptus punctata*)
- Ribbon Gum (*Eucalyptus viminalis*)
- River Red Gum (*Eucalyptus camaldulensis*)

- 
- Scribbly Gum (*Eucalyptus signata*)
 - Swamp Mahogany (*Eucalyptus robusta*)
 - Tallowwood (*Eucalyptus microcorys*)
 - White Box (*Eucalyptus albens*)

The Policy defines potential Koala habitat as areas of native vegetation where Schedule 2 trees constitute at least 15% of the total number of trees in the upper or lower strata of the tree component. No Schedule 2 trees occur at SL5, therefore potential Koala habitat does not occur and no further assessment under SEPP 44 is required.

6.4 Biodiversity Conservation Act 2016 (BC Act)

The BC Act requires a test of significance ('five-part test') when assessing whether an action, development or activity is likely to significantly affect threatened species, ecological communities, or their habitats.

As threatened flora and communities occur in close proximity to SL5, assessments of significance have been completed (refer to **Appendix F**). The assessment concluded that the proposal would be unlikely to significantly increase the risk of extinction for any flora species or communities, and hence a Species Impact Statement (SIS) is not required.

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

The EPBC Act protects/ regulates 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 (refer to summary at **Table 6.1**), no significant impacts to any MNES are likely to result from the proposal, therefore referral to the Minister for the Environment and Energy is not required.

Table 6.1 Assessment of MNES

Factor	Impact
<i>Any impact on a World Heritage property?</i>	
No World Heritage properties occur within 5 km of the site.	Nil
<i>Any impact on a National Heritage place?</i>	
No National Heritage places occur within 5 km of the site.	Nil
<i>Any impact on a wetland of international importance?</i>	
No Wetlands of International Significance (Ramsar Sites) occur within 5 km of the site.	Nil
<i>Any impact on nationally listed threatened biodiversity?</i>	
Habitat for two threatened ecological communities, 79 threatened species and 71 migratory species are identified within 5 km of the site. The modified proposed would not impact on any habitat for nationally listed species or communities.	Nil
<i>Any impact on a Commonwealth marine area?</i>	
No Commonwealth marine areas occur within 5 km 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>Does the proposal involve a nuclear action (including uranium mining)?</i>	
The proposal does not involve a nuclear action.	Nil
<i>Any impact on a water resource, in relation to coal seam gas development and large coal mining development?</i>	
The Proposal does not involve any impact on a water resource, in relation to coal seam gas development and large mining development.	Nil



7. Conclusion

In response to the (modified) proposal and its potential impacts on ecology, the following applies:

- No native vegetation occurs.
- No threatened flora species are TECs occur.
- No significant habitat for threatened fauna occurs.
- Assessments of significance for the adjacent TECs within the Conservation Zone concluded that a significant impact is unlikely as a result of the proposal.
- The proposed development will not impact upon SEPP 14 Coastal Wetlands or SEPP 26 Littoral Rainforest.
- Assessment under SEPP 44 (Koala Habitat Protection) determined that potential Koala habitat does not occur at the site.

Impacts of the proposal are very low on the basis that SL5 comprises an active construction site with no native vegetation or significant habitat. Mitigation measures have been proposed to minimise the limited ecological impacts that may result from the proposal.

An SIS is not required and referral to the federal Minister of the Environment and Energy is not required.



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Appendix A

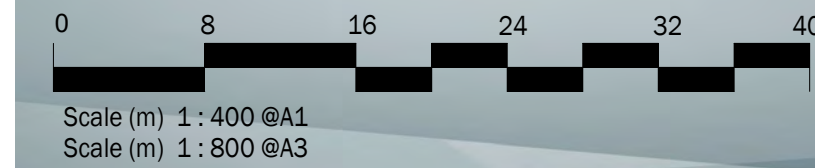
Super Lot 5 Concept Plan

SNAPPER DRIVE



Lot Areas	
Lot no.	Area
Lot 1	219 m ²
Lot 2	142 m ²
Lot 3	142 m ²
Lot 4	142 m ²
Lot 5	142 m ²
Lot 6	171 m ²
Lot 7	171 m ²
Lot 8	142 m ²
Lot 9	142 m ²
Lot 10	142 m ²
Lot 11	142 m ²
Lot 12	252 m ²
Lot 13	252 m ²
Lot 14	145 m ²
Lot 15	145 m ²
Lot 16	145 m ²
Lot 17	145 m ²
Lot 18	174 m ²
Lot 19	174 m ²
Lot 20	145 m ²
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Lot 22	145 m ²
Lot 23	203 m ²
Lot 24	672 m ²
Lot 25	303 m ²
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Lot 27	222 m ²
Lot 28	222 m ²
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Lot 30	303 m ²
Lot 31	515 m ²
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Lot 59	136 m ²
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Lot 62	243 m ²
Lot 63	309 m ²
Lot 64	145 m ²
Lot 65	145 m ²
Lot 66	145 m ²
Lot 67	174 m ²
Lot 68	174 m ²
Lot 69	145 m ²
Lot 70	145 m ²
Lot 71	198 m ²
Lot 72	477 m ²
Lot 73	166 m ²

Lot Areas	
Lot no.	Area
Lot 74	142 m ²
Lot 75	142 m ²
Lot 76	142 m ²
Lot 77	142 m ²
Lot 78	171 m ²
Lot 79	171 m ²
Lot 80	142 m ²
Lot 81	142 m ²
Lot 82	142 m ²
Lot 83	142 m ²
Lot 84	219 m ²
Lot 85	176 m ²
Lot 86	124 m ²
Lot 87	124 m ²
Lot 88	124 m ²
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Lot 91	124 m ²
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Lot 131	210 m ²
Lot 132	153 m ²
Lot 133	153 m ²
Lot 134	153 m ²
Lot 135	153 m ²
Lot 136	210 m ²
Lot 137	294 m ²
Lot 139	153 m ²
Lot 140	153 m ²
Lot 141	153 m ²
Lot 142	153 m ²
Lot 143	153 m ²
Lot 144	153 m ²
Lot 145	187 m ²



Terrace Homes Development
Pacific Pines Estate – Lennox Heads

Site Plan
5551.15.02.J





Appendix B

Search Results

Data from the BioNet 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°; ^^ rounded to 0.01°). Copyright the State of NSW through the Office of Environment and Heritage. Search criteria : Public Report of all Valid Records of Threatened (listed on TSC Act 1995) Entities in selected area [North: -28.76 West: 153.53 East: 153.63 South: -28.86] returned a total of 8,562 records of 76 species.

Report generated on 8/03/2018 1:49 PM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comments	Records	Info
Animalia	Amphibia	Myobatrachidae	3137	<i>Crinia tinnula</i>		Wallum Froglet	V,P		55	
Animalia	Amphibia	Hylidae	3166	<i>Litoria aurea</i>		Green and Golden Bell Frog	E1,P	V	1	
Animalia	Amphibia	Hylidae	3202	<i>Litoria olongburensis</i>		Olongburra Frog	V,P	V	16	
Animalia	Reptilia	Cheloniidae	2004	<i>Caretta caretta</i>		Loggerhead Turtle	E1,P	E	4	
Animalia	Reptilia	Cheloniidae	2007	<i>Chelonia mydas</i>		Green Turtle	V,P	V	2	
Animalia	Reptilia	Dermochelyidae	2013	<i>Dermochelys coriacea</i>		Leatherback Turtle	E1,P	E	2	
Animalia	Aves	Anseranatidae	0199	<i>Anseranas semipalmata</i>		Magpie Goose	V,P		2	
Animalia	Aves	Anatidae	0200	<i>Nettion coromandelianus</i>		Cotton Pygmy-Goose	E1,P		2	
Animalia	Aves	Anatidae	0214	<i>Stictonetta naevosa</i>		Freckled Duck	V,P		2	
Animalia	Aves	Columbidae	0021	<i>Ptilinopus regina</i>		Rose-crowned Fruit-Dove	V,P		5	
Animalia	Aves	Podargidae	0314	<i>Podargus ocellatus</i>		Marbled Frogmouth	V,P		1	
Animalia	Aves	Diomedidae	0092	<i>Phoebastria fusca</i>		Sooty Albatross	V,P	V	1	
Animalia	Aves	Procellariidae	0072	<i>Ardenna carneipes</i>		Flesh-footed Shearwater	V,P	J,K	4	
Animalia	Aves	Procellariidae	0971	<i>Pterodroma solandri</i>		Providence Petrel	V,P	J	1	
Animalia	Aves	Ciconiidae	0183	<i>Ephippiorhynchus asiaticus</i>		Black-necked Stork	E1,P		64	
Animalia	Aves	Ardeidae	0197	<i>Botaurus poiciloptilus</i>		Australasian Bittern	E1,P	E	3	
Animalia	Aves	Ardeidae	0196	<i>Ixobrychus flavicollis</i>		Black Bittern	V,P		1	
Animalia	Aves	Accipitridae	0218	<i>Circus assimilis</i>		Spotted Harrier	V,P		4	
Animalia	Aves	Accipitridae	0226	<i>Haliaeetus leucogaster</i>		White-bellied Sea-Eagle	V,P	C	61	
Animalia	Aves	Accipitridae	0225	<i>Hieraaetus morphnoides</i>		Little Eagle	V,P		15	

Animal ia	Aves	Accipitrid ae	8739	<i>^Pandion cristatus</i>	Eastern Osprey	V,P, 3	104	
Animal ia	Aves	Gruidae	0177	<i>Grus rubicunda</i>	Brolga	V,P	4	
Animal ia	Aves	Burhinida e	0174	<i>Burhinus grallarius</i>	Bush Stone- curlew	E1,P	6	
Animal ia	Aves	Burhinida e	0175	<i>Esacus magnirostris</i>	Beach Stone- curlew	E4A, P	4	
Animal ia	Aves	Haemato podidae	0131	<i>Haematopus fuliginosus</i>	Sooty Oystercatcher	V,P	20	
Animal ia	Aves	Haemato podidae	0130	<i>Haematopus longirostris</i>	Pied Oystercatcher	E1,P	59	
Animal ia	Aves	Charadrii dae	0141	<i>Charadrius leschenaultii</i>	Greater Sand- plover	V,P V,C, J,K	27	
Animal ia	Aves	Charadrii dae	0139	<i>Charadrius mongolus</i>	Lesser Sand- plover	V,P E,C, J,K	45	
Animal ia	Aves	Jacanida e	0171	<i>Irediparra gallinacea</i>	Comb-crested Jacana	V,P	3	
Animal ia	Aves	Rostratuli dae	0170	<i>Rostratula australis</i>	Australian Painted Snipe	E1,P E	1	
Animal ia	Aves	Scolopaci dae	0166	<i>Calidris alba</i>	Sanderling	V,P C,J, K	14	
Animal ia	Aves	Scolopaci dae	0161	<i>Calidris ferruginea</i>	Curlew Sandpiper	E1,P CE, C,J, K	95	
Animal ia	Aves	Scolopaci dae	0165	<i>Calidris tenuirostris</i>	Great Knot	V,P CE, C,J, K	54	
Animal ia	Aves	Scolopaci dae	0167	<i>Limicola falcinellus</i>	Broad-billed Sandpiper	V,P C,J, K	4	
Animal ia	Aves	Scolopaci dae	0152	<i>Limosa limosa</i>	Black-tailed Godwit	V,P C,J, K	17	
Animal ia	Aves	Scolopaci dae	0160	<i>Xenus cinereus</i>	Terek Sandpiper	V,P C,J, K	75	
Animal ia	Aves	Laridae	0972	<i>Gygis alba</i>	White Tern	V,P	1	
Animal ia	Aves	Laridae	0120	<i>Onychoprion fuscata</i>	Sooty Tern	V,P	1	
Animal ia	Aves	Laridae	0117	<i>Sternula albifrons</i>	Little Tern	E1,P C,J, K	81	
Animal ia	Aves	Cacatuid ae	0265	<i>^Calyptorhynch us lathami</i>	Glossy Black- Cockatoo	V,P, 2	1	
Animal ia	Aves	Psittacida e	8913	<i>^Pezoporus wallicus wallicus</i>	Eastern Ground Parrot	V,P, 3	3	
Animal ia	Aves	Tytonidae	0252	<i>^Tyto longimembris</i>	Eastern Grass Owl	V,P, 3	19	
Animal ia	Aves	Tytonidae	0250	<i>^Tyto novaehollandia e</i>	Masked Owl	V,P, 3	4	
Animal ia	Aves	Meliphagi dae	0610	<i>Gavicalis fasciolaris</i>	Mangrove Honeyeater	V,P	14	

Animal ia	Aves	Pomatostomidae	8388	<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	V,P		4	
Animal ia	Aves	Neosittidae	0549	<i>Daphoenositta chrysoptera</i>	Varied Sittella	V,P		15	
Animal ia	Aves	Artamidae	8519	<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	V,P		1	
Animal ia	Mammalia	Dasyuridae	1008	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V,P	E	2	
Animal ia	Mammalia	Dasyuridae	1045	<i>Planigale maculata</i>	Common Planigale	V,P		5	
Animal ia	Mammalia	Phascolarctidae	1162	<i>Phascolarctos cinereus</i>	Koala	V,P	V	13	
Animal ia	Mammalia	Pteropodidae	1280	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V,P	V	27	
Animal ia	Mammalia	Pteropodidae	1294	<i>Syconycteris australis</i>	Common Blossom-bat	V,P		1	
Animal ia	Mammalia	Molossidae	1329	<i>Mormopterus norfolkensis</i>	Eastern Freetail-bat	V,P		1	
Animal ia	Mammalia	Vespertilionidae	1346	<i>Miniopterus australis</i>	Little Bentwing-bat	V,P		16	
Animal ia	Mammalia	Vespertilionidae	1834	<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	V,P		4	
Animal ia	Mammalia	Vespertilionidae	1357	<i>Myotis macropus</i>	Southern Myotis	V,P		2	
Animal ia	Mammalia	Vespertilionidae	1336	<i>Nyctophilus bifax</i>	Eastern Long-eared Bat	V,P		2	
Animal ia	Mammalia	Vespertilionidae	1361	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V,P		3	
Animal ia	Mammalia	Balaenopteridae	1575	<i>Megaptera novaeangliae</i>	Humpback Whale	V,P	V	1	
Animal ia	Gastropoda	Camaenidae	1002	<i>Thersites mitchellae</i>	Mitchell's Rainforest Snail	E1	CE	3	
Plantae	Flora	Cunoniaceae	10943	<i>Davidsonia jerseyana</i>	Davidson's Plum	E1,P,2	E	2	
Plantae	Flora	Cunoniaceae	10944	<i>Davidsonia johnsonii</i>	Smooth Davidson's Plum	E1,P	E	3	
Plantae	Flora	Euphorbiaceae	8334	<i>Fontainea oraria</i>	Coastal Fontainea	E4A,P,2	E	41	
Plantae	Flora	Fabaceae (Mimosoideae)	7757	<i>Archidendron hendersonii</i>	White Lace Flower	V,P		17	
Plantae	Flora	Lauraceae	3477	<i>Cryptocarya foetida</i>	Stinking Cryptocarya	V,P	V	32	
Plantae	Flora	Lauraceae	8480	<i>Endiandra muelleri subsp. bracteata</i>	Green-leaved Rose Walnut	E1,P		2	
Plantae	Flora	Meliaceae	3682	<i>Owenia cepiodora</i>	Onion Cedar	V,P	V	1	
Plantae	Flora	Menispermaceae	3691	<i>Tinospora tinosporoides</i>	Arrow-head Vine	V,P		17	

Plantae	Flora	Myrtaceae	11894	<i>Gossia fragrantissima</i>	Sweet Myrtle	E1,P	E	2	
Plantae	Flora	Myrtaceae	4290	<i>Syzygium hodgkinsoniae</i>	Red Lilly Pilly	V,P	V	5	
Plantae	Flora	Myrtaceae	4292	<i>Syzygium moorei</i>	Durobby	V,P	V	1	
Plantae	Flora	Orchidaceae	4480	<i>Phaius australis</i>	Southern Swamp Orchid	E1,P,2	E	5	
Plantae	Flora	Orchidaceae	7324	<i>Pterostylis nigricans</i>	Dark Greenhood	V,P,2		1	
Plantae	Flora	Poaceae	4776	<i>Arthraxon hispidus</i>	Hairy Jointgrass	V,P	V	7352	
Plantae	Flora	Proteaceae	5446	<i>Macadamia tetraphylla</i>	Rough-shelled Bush Nut	V,P	V	56	
Plantae	Flora	Rutaceae	6457	<i>Acronychia littoralis</i>	Scented Acronychia	E1,P	E	23	



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: 08/03/18 11:11:53

[Summary](#)

[Details](#)

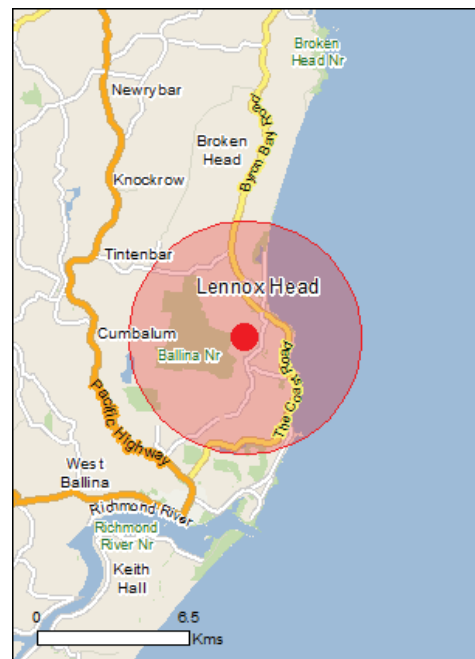
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

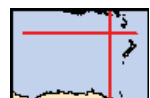
[Acknowledgements](#)



This map may contain data which are
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[Coordinates](#)

Buffer: 5.0Km



Summary

Matters of National Environmental Significance

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

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:	2
Listed Threatened Species:	79
Listed Migratory Species:	71

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:	110
Whales and Other Cetaceans:	12
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	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:	1
Regional Forest Agreements:	1
Invasive Species:	37
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
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 may occur within area

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

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to 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 known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Roosting known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Endangered	Species or species habitat may occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area

Name	Status	Type of Presence
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Erythroriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to 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
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area
Limosa lapponica baueri Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may 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
Thalassarche cauta cauta Shy Albatross, Tasmanian Shy Albatross [82345]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta steadi White-capped Albatross [82344]	Vulnerable	Foraging, feeding or related behaviour likely to 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

Name	Status	Type of Presence
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	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
Frogs		
Litoria olongburensis Wallum Sedge Frog [1821]	Vulnerable	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
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may 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 likely 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 may 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

Name	Status	Type of Presence
Xeromys myoides Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat may occur within area
Other		
Thersites mitchellae Mitchell's Rainforest Snail [66774]	Critically Endangered	Species or species habitat known to occur within area
Plants		
Acronychia littoralis Scented Acronychia [8582]	Endangered	Species or species habitat likely to occur within area
Allocasuarina defungens Dwarf Heath Casuarina [21924]	Endangered	Species or species habitat likely to occur within area
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat known to occur within area
Baloghia marmorata Marbled Baloghia, Jointed Baloghia [8463]	Vulnerable	Species or species habitat may occur within area
Bulbophyllum globuliforme Miniature Moss-orchid, Hoop Pine Orchid [6649]	Vulnerable	Species or species habitat may occur within area
Cryptocarya foetida Stinking Cryptocarya, Stinking Laurel [11976]	Vulnerable	Species or species habitat known 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
Davidsonia jerseyana Davidson's Plum [67219]	Endangered	Species or species habitat may occur within area
Davidsonia johnsonii Smooth Davidsonia, Smooth Davidson's Plum, Small-leaved Davidson's Plum [67178]	Endangered	Species or species habitat likely to occur within area
Diploglottis campbellii Small-leaved Tamarind [21484]	Endangered	Species or species habitat likely to occur within area
Endiandra floydii Floyd's Walnut [52955]	Endangered	Species or species habitat likely to occur within area
Floydia praealta Ball Nut, Possum Nut, Big Nut, Beefwood [15762]	Vulnerable	Species or species habitat likely to occur within area
Fontainea oraria Coastal Fontainea [24038]	Endangered	Species or species habitat known to occur within area
Gossia fragrantissima Sweet Myrtle, Small-leaved Myrtle [78867]	Endangered	Species or species habitat likely to occur within area
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat may occur within

Name	Status	Type of Presence area
Macadamia tetraphylla Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat known to occur within area
Owenia cepiodora Onionwood, Bog Onion, Onion Cedar [11344]	Vulnerable	Species or species habitat likely to occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat known to occur within area
Randia moorei Spiny Gardenia [10577]	Endangered	Species or species habitat likely to occur within area
Syzygium hodgkinsoniae Smooth-bark Rose Apple, Red Lilly Pilly [3539]	Vulnerable	Species or species habitat likely to occur within area
Syzygium moorei Rose Apple, Coolamon, Robby, Durobby, Watermelon Tree, Coolamon Rose Apple [12284]	Vulnerable	Species or species habitat may occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	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	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding known 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	Species or species habitat known 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 habitat known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	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

Name	Threatened	Type of Presence
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		habitat likely to occur within area Species or species habitat likely to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may 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 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
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 area
Thalassarche cauta Tasmanian Shy Albatross [89224]	Vulnerable*	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may 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
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	Foraging, feeding or related behaviour known

Name	Threatened	Type of Presence
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	to occur within area Breeding known 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
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	Species or species habitat known 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]		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
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely 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

Name	Threatened	Type of Presence
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Arenaria interpres Ruddy Turnstone [872]		Roosting known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Roosting known to occur within area
Calidris alba Sanderling [875]		Roosting 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 known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Roosting known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Roosting known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Roosting known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]		Roosting 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]		Roosting known to occur

Name	Threatened	Type of Presence
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Philomachus pugnax Ruff (Reeve) [850]		Roosting known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Roosting known to occur within area
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area
Tringa incana Wandering Tattler [831]		Roosting known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area
Xenus cinereus Terek Sandpiper [59300]		Roosting known to 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 known 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 alba Great Egret, White Egret [59541]		Breeding known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Arenaria interpres Ruddy Turnstone [872]		Roosting known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Roosting known to occur within area
Calidris alba Sanderling [875]		Roosting 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 known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area
Catharacta skua Great Skua [59472]		Species or species habitat may occur within area
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Roosting known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Roosting known to occur within area
Cuculus saturatus Oriental Cuckoo, Himalayan Cuckoo [710]		Species or species habitat may occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Diomedea gibsoni Gibson's Albatross [64466]	Vulnerable*	Species or species habitat may occur within area

Name	Threatened	Type of Presence
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 known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Roosting known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Heteroscelus brevipes Grey-tailed Tattler [59311]		Roosting known to occur within area
Heteroscelus incanus Wandering Tattler [59547]		Roosting known to occur within area
Himantopus himantopus Black-winged Stilt [870]		Roosting known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]		Roosting 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
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
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
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]		Roosting known to occur within area
Numenius phaeopus Whimbrel [849]		Roosting known 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
Philomachus pugnax Ruff (Reeve) [850]		Roosting known to occur within area
Phoebastria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area
Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [1043]		Species or species habitat likely 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 cauta Tasmanian Shy Albatross [89224]	Vulnerable*	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 melanophrys Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable*	Foraging, feeding or related behaviour likely

Name	Threatened	Type of Presence
Tringa glareola Wood Sandpiper [829]		to occur within area Roosting known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area
Xenus cinereus Terek Sandpiper [59300]		Roosting known to 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 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		Species or species

Name	Threatened	Type of Presence
Seahorse [66240]		habitat may 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 paegnius		
Rough-snout Ghost Pipefish [68425]		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
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		

Name	Threatened	Type of Presence
Astrotia stokesii Stokes' Seasnake [1122]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding known 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	Species or species habitat known to occur within area
Pelamis platurus Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area

Whales and other Cetaceans	[Resource Information]
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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
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

Name	Status	Type of Presence
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
Ballina	NSW

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

Name	State
North East NSW RFA	New South Wales

Invasive Species	[Resource Information]
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Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water 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 within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species

Name	Status	Type of Presence habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species 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		
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

Name	Status	Type of Presence
Chrysanthemoides monilifera subsp. rotundata Bitou Bush [16332]		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] Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Protasparagus densiflorus Asparagus Fern, Plume Asparagus [5015]		Species or species habitat likely to occur within area
Protasparagus plumosus Climbing Asparagus-fern, Ferny Asparagus [11747]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area

Caveat

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

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

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

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

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

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

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

- migratory and
- marine

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

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

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

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

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

Coordinates

-28.80994 153.58634

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

Threatened Flora & TEC Records

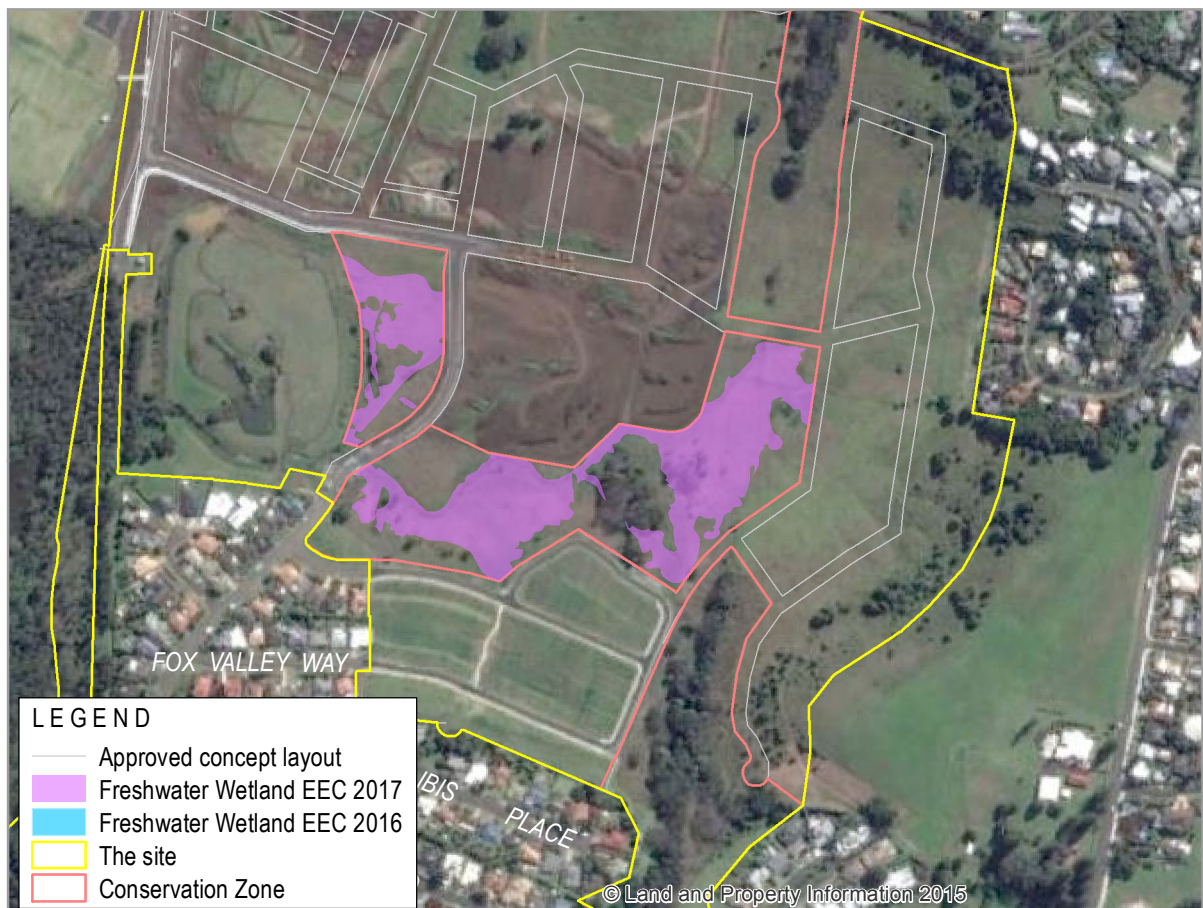


**Distribution of all EECs and Threatened Species
(excluding HJG and SSSR) at the Site**



0 150

GeoLINK
environmental management and design



Freshwater Wetland EEC Distribution within Conservation Zone

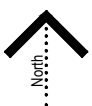
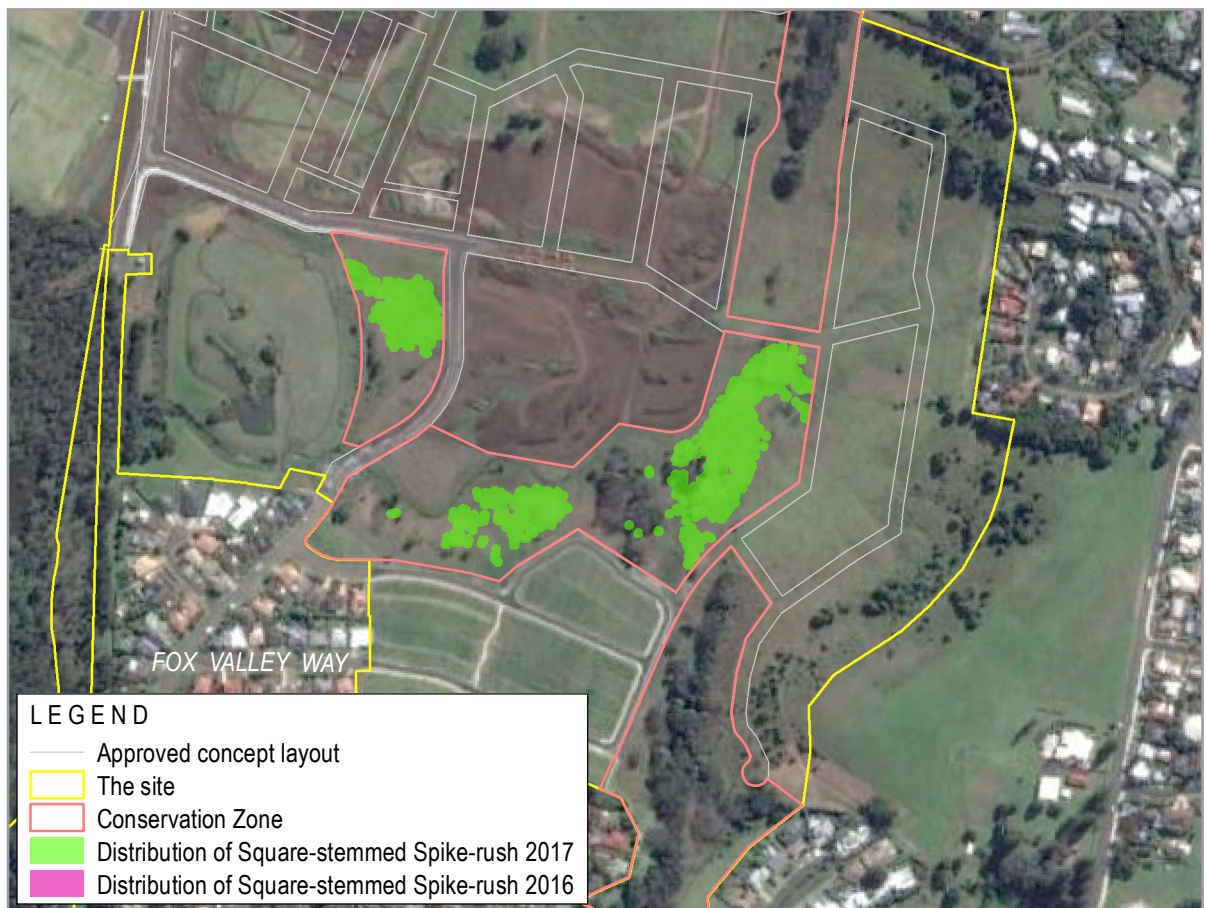


0 150

GeoLINK
environmental management and design

Epiq Lennox Vegetation Monitoring Report: April 2017
1675-1450

Illustration 3.3



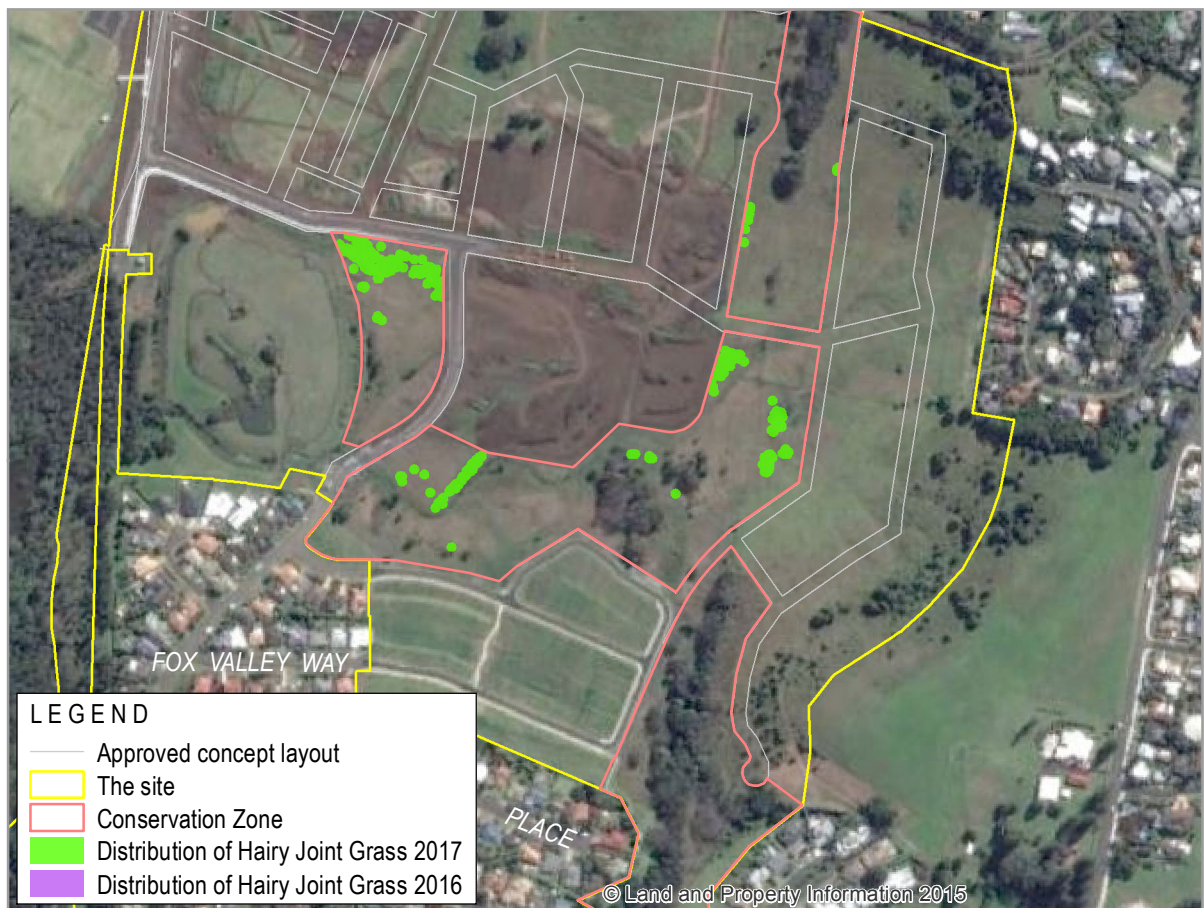
0 150

GeoLINK
environmental management and design

Square-stemmed Spike-rush Distribution within Conservation Zone

Epiq Lennox Vegetation Monitoring Report: April 2017
1675-1452

Illustration 3.2



LEGEND

- Approved concept layout
- The site
- Conservation Zone
- Distribution of Hairy Joint Grass 2017
- Distribution of Hairy Joint Grass 2016



0 150

GeoLINK
environmental management and design

Hairy Joint Grass Distribution within Conservation Zone

Epiq Lennox Vegetation Monitoring Report: April 2017
1675-1451

Illustration 3.1



Appendix D

Site Photographs



Plate D1 Typical grassland in south of SL5, Montwood Drive on right (view to south).



Plate D2 Grassland in south looking to east; sediment detention pond on left.



Plate D3 Sediment detention pond in the north of SL5.



Plate D4 Construction area in north of SL5 (road alignment).

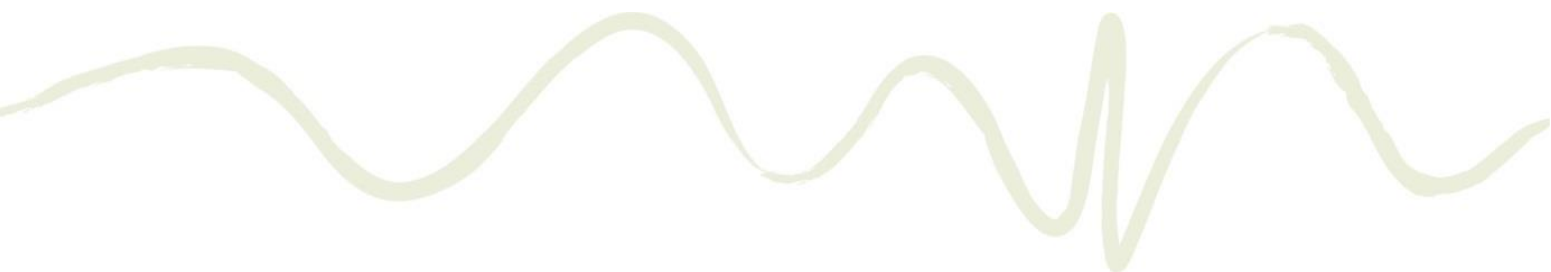


Appendix E

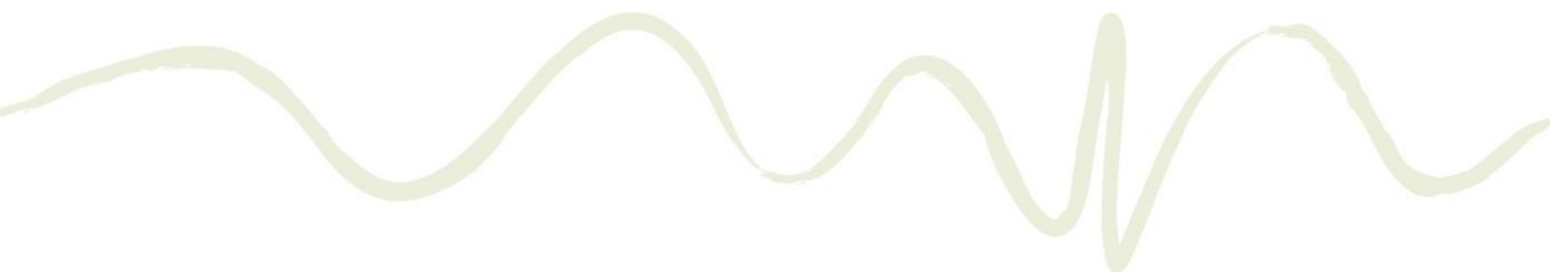
Potential for Threatened Fauna Occurrence

Table E.1 Threatened Fauna Potential Occurrence Assessment

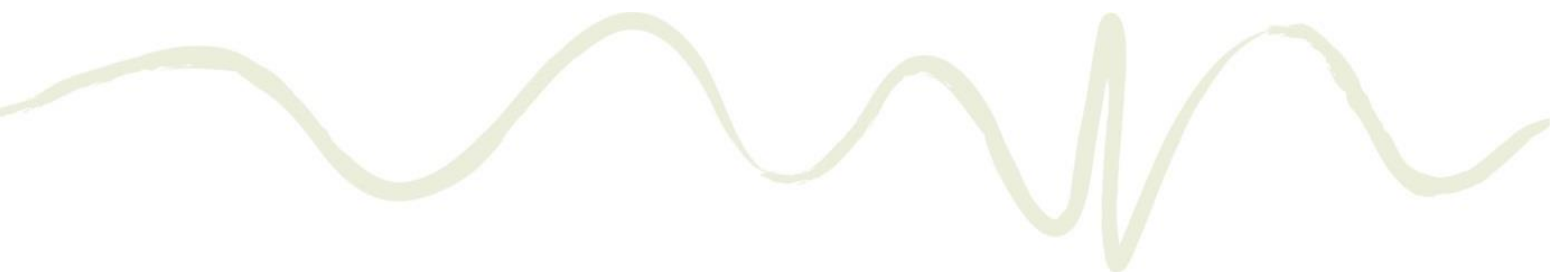
Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or OEH Threatened Species Profiles websites)	Suitability of Site Habitat	Potential Occurrence and need for Assessment of Significance
		BC Act	EPBC Act			
AMPHIBIANS						
<i>Crinia tinnula</i>	Wallum Froglet	V	-	Acid paperbark and sedge swamps known as ‘wallum’, this is a banksia-dominated lowland heath ecosystem characterised by acidic waterbodies.	Low	Low; no further assessment required.
<i>Litoria aurea</i>	Green and Golden Bell Frog	E	V	Amongst vegetation in and around permanent swamps, lagoons, farm dams and on flood-prone river flats, particularly where there are bullrushes or spikerushes.	Low	Low; no further assessment required.
<i>Litoria olongburensis</i>	Olongburra Frog	V	V	Paperbark swamps and sedge swamps of the coastal ‘wallum’ country amongst sedges and rushes.	Low	Low; no further assessment required.
AVIFAUNA						
<i>Amauornis moluccana</i>	Pale-vented Bush-hen	V	-	Variety of coastal wetlands from wetlands, mangroves, lagoons and swamps to river margins and creeks running through rainforest.	Low	Low; no further assessment required.
<i>Anseranas semipalmata</i>	Magpie Goose	V	-	Shallow wetlands (<1 m deep), large swamps and dams with dense growth of rushes or sedges.	Low	Low; no further assessment required.
<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.	Low	Low. No OEH records within locality; no further assessment required.
<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.	Low	Low; no further assessment required.
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	E	Permanent freshwater wetlands with tall dense vegetation, particularly bullrushes and spikerushes.	Low	Low; no further assessment required.
<i>Burhinus grallarius</i>	Bush Stone-curlew	E	-	Lightly timbered open forest and woodland, and partly cleared farmland with woodland remnants, preferring areas with dry leaf-litter, fallen timber and sparse ground cover.	Low	Low; no further assessment required.



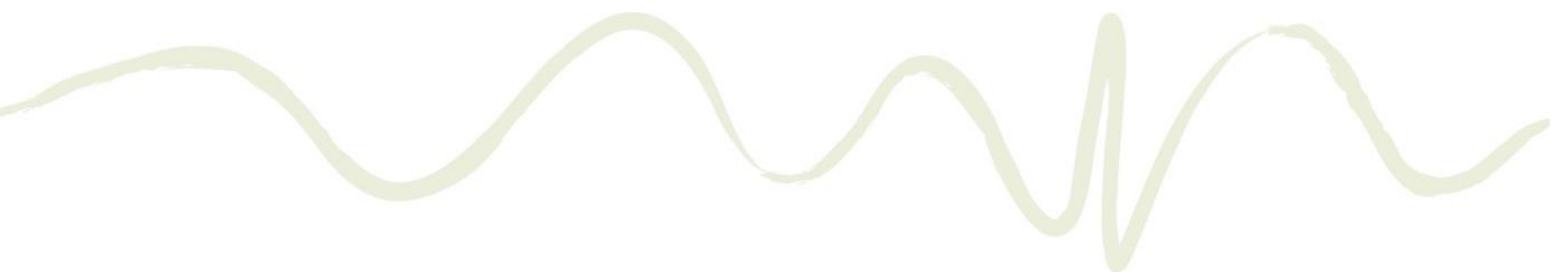
Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or OEH Threatened Species Profiles websites)	Suitability of Site Habitat	Potential Occurrence and need for Assessment of Significance
		BC Act	EPBC Act			
<i>Calyptorhynchus lathamii</i>	Glossy Black-Cockatoo	V	-	Sheoaks in coastal forests and woodlands, timbered watercourses, and moist and dry eucalypt forests of the coast and the Great Divide up to 1,000 m.	Low	Low; no further assessment required.
<i>Circus assimilis</i>	Spotted Harrier	V	-	Grassy open woodland, inland riparian woodland, grassland and shrub steppe.	Low	Low; no further assessment required.
<i>Cyclopsitta diophthalma coxeni</i>	Coxen's Fig-Parrot	CE	E	Drier rainforests and adjacent wet eucalypt forest, wetter lowland also wetter lowland rainforests.	Low	Low; no further assessment required.
<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.	Low	Low; no further assessment required.
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	E	-	Swamps, mangroves, mudflats, dry floodplains.	Low	Low; no further assessment required.
<i>Erythroriorchis radiatus</i>	Red Goshawk	CE	E	In NSW, preferred habitats include mixed subtropical rainforest, Melaleuca swamp forest and riparian Eucalyptus forest of coastal rivers.	Low	Low; no further assessment required.
<i>Gavicalis fasciogularis</i>	Mangrove Honeyeater	V	-	Mangrove forest, also near coastal forests and woodlands including casuarina and paperbark swamps.	Low	Low; no further assessment required.
<i>Grus rubicunda</i>	Brolga	V	-	Shallow swamps, floodplains, grasslands and pastoral lands, usually in pairs or parties.	Low	Low; no further assessment required.
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	V	-	Around the Australian coastline and inland along rivers and wetlands of the Murray Darling Basin.	Low	Low; no further assessment required.
<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.	Low	Low; no further assessment required.
<i>Irediparra gallinacea</i>	Comb-crested Jacana	V	-	Vegetation floating on slow-moving rivers and permanent lagoons, swamps, lakes and dams.	Low	Low; no further assessment required.
<i>Ixobrychus flavicollis</i>	Black Bittern	V	-	Dense vegetation fringing and in streams, swamps, tidal creeks and mudflats, particularly amongst swamp sheoaks and mangroves.	Low	Low; no further assessment required.



Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or OEH Threatened Species Profiles websites)	Suitability of Site Habitat	Potential Occurrence and need for Assessment of Significance
		BC Act	EPBC Act			
<i>Lathamus discolor</i>	Swift Parrot	E	E	Forests, woodlands, plantations, and banksias.	Low	Low. No OEH records within locality; no further assessment required.
<i>Nettapus coromandelianus</i>	Cotton Pygmy-Goose	E	-	Freshwater lakes, lagoons, swamps and dams, particularly those vegetated with waterlilies and other floating and submerged aquatic vegetation.	Low	Low; no further assessment required.
<i>Pandion cristatus</i>	Eastern Osprey	V	-	Forages for fish in fresh, brackish or saline waters of rivers, lakes, estuaries with suitable nesting sites nearby.	Low	Low; no further assessment required.
<i>Pezoporus wallicus wallicus</i>	Eastern Ground Parrot	V	-	Heathland and sedgeland within or adjacent to swamps.	Low	Low; no further assessment required.
<i>Podargus ocellatus</i>	Marbled Frogmouth	V	-	Subtropical rainforest spending most time in deep, wet sheltered gullies.	Low	Low; no further assessment required.
<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler	V	-	Box-Gum Woodlands on the slopes, and Box-Cypress-pine and open Box Woodlands on alluvial plains.	Low	Low; no further assessment required.
<i>Ptilinopus regina</i>	Rose-crowned Fruit-Dove	V	-	Subtropical and dry rainforest, moist eucalypt forest and swamp forest.	Low	Low; no further assessment required.
<i>Rostratula benghalensis</i>	Australian Painted Snipe	E	V	Well-vegetated shallows and margins of wetlands, dams, sewage ponds, wet pastures, marshy areas, irrigation systems, lignum, tea-tree scrub, and open timber.	Low	Low; no further assessment required.
<i>Stictonetta naevosa</i>	Freckled Duck	V	-	Permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree.	Low	Low; no further assessment required.
<i>Turnix melanogaster</i>	Black-breasted Button-quail	V	V	Drier rainforests and vine scrubs, often in association with Hoop Pine and a deep moist leaf litter layer.	Low	Low. No OEH records within locality; no further assessment required.



Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or OEH Threatened Species Profiles websites)	Suitability of Site Habitat	Potential Occurrence and need for Assessment of Significance
		BC Act	EPBC Act			
<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.	Low	Low; no further assessment required.
<i>Tyto novaehollandiae</i>	Masked Owl	V	-	Dry eucalypt forest and woodlands.	Low	Low; no further assessment required.
MAMMALS						
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V	V	Sandstone cliffs and fertile woodland valley habitat.	Low	Low. No OEH records within locality; no further assessment required.
<i>Dasyurus maculatus maculatus</i>	Spotted-tailed Quoll	V	E	Dry and moist eucalypt forests and rainforests, fallen hollow logs, large rocky outcrops.	Low	Low; no further assessment required.
<i>Miniopterus australis</i>	Little Bentwing-bat	V	-	Moist eucalypt forest, rainforest and dense coastal scrub.	Low	Low; no further assessment required.
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	V	-	Forest or woodland; roosts in caves, old mines and stormwater channels.	Low	Low; no further assessment required.
<i>Mormopterus norfolkensis</i>	Eastern Freetail-bat	V	-	Occurs in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range.	Low	Low; no further assessment required.
<i>Myotis macropus</i>	Southern Myotis	V	-	Bodies of water, rainforest streams, large lakes, reservoirs.	Low	Low; no further assessment required.
<i>Nyctophilus bifax</i>	Eastern Long-eared Bat	V	-	Lowland subtropical rainforest and wet and swamp eucalypt forest, extending to adjacent moist eucalypt forest.	Low	Low; no further assessment required.
<i>Petauroides volans</i>	Greater Glider	-	V			
<i>Phascolarctos cinereus</i>	Koala	V	V	Appropriate food trees in forests and woodlands, and treed urban areas.	Low; no primary feed trees occur.	Low; no further assessment required.




Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or OEH Threatened Species Profiles websites)	Suitability of Site Habitat	Potential Occurrence and need for Assessment of Significance
		BC Act	EPBC Act			
<i>Planigale maculata</i>	Common Planigale	V	-	Rainforest, eucalypt forest, heathland, marshland, grassland and rocky areas with surface cover close to water.	Low	Low; no further assessment required.
<i>Potorous tridactylus 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.	Low	Low. No OEH records within locality; no further assessment required.
<i>Pseudomys novaehollandiae</i>	New Holland Mouse	V	V	Occurs in open heathlands, open woodlands with a heathland understorey, and vegetated sand dunes.	Low	Low. No OEH records within locality; no further assessment required.
<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.	Low	Low; no further assessment required.
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V	-	Woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest.	Low	Low; no further assessment required.
<i>Syconycteris australis</i>	Common Blossom-bat	V	-	Roosts in littoral rainforest and feeds on flowers in adjacent heathland and paperbark swamps.	Low	Low; no further assessment required.
<i>Xeromys myoides</i>	Water Mouse	-	V	Mangroves and associated saltmarsh, sedgeland, clay pans, heathlands and freshwater wetlands.	Low	Nil - not recorded in NSW.
INVERTEBRATES						
<i>Argynnis hyperbius inconstans</i>	Australian Fritillary	E	CE	Open swampy coastal habitat where the caterpillar's food plant, Arrowhead Violet (<i>Viola betonicifolia</i>) occurs.	Low	Low. No OEH records within locality; no further assessment required.
<i>Phyllodes imperialis smithersi</i>	Pink Underwing Moth	E	E	Found in undisturbed subtropical rainforest below 600 m. Breeding habitat is restricted to areas where the caterpillar's food plant, <i>Carronia multisepala</i> , grows in a collapsed shrub-like form.	Low	Low. No OEH records within locality; no further assessment required.
<i>Thersites mitchellae</i>	Mitchell's Rainforest Snail	E	CE	Remnant areas of lowland subtropical rainforest and swamp forest on alluvial soils.	Low	Low; no further assessment required.

V = Vulnerable; E = Endangered; EP = Endangered Population; CE = Critically Endangered



Appendix F

BC Act Tests of Significance



Tests of significance are required for the following threatened communities and species for which habitat occurs within the Conservation Zone:

Flora:

- Hairy Jointgrass
- Square-stemmed Spike-rush

TECs:

- Freshwater wetlands

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

Hairy Jointgrass

Hairy Jointgrass (HJG) is a moisture and shade-loving grass, found in or on the edges of rainforest and in wet eucalypt forest, often near creeks or swamps. Flowering occurs in late summer with seed ripe between April – May.

Threatening processes for this species include:

- Clearing of habitat for agriculture and development.
- Inappropriate fire regimes.
- Over-grazing by domestic stock.
- Competition from introduced grasses such as Paspalum and Kikuyu.
- Slashing or mowing of habitat.

Potential Impacts from the Proposal


The proposal would have no direct impact on HJG habitat within the Conservation Zone. Stormwater discharge into the Conservation Zone is unlikely to affect hydrology to any significant degree such that HJG habitat would be affected. As such, the modified proposal would be unlikely to have an adverse effect on the life cycle of HJG such that a viable local population of the species is placed at risk of extinction.

Square-stemmed Spike-rush

Square-stemmed Spike-rush (SSSR) occurs in damp locations on stream edges and in and on the margins of freshwater swamps.

Threatening processes for this species include:

- Clearing of habitat for development and agriculture.
- Invasion of habitat by weeds and pasture grasses.
- Changes to the natural disturbance patterns such as grazing, fire and flooding.
- Degradation of habitat by intensive grazing by stock.
- Poor knowledge of the species' distribution and abundance.
- Small size of known extant populations make the species susceptible to local extinction.



Potential Impacts from the Proposal

The proposal would have no direct impact on SSSR habitat within the Conservation Zone. Stormwater discharge into the Conservation Zone is unlikely to affect hydrology to any significant degree such that SSSR habitat would be affected. As such, the modified proposal would be unlikely to have an adverse effect on the life cycle of SSSR such that a viable local population of the species is placed at risk of extinction.

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

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Freshwater wetlands within the Conservation Zone will not be directly impacted by the modified proposal, although will be subject to periodic stormwater discharge under an approved management plan. Given that stormwater discharge is required to meet various criteria under the approved management plan it would be highly unlikely that freshwater wetlands would be adversely affected.

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

(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

HJG & SSSR: no habitat will be removed or modified as a result of the modified proposal.

Freshwater wetlands: no habitat will be removed or modified as a result of the modified proposal. Headwalls and drainage culverts for stormwater disposal will be located in adjacent land outside the Conservation Zone. Stormwater discharge will be in accordance with the Stormwater Management Plan and would be unlikely to modify wetland environments.

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

HJG & SSSR: no habitat will be fragmented or isolated as a result of the modified proposal.

Freshwater wetlands: no habitat will be fragmented or isolated as a result of the modified proposal.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

HJG & SSSR: no habitat will be removed or modified as a result of the modified proposal.

Freshwater wetlands: no habitat will be removed or modified as a result of the modified proposal.

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


No areas of outstanding biodiversity value have been declared in Ballina LGA.

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

A key threatening process (KTP) is defined under the BC Act as a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species or ecological communities. The current list of KTP under the BC Act, and whether the Proposal is recognised as a KTP is shown in **Table F.1**.

Table F.1 Key Threatening Processes

Key Threatening Process (as per Schedule 4 of the BC Act)	Is the development or activity proposed of a class of development or activity that is recognised as a threatening process?		
	Likely	Possible	Unlikely
Aggressive exclusion of birds by noisy miners (<i>Manorina melanocephala</i>)			✓
Alteration of habitat following subsidence due to longwall mining			✓
Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands			✓
Anthropogenic climate change			✓
Bushrock removal			✓
Clearing of native vegetation			✓
Competition and grazing by the feral European Rabbit (<i>Oryctolagus cuniculus</i>)			✓
Competition and habitat degradation by feral goats (<i>Capra hircus</i>)			✓
Competition from feral honeybees (<i>Apis mellifera</i>)			✓
Death or injury to marine species following capture in shark control programs on ocean beaches			✓
Entanglement in or ingestion of anthropogenic debris in marine and estuarine environments			✓
Forest eucalypt dieback associated with over-abundant psyllids and bell miners			✓
Herbivory and environmental degradation caused by feral deer			✓
High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition			✓
Importation of red imported fire ants (<i>Solenopsis invicta</i>)			✓
Infection by <i>Psittacine circoviral</i> (beak and feather) disease affecting endangered psittacine species and populations			✓
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis			✓
Infection of native plants by <i>Phytophthora cinnamomi</i>			✓
Introduction and Establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae			✓
Introduction of the large earth bumblebee (<i>Bombus terrestris</i>)			✓
Invasion and establishment of exotic vines and scramblers			✓
Invasion and establishment of Scotch Broom (<i>Cytisus scoparius</i>)			✓
Invasion and establishment of the Cane Toad (<i>Bufo marinus</i>)			✓
Invasion, establishment and spread of Lantana (<i>Lantana camara</i>)			✓
Invasion of native plant communities by African Olive (<i>Olea europaea</i> L. subsp. <i>cuspidata</i>)			✓
Invasion of native plant communities by <i>Chrysanthemoides monilifera</i> (bitou bush and boneseed)			✓



Key Threatening Process (as per Schedule 4 of the BC Act)	Is the development or activity proposed of a class of development or activity that is recognised as a threatening process?		
	Likely	Possible	Unlikely
Invasion of native plant communities by exotic perennial grasses			✓
Invasion of the Yellow Crazy Ant (<i>Anoplolepis gracilipes</i>) into NSW			✓
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants			✓
Loss of hollow-bearing trees			✓
Loss or degradation (or both) of sites used for hill-topping by butterflies			✓
Predation and hybridisation by feral dogs (<i>Canis lupus familiaris</i>)			✓
Predation by the European Red Fox (<i>Vulpes vulpes</i>)			✓
Predation by the feral cat (<i>Felis catus</i>)			✓
Predation by <i>Gambusia holbrooki</i> (Plague Minnow or Mosquito Fish)			✓
Predation by the Ship Rat (<i>Rattus rattus</i>) on Lord Howe Island			✓
Predation, habitat degradation, competition and disease transmission by feral pigs (<i>Sus scrofa</i>)			✓
Removal of dead wood and dead trees			✓

The proposal is not characteristic of any listed KTP. The degree that the proposed modification would contribute to any threatening process is not considered likely to place the local population of any of the subject species or communities at significant risk of extinction.

Conclusion

It is considered unlikely that the local population of any of the subject species/ communities would be placed at significant risk of extinction as a result of the proposed modification.