



Our Ref: R09_EPBC MNES Summary_V1

1/08/2022

Health Infrastructure
1 Reserve Road
St Leonards NSW 2065

RE: Assessment of Biodiversity Related Commonwealth Matters for Phase 3 of the John Hunter Health Innovation Precinct

Umwelt (Australia) Pty Ltd (Umwelt) was commissioned by Health Infrastructure to consider the potential biodiversity impacts associated with entities listed under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) for the John Hunter Health Innovation Precinct (JHHIP) modification project (the Project). This letter provides an assessment of the potential biodiversity impacts associated Matters of National Environmental Significance (MNES) listed under the EPBC Act for the Project.

1.0 Previous Ecological Studies and Ecological Values

1.1 Ecological Studies

A Biodiversity Development Assessment Report (BDAR) has been prepared for the Project (Umwelt 2022). A detailed description of the biodiversity assessment can be found in the BDAR document. A summary of the ecological surveys already completed for the Project is detailed below.

Ecological studies of the Project were completed across 2019, 2020, 2021, and 2022 to inform a constraints assessment across a larger study area (Umwelt 2021). These surveys were designed to collect preliminary ecological data to identify the broad ecological features of the study areas and included:

- Floristic plots in accordance with the NSW Biodiversity Assessment Methodology (BAM),
- Threatened species survey transects in accordance with *NSW Guide to Surveying Threatened Plants and their habitats* (DPIE 2020b),
- Nocturnal spotlighting surveys for birds, mammals and reptiles.

Whilst these surveys were completed over a larger study area, the current Development Footprint was included in the surveys.

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1.2 Ecological Values

The Development Footprint (see **Plate 1**) occurs within the Sydney Basin Bioregion, which extends from north of Batemans Bay to Nelson Bay, and West to Mudgee. It falls within the Gosford-Cooranbong Coastal Slopes Mitchell landscape, which comprises hills and sandstone plateau outliers of Triassic Narrabeen sandstones, with extensive rock outcrop and low cliffs along ridge margins (DECC 2008). Vegetation in the surrounding area is characterised by open forest and woodland and is currently used for recreational activities such as cycling and bushwalking.

- PCT 1619 – Smooth-barked Apple - Red Bloodwood - Brown Stringybark - Hairpin Banksia heathy open forest of coastal lowlands (approximately 1.78 hectares)
- PCT 1627 – Smooth-barked Apple - Turpentine - Sydney Peppermint heathy woodland on sandstone ranges of the Central Coast (approximately 0.2 hectares).

No vegetation present on site is consistent with any vegetation communities listed under the EPBC Act.

The Development Footprint is part of a larger remnant woodland patch that supports habitat for a wide range of fauna species. The Development Footprint contains a small number of hollow-bearing trees and is bounded by roads and tracks.

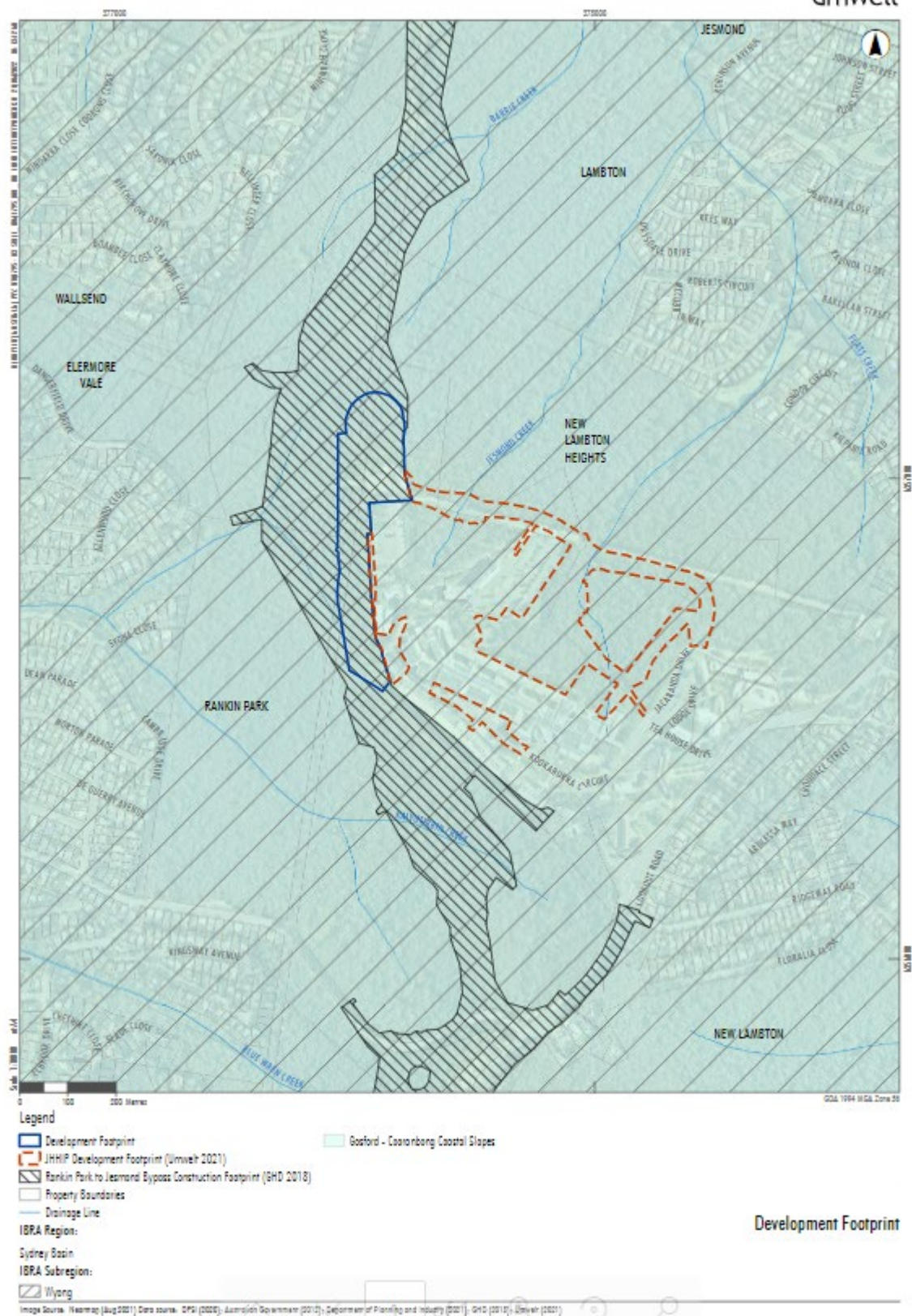


Plate 1: Locality Figure

2.0 Identification of Matters of National Environmental Significance

In addition to the field surveys completed to date, MNES that may occur in the Development Footprint have been identified through a desktop review of available literature and databases. This includes:

- NSW Department of Planning, Industries and Environment (DPIE) BioNet Atlas of NSW Wildlife (2022)
- Commonwealth Department of Agriculture, Water and the Environment (DAWE) Protected Matters Database (2022)
- A desktop assessment of the likelihood of occurrence of biodiversity related MNES in the Development Footprint has been undertaken (refer to **Table 2.3**). This assessment has been prepared on the basis of the definitions as provided in **Table 2.1** and for the Development Footprint it includes consideration of the results from ecological surveys. It should be noted that for mobile matters, occurrence in the context of **Tables 2.1** and **2.3** in this document refers to the utilisation of the habitats of the Development Footprint for foraging, breeding, roosting or nesting and does not include movement activities where the specific habitats of the Development Footprint are not utilised such as flyovers for birds or bats.

Table 2.1 - Definitions of Likelihood of Occurrence

Likelihood of Occurrence	Definition
Known	Recent and reliable records of this matter exist within the Development Footprint.
High	Despite a lack of records, it is probable that the matter occurs in the Development Footprint.
Medium	Suitable habitat is present for this matter however records of the matter are not known to occur in the immediate locality.
Low	There are no records for this matter, the matter is conspicuous all year and not recorded during targeted searches, habitat requirements are not met, or its normal distribution range does not coincide with the locality. Despite this, the matter may be present in rare circumstances.
Nil	There is no potential for the species to occur within the locality.

Those species identified as medium or higher likelihood of occurrence in the Development Footprint are assessed further in **Appendix A**.

The desktop assessment identified 150 threatened and/or migratory entities have been recorded in the locality and/or are predicted to occur within the locality. This includes 7 ecological communities, 26 plants, 3 frogs, 5 fish, 5 reptiles, 39 birds and 9 mammals (refer to **Table 3.2**). Pelagic species have been removed from the analysis of this report. All species occurring in the PMST report can be viewed in **Appendix B**.

Table 2.2 – Summary of Threatened Entities Identified from the Desktop Review (not including pelagic species)

Group	Number of Threatened and/or Migratory Entities in Locality listed under:		
	EPBC Act threatened	EPBC Act migratory	Total
Ecological communities	7	0	7
Plants	26	0	26
Frogs	3	0	3
Fish	0	0	0

Group	Number of Threatened and/or Migratory Entities in Locality listed under:		
	EPBC Act threatened	EPBC Act migratory	Total
Reptiles	0	0	0
Birds	39	59	98
Mammals	9	0	9

The potential for each biodiversity-related matter to occur within the Development Footprint is provided in **Table 2.3**. The likelihood provided for matters within the Development Footprint is based on both the desktop review and the results of the ecological surveys undertaken across the Development Footprint.

Table 2.3 Likelihood of Occurrence Table

Scientific Name	Common Name	Threatened Category	Recorded in locality (PMST)	Recorded in Development Footprint	Likelihood of Occurrence	Likelihood of Significant Impact	Significant Impact Assessment Required?
Ecological Communities							
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community		Endangered	Community likely to occur within area	No	Nil	Nil	No
Littoral Rainforest and Coastal Vine Thickets of Eastern Australia		Critically Endangered	Community likely to occur within area	No	Nil	Nil	No
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria		Critically Endangered	Community likely to occur within area	No	Nil	Nil	No
Lowland Rainforest of Subtropical Australia		Critically Endangered	Community may occur within area	No	Nil	Nil	No
Central Hunter Valley eucalypt forest and woodland		Critically Endangered	Community may occur within area	No	Nil	Nil	No
Subtropical and Temperate Coastal Saltmarsh		Vulnerable	Community likely to occur within area	No	Nil	Nil	No
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland		Endangered	Community known to occur within area	No	Nil	Nil	No

Scientific Name	Common Name	Threatened Category	Recorded in locality (PMST)	Recorded in Development Footprint	Likelihood of Occurrence	Likelihood of Significant Impact	Significant Impact Assessment Required?
Birds							
<i>Anthochaera phrygia</i>	Regent Honeyeater	Critically Endangered	Species or species habitat known to occur within area	No	Medium, potential foraging habitat is present within the project area however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed.	No
<i>Botaurus poiciloptilus</i>	Australasian Bittern	Endangered	Species or species habitat known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Calidris canutus</i>	Red Knot	Endangered, Migratory	Species or species habitat known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Calidris ferruginea</i>	Curlew Sandpiper	Critically Endangered, Migratory	Species or species habitat known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Calidris tenuirostris</i>	Great Knot	Critically Endangered, Migratory	Roosting known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	Endangered	Species or species habitat known to occur within area	No	Low, potential foraging habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed.	No

Scientific Name	Common Name	Threatened Category	Recorded in locality (PMST)	Recorded in Development Footprint	Likelihood of Occurrence	Likelihood of Significant Impact	Significant Impact Assessment Required?
<i>Charadrius leschenaultii</i>	Greater Sand Plover	Vulnerable, Migratory	Species or species habitat known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Charadrius mongolus</i>	Lesser Sand Plover	Endangered, Migratory	Roosting known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Diomedea antipodensis</i>	Antipodean Albatross	Vulnerable, Migratory	Foraging, feeding or related behaviour likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Diomedea antipodensis gibsoni</i>	Gibson's Albatross	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Diomedea epomophora</i>	Southern Royal Albatross	Vulnerable, Migratory	Foraging, feeding or related behaviour likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Diomedea exulans</i>	Wandering Albatross	Vulnerable, Migratory	Foraging, feeding or related behaviour likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Diomedea sanfordi</i>	Northern Royal Albatross	Endangered, Migratory	Species or species habitat may occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No

Scientific Name	Common Name	Threatened Category	Recorded in locality (PMST)	Recorded in Development Footprint	Likelihood of Occurrence	Likelihood of Significant Impact	Significant Impact Assessment Required?
<i>Erythrotriorchis radiatus</i>	Red Goshawk	Vulnerable	Species or species habitat may occur within area	No	Medium, potential foraging habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed.	No
<i>Falco hypoleucos</i>	Grey Falcon	Vulnerable	Species or species habitat may occur within area	No	Medium, potential foraging habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, unlikely to occur based on known distribution.	No
<i>Fregetta grallaria grallaria</i>	White-bellied Storm-Petrel (Tasman Sea)	Vulnerable	Species or species habitat likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Grantiella picta</i>	Painted Honeyeater	Vulnerable	Species or species habitat likely to occur within area	No	Low, potential foraging habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Hirundapus caudacutus</i>	White-throated Needle-tail	Vulnerable, Migratory	Species or species habitat known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No

Scientific Name	Common Name	Threatened Category	Recorded in locality (PMST)	Recorded in Development Footprint	Likelihood of Occurrence	Likelihood of Significant Impact	Significant Impact Assessment Required?
<i>Lathamus discolor</i>	Swift Parrot	Critically Endangered	Species or species habitat known to occur within area	No	Medium, potential foraging habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Limosa lapponica baueri</i>	Nunivak Bar-tailed Godwit	Vulnerable	Species or species habitat known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Macronectes giganteus</i>	Southern Giant-Petrel	Endangered, Migratory	Species or species habitat may occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Macronectes halli</i>	Northern Giant Petrel	Vulnerable, Migratory	Foraging, feeding or related behaviour likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Numenius madagascariensis</i>	Eastern Curlew	Critically Endangered, Migratory	Species or species habitat known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Pachyptila turtur subantarctica</i>	Fairy Prion (southern)	Vulnerable	Species or species habitat known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Phoebastria fusca</i>	Sooty Albatross	Vulnerable, Migratory	Species or species habitat may occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No

Scientific Name	Common Name	Threatened Category	Recorded in locality (PMST)	Recorded in Development Footprint	Likelihood of Occurrence	Likelihood of Significant Impact	Significant Impact Assessment Required?
<i>Pterodroma leucoptera leucoptera</i>	Gould's Petrel	Endangered	Species or species habitat may occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Pterodroma neglecta neglecta</i>	Kermadec Petrel (western)	Vulnerable	Foraging, feeding or related behaviour may occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Pycnoptilus floccosus</i>	Pilotbird	Vulnerable	Species or species habitat may occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Rostratula australis</i>	Australian Painted Snipe	Endangered	Species or species habitat known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Sternula nereis nereis</i>	Australian Fairy Tern	Vulnerable	Species or species habitat may occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Thalassarche bulleri</i>	Buller's Albatross	Vulnerable, Migratory	Species or species habitat may occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Thalassarche bulleri platei</i>	Northern Buller's Albatross	Vulnerable	Species or species habitat may occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Thalassarche carteri</i>	Indian Yellow-nosed Albatross	Vulnerable, Migratory	Species or species habitat likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat	No

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						within Referral Area.	
<i>Thalassarche cauta</i>	Shy Albatross	Endangered, Migratory	Foraging, feeding or related behaviour likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Thalassarche eremita</i>	Chatham Albatross	Endangered, Migratory	Foraging, feeding or related behaviour likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Thalassarche impavida</i>	Campbell Albatross	Vulnerable, Migratory	Species or species habitat may occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Thalassarche melanophris</i>	Black-browed Albatross	Vulnerable, Migratory	Foraging, feeding or related behaviour likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Thalassarche salvini</i>	Salvin's Albatross	Vulnerable, Migratory	Foraging, feeding or related behaviour likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Thalassarche steadi</i>	White-capped Albatross	Vulnerable, Migratory	Foraging, feeding or related behaviour known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No

Scientific Name	Common Name	Threatened Category	Recorded in locality (PMST)	Recorded in Development Footprint	Likelihood of Occurrence	Likelihood of Significant Impact	Significant Impact Assessment Required?
Frogs							
<i>Litoria aurea</i>	Green and Golden Bell Frog	Vulnerable	Species or species habitat known to occur within area	No	Low, marginal habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Mixophyes balbus</i>	Stuttering Frog	Vulnerable	Species or species habitat likely to occur within area	No	Low, marginal habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Uperoleia mahonyi</i>	Mahony's Toadlet	Endangered	Species or species habitat likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
Mammals							
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	Vulnerable	Species or species habitat known to occur within area	No	Low, marginal habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Dasyurus maculatus maculatus</i> (SE mainland population)	Spot-tailed Quoll	Endangered	Species or species habitat known to occur within area	No	Low, marginal habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No

Scientific Name	Common Name	Threatened Category	Recorded in locality (PMST)	Recorded in Development Footprint	Likelihood of Occurrence	Likelihood of Significant Impact	Significant Impact Assessment Required?
<i>Petauroides volans</i>	Greater Glider (southern and central)	Endangered	Species or species habitat known to occur within area	No	Low, marginal habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Petaurus australis australis</i>	Yellow-bellied Glider (south-eastern)	Vulnerable	Species or species habitat known to occur within area	No	Low, marginal habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby	Vulnerable	Species or species habitat likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Phascolarctos cinereus</i> (combined populations of Qld, NSW and the ACT)	Koala (combined populations of Queensland)	Endangered	Species or species habitat known to occur within area	No	Low, marginal habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Potorous tridactylus tridactylus</i>	Long-nosed Potoroo (northern)	Vulnerable	Species or species habitat likely to occur within area	No	Low, marginal habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No

Scientific Name	Common Name	Threatened Category	Recorded in locality (PMST)	Recorded in Development Footprint	Likelihood of Occurrence	Likelihood of Significant Impact	Significant Impact Assessment Required?
<i>Pseudomys novaehollandiae</i>	New Holland Mouse	Vulnerable	Species or species habitat known to occur within area	No	Low, marginal habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	Vulnerable	Roosting known to occur within area	No	Medium, potential foraging habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Potential – Assessment of Significance Required	Yes
Flora							
<i>Acacia bynoeana</i>	Bynoe's Wattle	Vulnerable	Species or species habitat may occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Angophora inopina</i>	Charmhaven Apple	Vulnerable	Species or species habitat known to occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Caladenia tessellata</i>	Thick-lipped Spider-orchid	Vulnerable	Species or species habitat likely to occur within area	No	Low, potential habitat is present within the Development Footprint however the species has	Unlikely, 1.98 ha of potential foraging habitat to be removed	No

Scientific Name	Common Name	Threatened Category	Recorded in locality (PMST)	Recorded in Development Footprint	Likelihood of Occurrence	Likelihood of Significant Impact	Significant Impact Assessment Required?
					not been observed despite targeted surveys.		
<i>Commersonia prostrata</i>	Dwarf Kerrawang	Endangered	Species or species habitat likely to occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Corunastylis insignis</i>	Wyong Midge Orchid 1	Critically Endangered	Species or species habitat likely to occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Cryptostylis hunteriana</i>	Leafless Tongue-orchid	Vulnerable	Species or species habitat known to occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Cynanchum elegans</i>	White-flowered Wax Plant	Endangered	Species or species habitat known to occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No

Scientific Name	Common Name	Threatened Category	Recorded in locality (PMST)	Recorded in Development Footprint	Likelihood of Occurrence	Likelihood of Significant Impact	Significant Impact Assessment Required?
<i>Diuris praecox</i>	Newcastle Doubletail	Vulnerable	Species or species habitat known to occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Eucalyptus camfieldii</i>	Camfield's Stringybark	Vulnerable	Species or species habitat known to occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Eucalyptus glaucina</i>	Slaty Red Gum	Vulnerable	Species or species habitat may occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Eucalyptus parramattensis</i> subsp. <i>decadens</i>	Earp's Gum	Vulnerable	Species or species habitat known to occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Euphrasia arguta</i>		Critically Endangered	Species or species habitat may occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No

Scientific Name	Common Name	Threatened Category	Recorded in locality (PMST)	Recorded in Development Footprint	Likelihood of Occurrence	Likelihood of Significant Impact	Significant Impact Assessment Required?
<i>Grevillea parviflora subsp. parviflora</i>	Small-flower Grevillea	Vulnerable	Species or species habitat known to occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Grevillea shiressii</i>		Vulnerable	Species or species habitat known to occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Melaleuca biconvexa</i>	Biconvex Paperbark	Vulnerable	Species or species habitat known to occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Persicaria elatior</i>	Knotweed	Vulnerable	Species or species habitat likely to occur within area	No	Low, marginal habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Pomaderris brunnea</i>	Rufous Pomaderris	Vulnerable	Species or species habitat may occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No

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<i>Prasophyllum sp. Wybong</i> (<i>C. Phelps</i> ORG 5269)	a leek-orchid	Critically Endangered	Species or species habitat may occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Pterostylis gibbosa</i>	Illawarra Greenhood	Endangered	Species or species habitat may occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Rhizanthella slateri</i>	Eastern Underground Orchid	Endangered	Species or species habitat may occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Rhodamnia rubescens</i>	Scrub Turpentine	Critically Endangered	Species or species habitat known to occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Rhodomyrtus psidioides</i>	Native Guava	Critically Endangered	Species or species habitat known to occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No

Scientific Name	Common Name	Threatened Category	Recorded in locality (PMST)	Recorded in Development Footprint	Likelihood of Occurrence	Likelihood of Significant Impact	Significant Impact Assessment Required?
<i>Rutidosia heterogama</i>	Heath Wrinklewort	Vulnerable	Species or species habitat known to occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Syzygium paniculatum</i>	Magenta Lilly Pilly	Vulnerable	Species or species habitat known to occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
<i>Tetradlea juncea</i>	Black-eyed Susan	Vulnerable	Species or species habitat known to occur within area	Yes	This species is known to occur within the Development Footprint.	Potential – Assessment of Significance Required	Yes
<i>Thesium australe</i>	Austral Toadflax	Vulnerable	Species or species habitat may occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely, 1.98 ha of potential foraging habitat to be removed	No
Migratory							
<i>Myiagra cyanoleuca</i>	Satin Flycatcher	Migratory	Species or species habitat known to occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely – no suitable habitat within Referral Area.	No
<i>Charadrius bicinctus</i>	Double-banded Plover	Migratory	Roosting known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat	No

Scientific Name	Common Name	Threatened Category	Recorded in locality (PMST)	Recorded in Development Footprint	Likelihood of Occurrence	Likelihood of Significant Impact	Significant Impact Assessment Required?
						within Referral Area.	
<i>Limosa limosa</i>	Black-tailed Godwit	Migratory	Roosting known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Ardenna grisea</i>	Sooty Shearwater	Migratory	Species or species habitat likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Pluvialis squatarola</i>	Grey Plover	Migratory	Roosting known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Gallinago megala</i>	Swinhoe's Snipe	Migratory	Roosting likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Calidris ruficollis</i>	Red-necked Stint	Migratory	Roosting known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Gallinago hardwickii</i>	Latham's Snipe, Japanese Snipe	Migratory	Species or species habitat known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Gallinago stenura</i>	Pin-tailed Snipe	Migratory	Roosting likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No

Scientific Name	Common Name	Threatened Category	Recorded in locality (PMST)	Recorded in Development Footprint	Likelihood of Occurrence	Likelihood of Significant Impact	Significant Impact Assessment Required?
<i>Monarcha melanopsis</i>	Black-faced Monarch	Migratory	Species or species habitat known to occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely – no suitable habitat within Referral Area.	No
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	Migratory	Roosting known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Pandion haliaetus</i>	Osprey	Migratory	Species or species habitat known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Arenaria interpres</i>	Ruddy Turnstone	Migratory	Roosting known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Numenius minutus</i>	Little Curlew, Little Whimbrel	Migratory	Roosting likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Anous stolidus</i>	Common Noddy	Migratory	Species or species habitat likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Rhipidura rufifrons</i>	Rufous Fantail	Migratory	Species or species habitat known to occur within area	No	Low, potential habitat is present within the Development Footprint however the species has	Unlikely – no suitable habitat within Referral Area.	No

Scientific Name	Common Name	Threatened Category	Recorded in locality (PMST)	Recorded in Development Footprint	Likelihood of Occurrence	Likelihood of Significant Impact	Significant Impact Assessment Required?
					not been observed despite targeted surveys.		
<i>Symposiachrus trivirgatus</i>	Spectacled Monarch	Migratory (as Monarcha trivirgatus)	Species or species habitat known to occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely – no suitable habitat within Referral Area.	No
<i>Pluvialis fulva</i>	Pacific Golden Plover	Migratory	Roosting known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Apus pacificus</i>	Fork-tailed Swift	Migratory	Species or species habitat likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Sternula albifrons</i>	Little Tern	Migratory	Breeding likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Calonectris leucomelas</i>	Streaked Shearwater	Migratory	Species or species habitat known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Limicola falcinellus</i>	Broad-billed Sandpiper	Migratory	Roosting known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No

Scientific Name	Common Name	Threatened Category	Recorded in locality (PMST)	Recorded in Development Footprint	Likelihood of Occurrence	Likelihood of Significant Impact	Significant Impact Assessment Required?
<i>Numenius phaeopus</i>	Whimbrel	Migratory	Roosting known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Motacilla flava</i>	Yellow Wagtail	Migratory	Species or species habitat known to occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely – no suitable habitat within Referral Area.	No
<i>Fregata minor</i>	Great Frigatebird	Migratory	Species or species habitat likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Fregata ariel</i>	Lesser Frigatebird	Migratory	Species or species habitat known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Limosa lapponica</i>	Bar-tailed Godwit	Migratory	Species or species habitat known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Tringa stagnatilis</i>	Marsh Sandpiper	Migratory	Roosting known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Tringa nebularia</i>	Common Greenshank	Migratory	Species or species habitat known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No

Scientific Name	Common Name	Threatened Category	Recorded in locality (PMST)	Recorded in Development Footprint	Likelihood of Occurrence	Likelihood of Significant Impact	Significant Impact Assessment Required?
<i>Cuculus optatus</i>	Oriental Cuckoo	Migratory	Species or species habitat may occur within area	No	Low, potential habitat is present within the Development Footprint however the species has not been observed despite targeted surveys.	Unlikely – no suitable habitat within Referral Area.	No
<i>Actitis hypoleucos</i>	Common Sandpiper	Migratory	Species or species habitat known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Phaethon lepturus</i>	White-tailed Tropicbird	Migratory	Species or species habitat known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Xenus cinereus</i>	Terek Sandpiper	Migratory	Roosting known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Calidris melanotos</i>	Pectoral Sandpiper	Migratory	Species or species habitat known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Ardenna carneipes</i>	Flesh-footed Shearwater, Fleshy-footed Shearwater	Migratory	Foraging, feeding or related behaviour likely to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No
<i>Tringa brevipes</i>	Grey-tailed Tattler	Migratory	Roosting known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No

Scientific Name	Common Name	Threatened Category	Recorded in locality (PMST)	Recorded in Development Footprint	Likelihood of Occurrence	Likelihood of Significant Impact	Significant Impact Assessment Required?
<i>Philomachus pugnax</i>	Ruff (Reeve)	Migratory	Roosting known to occur within area	No	Low, no habitat present in Development Footprint	Unlikely – no suitable habitat within Referral Area.	No

Of the 150 threatened and migratory entities identified in the database searches and literature review, 2 require further consideration in this report (see **Table 2.4**).

Table 2.4 Threatened and Migratory Entities Known or Likely to occur in the Development Footprint

Species	EPBC Act
<i>Pteropus poliocephalus</i> (Grey-headed Flying-fox)	V
<i>Tetratheca juncea</i> (black-eyed susan)	V

3.0 MNES Impact Assessment

The results of the database searches, review of existing information and field investigations completed recently by Umwelt (2021 in prep) have identified that the project may or will impact upon the MNES identified in **Table 2.4** above.

Assessment of the significance of impact of the project against the 'Significant Impact Guidelines 1.1' for MNES as listed under the EPBC Act are provided in **Appendix A**. These Assessments of Significance consider the direct and indirect impacts associated with the project. A summary of the potential impacts and assessment outcomes is presented in **Table 3.1** below.

Table 3.1 Threatened and Migratory Species Assessment Summary and Outcomes

Species	Summary of Potential Impact	Significance of Impact
<i>Pteropus poliocephalus</i> (Grey-headed Flying-fox)	Removal of approximately 1.98 ha of open forest and woodland that contains potential foraging habitat.	Not Significant
<i>Tetratheca juncea</i> (black-eyed susan)	Removal of approximately 1.98 ha of open forest and woodland that contains habitat for the species.	Not Significant

The assessment has concluded that the Project is unlikely to result in a significant impact on an *important population* of the vulnerable grey-headed flying-fox, or *Tetratheca juncea*. As such, given the small-scale impacts and the conclusion reached above, referral of the project to the Minister is not considered necessary for biodiversity matters.

Yours sincerely



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4.0 References

Commonwealth of Australia (CoA) (2011) Environment Protection and Biodiversity Conservation Act 1999 referral guidelines for the vulnerable black-eyed Susan, *Tetratheca juncea*.

Commonwealth of Australia (CoA) (2018) Threat Abatement Plan for diseases in natural ecosystems caused by *Phytophthora cinnamomi*.

Department of Agriculture, Water and Environment (DAWE) (2022) Protected Matters Search Tool <http://www.environment.gov.au/webgis-framework/apps/pmst/pmst.jsf>

Department of Environment, Climate Change and Water (DECCW) (2022) National Recovery Plan for the Grey-Headed Flying-Fox *Pteropus poliocephalus*. Prepared by Dr Peggy Eby

Department of Environment (DoE). (2013) Matters of National Environmental Significance Significant impact guidelines 1.1 Environment Protection and Biodiversity Conservation Act 1999, Government of Australia.

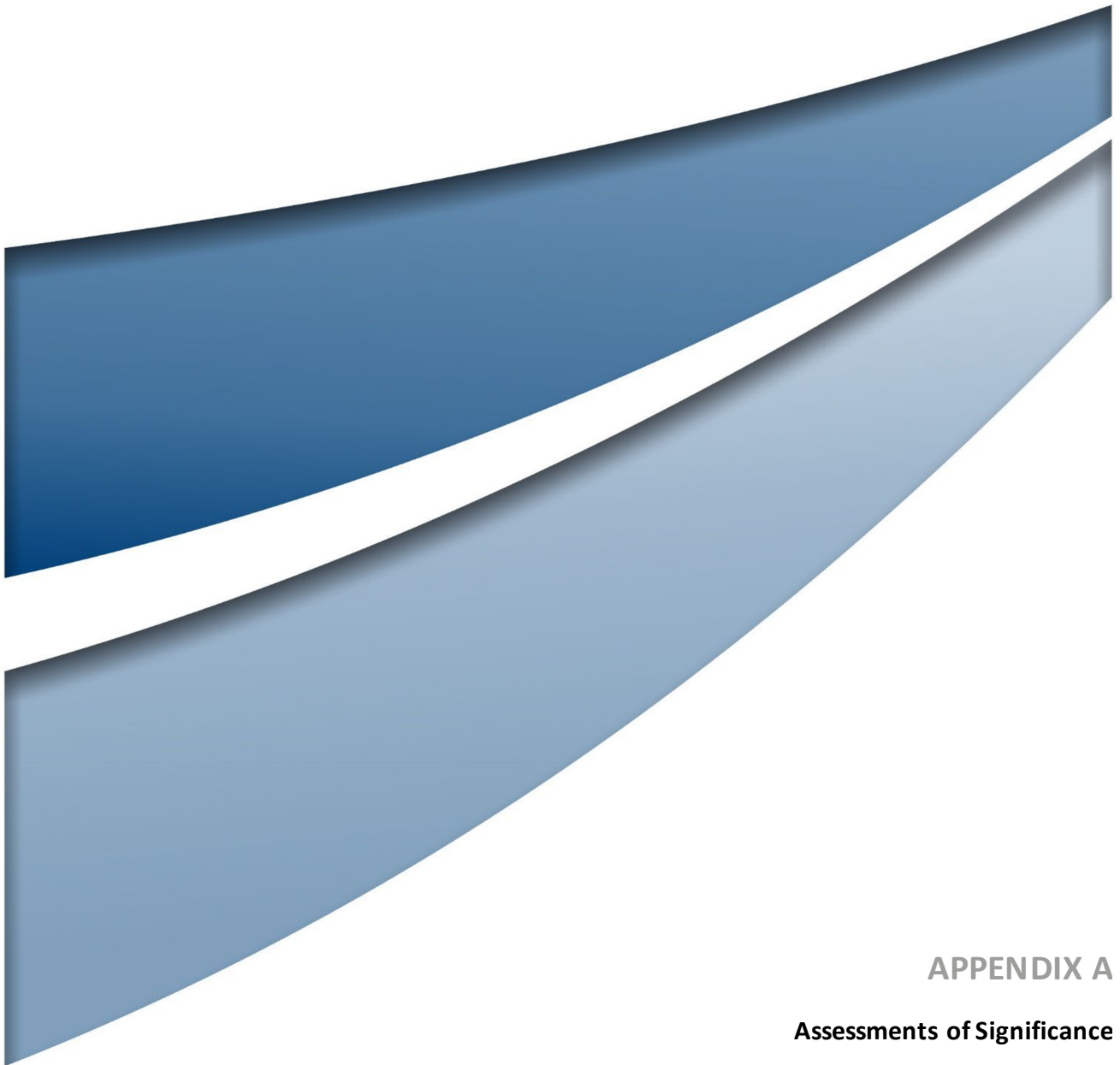
Department of Environment and Energy (DEE) (2022) National Flying-fox Monitoring Viewer. <http://www.environment.gov.au/webgis-framework/apps/ffc-wide/ffc-wide.jsf>

Department of Planning, Industry and Environment (DPIE) (2021a) Threatened Biodiversity Data Collection (TBDC), accessed November 2020.

Harden, G, J editor 1992. Flora of New South Wales. Volume 3. Royal Botanic Gardens Sydney & New South Wales University Press, Sydney.

NSW Bionet (2022) Species Sighting Search [online] available at: https://www.environment.nsw.gov.au/atlaspublicapp/UI_Modules/ATLAS_/AtlasSearch.aspx

Species Profile and Threats Database (SPRAT) (2021b) Profile *Tetratheca juncea* http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=21407



APPENDIX A

Assessments of Significance

A.1 Grey-headed Flying-fox (*Pteropus poliocephalus*)

The grey-headed flying-fox is listed as vulnerable under the EPBC Act.

In the case of a vulnerable species, an important population is a population that is necessary for a species' long-term survival and recovery. This may include populations that are:

- key source populations either for breeding or dispersal; or
- populations that are necessary for maintaining genetic diversity, and/or
- populations that are near the limit of the species range.

The grey-headed flying-fox is likely to forage on seasonal flowering and/or fruiting resources across the Development Footprint. The Development Footprint contains 1.98 ha of foraging resources for this species. Camp sites (breeding habitat) have not been identified within the Development Footprint and are not expected to occur.

The National Flying-Fox Monitoring Viewer (DoEE 2021) identifies 23 known roost camp sites within a 50 km radius of the Development Footprint including 5 nationally important sites. The nearest roost camp sites are at:

- Blackbutt Reserve, approximately 1 km to the south-west from the Development Footprint
- Glenrock Reserve, approximately 5 km to the south-east from the Development Footprint
- Carrington Mangroves, approximately 6 km to the north-east of the Development Footprint.

Two of these three camp sites are identified as nationally important (DoEE 2020). Foraging individuals in the Development Footprint are likely to be from any of the camp sites located within the maximum foraging distance of an adult (i.e., 50 km) of the Development Footprint.

The Development Footprint is considered to comprise areas of potentially suitable foraging habitat for this species but is unlikely to contain significant breeding and roosting habitat necessary for maintaining genetic diversity. The Development Footprint is also not near the limit of the known range of this species. Therefore, the Development Footprint is unlikely to contain an important population of the grey-headed flying-fox.

An action has, will have, or is likely to have a significant impact on a vulnerable species if it does, will, or is likely to:

- lead to a long-term decrease in the size of an important population of a species;

Given that the Development Footprint does not support an important population of the grey-headed flying-fox, the project will not lead to a long-term decrease in the size of an important population of this species.

- reduce the area of occupancy of an important population, or;

The project will result in the loss of approximately 1.98 ha of potential foraging habitat for grey-headed flying-fox. However, since the Development Footprint does not contain an important population of the

grey-headed flying-fox, the project will not reduce the area of occupancy of an important population of this species.

- fragment an existing important population into two or more populations, or;

The habitat within the Development Footprint is already disturbed and does not contain an important population of the grey-headed flying-fox. Therefore, the project will not result in the fragmentation of an important population of this species.

- adversely affect habitat critical to the survival of a species, or;

According to the draft National Recovery Plan for the Grey-Headed Flying-Fox (DECCW 2009), foraging habitat that meets one of the following criteria is considered critical or essential to the survival of the species:

- productive during winter and spring when food bottlenecks have been identified
- known to support populations of >30,000 individuals within an area of 50 km radius (the maximum foraging distance of an adult)
- productive during the final weeks of gestation, and during the weeks of birth, lactation and conception (September to May)
- productive during the final stages of fruit development and ripening in commercial crops affected by grey-headed flying-foxes, and/or
- known to support a continuously occupied camp.

The Development Footprint is considered to comprise approximately 1.98 ha of potentially suitable foraging habitat for this species as it may be productive over the summer months and occurs within the foraging range from roost sites known to support populations of >30,000 individuals at some time over the last six years. However, given that this species has not been recorded in the Development Footprint, the relatively small area of suitable habitat when compared to the local area, the project is unlikely to significantly reduce the availability of foraging habitat critical to the survival of the species.

The National Recovery Plan for the grey-headed flying-fox (DECCW 2009) also includes criteria for roosting habitat critical to the survival of the species. Since the Development Footprint does not contain a grey-headed flying-fox camp it will not impact roosting habitat critical to the survival of the species.

Therefore, the Project is unlikely to substantially adversely affect habitat that is critical to the survival of the species.

- disrupt the breeding cycle of an important population, or;

No grey-headed flying-fox breeding populations or camps have been identified in the Development Footprint. The project is not expected to disrupt the breeding cycle of an important population of this species.

- modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or;

The Project will result in the loss of approximately 1.98 ha of potential foraging habitat for grey-headed flying-fox. Given the small area of potential foraging habitat to be removed and the substantial area of high-quality remnant vegetation in adjoining areas, the Development Footprint is unlikely to be depended on by local grey-headed flying-fox colonies.

It is considered unlikely that the Project will modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the grey-headed flying-fox would decline.

- result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat;

The Project is not expected to result in invasive species that are harmful to the grey-headed flying-fox becoming established in the species habitat.

- introduce disease that may cause the species to decline; or

No diseases that may cause the grey-headed flying-fox to decline are likely to be introduced as a result of the Project.

- interfere substantially with the recovery of the species.

The overall objectives of the National Recovery Plan for the Grey-headed Flying Fox (DECCW 2022) are to:

- reduce the impact of threatening processes on grey-headed flying-foxes and arrest decline throughout the species' range
- conserve the functional roles of grey-headed flying-foxes in seed dispersal and pollination and
- improve the standard of information available to guide recovery of the grey-headed flying-fox, in order to increase community knowledge of the species and reduce the impact of negative public attitudes on the species.

No significant effect on the recovery of the grey-headed flying-fox is expected to occur as a result of the Project as the potential areas of foraging habitat that will be impacted as a result of the Project are not expected to impact an important population of this species.

Conclusion

The Project is unlikely to result in a significant impact on an important population of grey-headed flying-fox as the Development Footprint is not considered to support an important population of this species.

A.2 Black- eyed Susan (*Tetradlea juncea*)

Tetradlea juncea is listed as vulnerable under the EPBC Act.

In the case of a vulnerable species, an important population is a population that is necessary for a species' long-term survival and recovery.

Tetradlea juncea is a low sprawling shrub growing as a single stem or clumps of stems arising from a single rootstock, as such an individual plant may have numerous stems (CoA 2011). The species is known to occur

in dry sclerophyll forest, woodlands and moist heath, from 0 - 200 metres (m) in altitude with an annual rainfall of 1000 – 1200 millimetres (mm) and restricted to open forest of *Angophora costata*, *Eucalyptus haemastoma*, *E. globoidea*, *Corymbia gummifera*, and *E. capitellata* (SPRAT Profile 2021b). Soils are generally sandy skeletal soil on sandstone, sandy-loam soils, low nutrients, and clayey soil from conglomerates, pH neutral. The Development Footprint represents 1.98 ha of suitable habitat for the species.

It is endemic to NSW between Wyong and Bulahdelah with the current distribution divided into two metapopulations: the central coast metapopulation (from Wyong to Beresfield) and the northern metapopulation (from Karuah to Bulahdelah) (CoA 2011). Most populations occur in the Wyong and Lake Macquarie local government areas.

There are 34 records of *Tetratheca juncea* in the Development Footprint in the DPIE Bionet atlas. *Tetratheca juncea* has been recorded in the Development Footprint. Important populations of *Tetratheca juncea* are defined in the referral guidelines as meeting any of the criteria outlined in **Table A**.

Table A Important Population Definition for *Tetratheca juncea* (CoA 2011)

Important Population Criteria	Application to the Development Footprint
Has greater than 1000 plant clumps	No. Recorded at 34 locations
An area of habitat has an average estimated plant clump density of 20 clumps/ha or greater	No areas with a clump density of 20 clumps/ha.
Occurs in rare habitat	Habitats in Development Footprint are not rare
Occurs in an area of “important habitat” as defined in Maps 4a and 4b (of the referral guidelines (CoA, 2011)) and has greater than 500 plant clumps	No area of important habitat is mapped within the Development Footprint.
Occurs at or near the distributional limits of black-eyed Susan	No
Occurs in close proximity to a protected area (e.g. National Park) where <i>Tetratheca juncea</i> is known to occur. Where close proximity is: (a) within 500m if connected by a suitable habitat corridor such as native vegetation, or (b) within 100m over disturbed habitat or non-native vegetation	Further than 500m from any protected area where <i>Tetratheca juncea</i> is known to occur
Conclusion:	Not an important population as defined by the referral guidelines

Tetratheca juncea within the Development Footprint is not considered to represent a key source population for breeding or dispersal or necessary for maintaining genetic diversity and is not on or near the limit of its range. As such, the *Tetratheca juncea* population within the Development Footprint is not an important population.

An action has, will have, or is likely to have a significant impact on a vulnerable species if it does, will, or is likely to:

- lead to a long-term decrease in the size of an important population of a species;

Given that the Development Footprint does not support an important population of *Tetratheca juncea* the project will not lead to a long-term decrease in the size of an important population of this species.

- reduce the area of occupancy of an important population, or;

The project will result in the loss of approximately 1.98 ha of potential habitat for *Tetratheca juncea*. However, since the Development Footprint does not contain an important population of the *Tetratheca juncea*, the project will not reduce the area of occupancy of an important population of this species.

- fragment an existing important population into two or more populations, or;

The project will result in the loss of approximately 1.98 ha of potential habitat for *Tetratheca juncea*. However, since the Development Footprint does not contain an important population of the *Tetratheca juncea*, the project will not fragment an existing important population of this species.

- adversely affect habitat critical to the survival of a species, or;

Tetratheca juncea is commonly recorded in remnant bushland around Newcastle and is known to occur in conservation reserves in the region. A large tract of important habitat occurs to the west and north of the Development Footprint. The Project is unlikely to adversely affect this area of important habitat that is critical to the survival of the species.

- disrupt the breeding cycle of an important population, or;

Reproduction in *Tetratheca juncea* is through asexual rhizomal spread and sexual pollination (possibly by native bees capable of buzz pollination), seed development and germination (SPRAT Profile 2021b). *Tetratheca juncea* has a short-lived seed bank and very low seed viability after soil storage. The Project will directly disrupt the breeding cycle of individuals within the Development Footprint.

- modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or;

The Project will result in the loss of approximately 1.98 ha of potential habitat for *Tetratheca juncea*. It is unlikely that the Project will modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that *Tetratheca juncea* would decline.

- result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat;

Tetratheca juncea is threatened by weed invasion. Implementation of weed management measures during clearing and construction works would reduce risk of establishment of weeds such that the Project is not expected to result in invasive species becoming established in potential habitat for *Tetratheca juncea*.

- introduce disease that may cause the species to decline; or

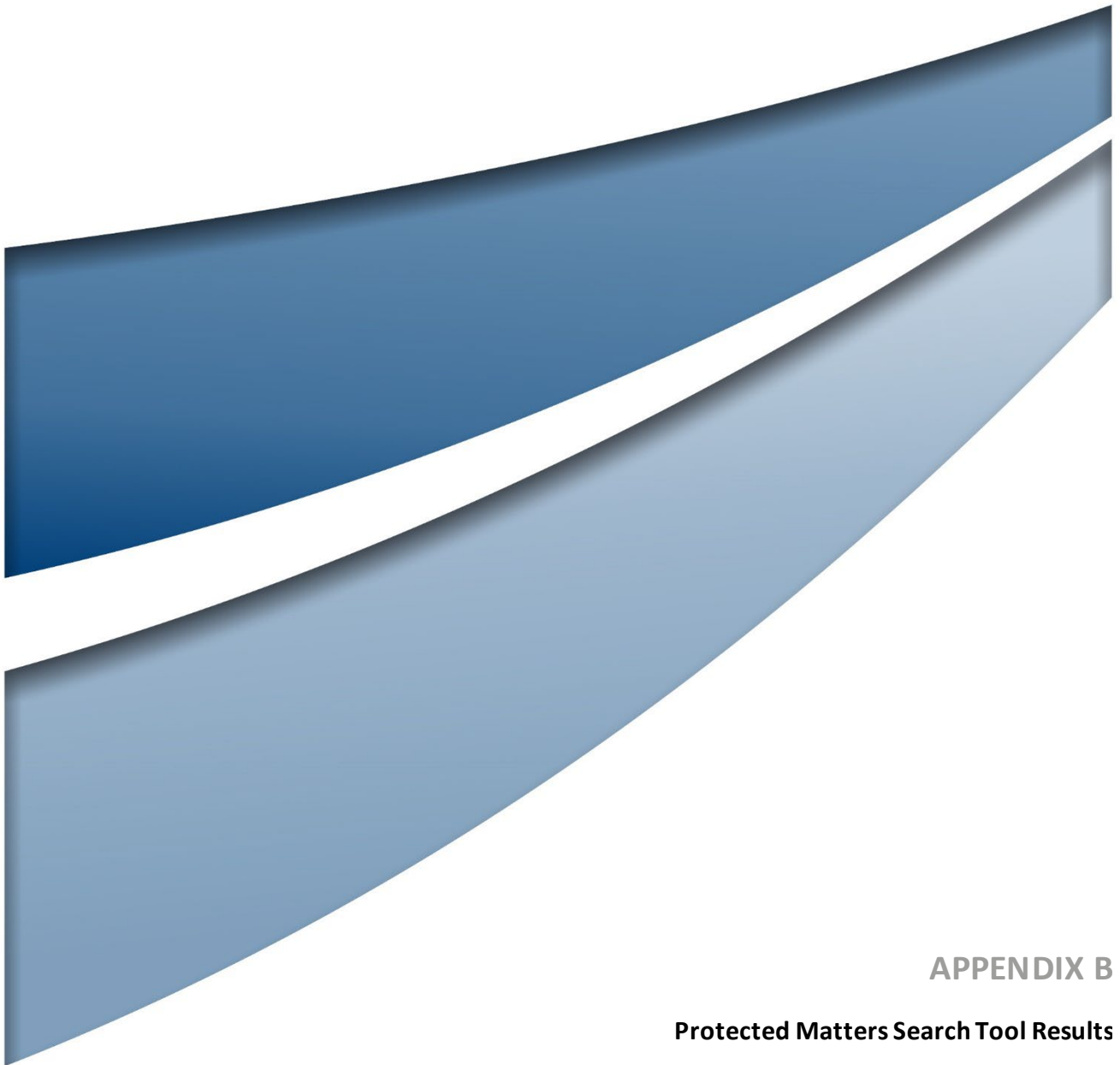
The NSW key threatened process listing for the plant pathogen *Phytophthora cinnamomi* identifies that *Tetratheca juncea* may be adversely affected by direct infestation or habitat degradation. However, the Threat Abatement Plan for diseases in natural ecosystems caused by *Phytophthora cinnamomi* (CoA 2018) does not recognise *Tetratheca juncea* as being susceptible to disease from *Phytophthora cinnamomi* infection. Notwithstanding that, the risk of introducing *Phytophthora cinnamomi* may be managed during clearing and construction works.

- interfere substantially with the recovery of the species.

There is currently no approved recovery plan for *Tetratheca juncea*.

Conclusion

The Project is unlikely to result in a significant impact on an important population of *Tetratheca juncea* as the Development Footprint is not considered to support an important population of this species.



APPENDIX B

Protected Matters Search Tool Results



EPBC Act Protected Matters Report

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

Report created: 25-Jul-2022

[Summary](#)

[Details](#)

[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	1
Listed Threatened Ecological Communities:	7
Listed Threatened Species:	93
Listed Migratory Species:	79

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	103
Commonwealth Heritage Places:	2
Listed Marine Species:	101
Whales and Other Cetaceans:	14
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	9
Regional Forest Agreements:	1
Nationally Important Wetlands:	5
EPBC Act Referrals:	80
Key Ecological Features (Marine):	None
Biologically Important Areas:	10
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Hunter estuary wetlands	Within Ramsar site	In feature area

Commonwealth Marine Area		[Resource Information]
Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.		
Feature Name		Buffer Status
EEZ and Territorial Sea		In buffer area only

Listed Threatened Ecological Communities

[Resource Information]

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

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

Community Name	Threatened Category	Presence Text	Buffer Status
Central Hunter Valley eucalypt forest and woodland	Critically Endangered	Community may occur within area	In feature area
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community likely to occur within area	In feature area
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Community known to occur within area	In feature area
Littoral Rainforest and Coastal Vine Thickets of Eastern Australia	Critically Endangered	Community likely to occur within area	In buffer area only
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area	In buffer area only
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria	Critically Endangered	Community likely to occur within area	In feature area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area	In buffer area only

Listed Threatened Species

[Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area	In buffer area only
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In buffer area only
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In buffer area only
Erythroriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature 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	In buffer area only
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Pterodroma leucoptera leucoptera Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area	In buffer area only
Pterodroma neglecta neglecta Kermadec Petrel (western) [64450]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In buffer area only
Pycnoptilus floccosus Pilotbird [525]	Vulnerable	Species or species habitat may occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche bulleri platei Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
FISH			
Epinephelus daemeli Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Hippocampus whitei White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Seriolella brama Blue Warehou [69374]	Conservation Dependent	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thunnus maccoyii Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only
FROG			
Litoria aurea Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat known to occur within area	In feature area
Mixophyes balbus Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Uperoleia mahonyi Mahony's Toadlet [89189]	Endangered	Species or species habitat likely to occur within area	In feature area
MAMMAL			
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat known to occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area	In feature area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Petauroides volans Greater Glider (southern and central) [254]	Endangered	Species or species habitat known to occur within area	In feature area
Petaurus australis australis Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat known to occur within area	In feature area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
Potorous tridactylus tridactylus			
Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pseudomys novaehollandiae			
New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pteropus poliocephalus			
Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area	In feature area
PLANT			
Acacia bynoeana			
Bynoe's Wattle, Tiny Wattle [8575]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Angophora inopina			
Charmhaven Apple [64832]	Vulnerable	Species or species habitat known to occur within area	In feature area
Caladenia tessellata			
Thick-lipped Spider-orchid, Daddy Long-legs [2119]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Commersonia prostrata			
Dwarf Kerrawang [87152]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Corunastylis insignis			
Wyong Midge Orchid 1, Variable Midge Orchid 1 [84692]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only
Cryptostylis hunteriana			
Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat known to occur within area	In feature area
Cynanchum elegans			
White-flowered Wax Plant [12533]	Endangered	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diuris praecox Newcastle Doubletail [55086]	Vulnerable	Species or species habitat known to occur within area	In feature area
Eucalyptus camfieldii Camfield's Stringybark [15460]	Vulnerable	Species or species habitat known to occur within area	In feature area
Eucalyptus glaucina Slaty Red Gum [5670]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Eucalyptus parramattensis subsp. decadens Earp's Gum, Earp's Dirty Gum [56148]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat may occur within area	In feature area
Grevillea parviflora subsp. parviflora Small-flower Grevillea [64910]	Vulnerable	Species or species habitat known to occur within area	In feature area
Grevillea shiressii [19186]	Vulnerable	Species or species habitat known to occur within area	In feature area
Melaleuca biconvexa Biconvex Paperbark [5583]	Vulnerable	Species or species habitat known to occur within area	In feature area
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pomaderris brunnea Rufous Pomaderris, Brown Pomaderris [16845]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Prasophyllum sp. Wybong (C.Phelps ORG 5269) a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pterostylis gibbosa Illawarra Greenhood, Rufa Greenhood, Pouched Greenhood [4562]	Endangered	Species or species habitat may occur within area	In feature area
Rhizanthella slateri Eastern Underground Orchid [11768]	Endangered	Species or species habitat may occur within area	In feature area
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Rutidosis heterogama Heath Wrinklewort [13132]	Vulnerable	Species or species habitat known to occur within area	In feature area
Syzygium paniculatum Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307]	Vulnerable	Species or species habitat known to occur within area	In feature area
Tetratheca juncea Black-eyed Susan [21407]	Vulnerable	Species or species habitat known to occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In buffer area only
REPTILE			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only

SHARK			
Carcharias taurus (east coast population) Grey Nurse Shark (east coast population) [68751]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Galeorhinus galeus School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area	In buffer area only
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only

Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area	In buffer area only
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Ardenna grisea Sooty Shearwater [82651]		Species or species habitat likely to occur within area	In buffer area only
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area	In buffer area only
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In buffer area only
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In buffer area only
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat known to occur within area	In buffer area only
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Sternula albifrons Little Tern [82849]		Breeding likely to occur within area	In buffer area only
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Migratory Marine Species			
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
Caperea marginata Pygmy Right Whale [39]		Foraging, feeding or related behaviour may occur within area	In buffer area only
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area	In buffer area only
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
Dugong dugon Dugong [28]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat likely to occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat known to occur within area	In buffer area only
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat may occur within area	In buffer area only
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat may occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area	In buffer area only
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Sousa sahalensis as Sousa chinensis Australian Humpback Dolphin [87942]		Species or species habitat likely to occur within area	In buffer area only

Migratory Terrestrial Species

Scientific Name	Threatened Category	Presence Text	Buffer Status
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]	Vulnerable	Species or species habitat may occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Arenaria interpres Ruddy Turnstone [872]		Roosting known to occur within area	In buffer area only
Calidris acuminata Sharp-tailed Sandpiper [874]	Endangered	Roosting known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area	In buffer area only
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area	In buffer area only
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area	In buffer area only
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]		Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In buffer area only
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area	In feature area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area	In buffer area only
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area	In buffer area only
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area	In buffer area only
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area	In buffer area only
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area	In buffer area only
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In buffer area only
Philomachus pugnax Ruff (Reeve) [850]	Threatened	Roosting known to occur within area	In buffer area only
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area	In buffer area only
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area	In buffer area only
Tringa brevipes Grey-tailed Tattler [851]		Roosting known to occur within area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]	Threatened	Species or species habitat known to occur within area	In feature area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area	In buffer area only
Xenus cinereus Terek Sandpiper [59300]		Roosting known to occur within area	In buffer area only

Other Matters Protected by the EPBC Act

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

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.

Commonwealth Land Name	State	Buffer Status
Commonwealth Bank of Australia		
Commonwealth Land - Commonwealth Bank of Australia [11596]	NSW	In buffer area only
Commonwealth Trading Bank of Australia		
Commonwealth Land - Commonwealth Trading Bank of Australia [11591]	NSW	In buffer area only
Commonwealth Land - Commonwealth Trading Bank of Australia [11703]	NSW	In buffer area only
Commonwealth Land - Commonwealth Trading Bank of Australia [11682]	NSW	In buffer area only
Commonwealth Land - Commonwealth Trading Bank of Australia [11685]	NSW	In buffer area only
Communications, Information Technology and the Arts - Australian Broadcasting Corporation		
Commonwealth Land - Australian Broadcasting Corporation [11595]	NSW	In buffer area only
Communications, Information Technology and the Arts - Australian Postal Corporation		
Commonwealth Land - Australian Postal Commission [11669]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [11592]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [11593]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [11594]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [11680]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [11653]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [11710]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [11687]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [11728]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [11729]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [11730]	NSW	In buffer area only
Commonwealth Land - Australian Postal Corporation [11690]	NSW	In buffer area only
Commonwealth Land - Australian Postal Corporation [11633]	NSW	In buffer area only
Communications, Information Technology and the Arts - Telstra Corporation Limited		

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian & Overseas Telecommunications Corporation [11686]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11668]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11600]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11674]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11672]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11671]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11597]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11658]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11701]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11700]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11702]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11708]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11643]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11727]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11657]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11656]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11655]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11681]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11622]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian Telecommunications Commission [16433]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11631]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11632]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [15536]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [11711]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [11689]	NSW	In feature area
Defence		
Commonwealth Land - Defence Service Homes Corporation [11679]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11675]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11673]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11670]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11598]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11705]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11524]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11640]	NSW	In feature area
Commonwealth Land - Defence Service Homes Corporation [11691]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11692]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11693]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11695]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11696]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11697]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11694]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11699]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11698]	NSW	In buffer area only
Defence - ADF CAREERS REFERENCE CENTRE [11228]	NSW	In buffer area only
Defence - ADF CAREERS REFERENCE CENTRE [11219]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Defence - ADF CAREERS REFERENCE CENTRE [11227]	NSW	In buffer area only
Defence - ADF CAREERS REFERENCE CENTRE [11224]	NSW	In buffer area only
Defence - ADF CAREERS REFERENCE CENTRE [11221]	NSW	In buffer area only
Defence - ADF CAREERS REFERENCE CENTRE [11226]	NSW	In buffer area only
Defence - ADF CAREERS REFERENCE CENTRE [11229]	NSW	In buffer area only
Defence - ADF CAREERS REFERENCE CENTRE [11225]	NSW	In buffer area only
Defence - ADF CAREERS REFERENCE CENTRE [11223]	NSW	In buffer area only
Defence - ADF CAREERS REFERENCE CENTRE [11222]	NSW	In buffer area only
Defence - ADF CAREERS REFERENCE CENTRE [11220]	NSW	In buffer area only
Defence - OFFICES [11195]	NSW	In buffer area only
Defence - STOCKTON RIFLE RANGE [10057]	NSW	In buffer area only
Defence - TS TOBRUK [10053]	NSW	In buffer area only
Defence - Defence Housing Authority		
Commonwealth Land - Defence Housing Authority [16170]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [11678]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16169]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16168]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16173]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16165]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16167]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16166]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16172]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16171]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [11688]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [11664]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [11677]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [11676]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Director of War Service Homes [11704]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [11652]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [11720]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [11639]	NSW	In feature area
Commonwealth Land - Director of War Service Homes [11654]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [11683]	NSW	In buffer area only

Unknown		
Commonwealth Land - [15660]	NSW	In buffer area only
Commonwealth Land - [11599]	NSW	In buffer area only
Commonwealth Land - [11707]	NSW	In buffer area only
Commonwealth Land - [11706]	NSW	In buffer area only
Commonwealth Land - [11709]	NSW	In buffer area only
Commonwealth Land - [11721]	NSW	In buffer area only
Commonwealth Land - [11684]	NSW	In buffer area only
Commonwealth Land - [16434]	NSW	In buffer area only

Commonwealth Heritage Places			[Resource Information]
Name	State	Status	Buffer Status
Historic			
Fort Wallace	NSW	Listed place	In buffer area only
Nobbys Lighthouse	NSW	Listed place	In buffer area only

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Anous stolidus			
Common Noddy [825]		Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardena carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Ardena grisea as Puffinus griseus Sooty Shearwater [82651]		Species or species habitat likely to occur within area	In buffer area only
Arenaria interpres Ruddy Turnstone [872]		Roosting known to occur within area	In buffer area only
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Breeding likely to occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Roosting known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area	In feature area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area overfly marine area	In buffer area only
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area overfly marine area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area	In buffer area only
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area overfly marine area	In buffer area only
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In buffer area only
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area overfly marine area	In buffer area only
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea antipodensis gibsoni as Diomedea gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In buffer area only
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area	In buffer area only
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area overfly marine area	In buffer area only
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area	In buffer area only
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area overfly marine area	In buffer area only
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area overfly marine area	In buffer area only
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area overfly marine area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]		Species or species habitat may occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area overfly marine area	In buffer area only
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pachyptila turtur Fairy Prion [1066]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In buffer area only
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat known to occur within area	In buffer area only
Philomachus pugnax Ruff (Reeve) [850]		Roosting known to occur within area overfly marine area	In buffer area only
Phoebastria fusca Sooty Albatross [1075]		Species or species habitat may occur within area	In buffer area only
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area	In buffer area only
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area overfly marine area	In buffer area only
Recurvirostra novaehollandiae Red-necked Avocet [871]		Roosting known to occur within area overfly marine area	In buffer area only
Rhipidura rufifrons Rufous Fantail [592]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]		Species or species habitat known to occur within area overfly marine area	In feature area
Stercorarius skua as Catharacta skua Great Skua [823]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Sternula albifrons as Sterna albifrons Little Tern [82849]		Breeding likely to occur within area	In buffer area only
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to occur within area overfly marine area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche bulleri platei as Thalassarche sp. nov. Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Tringa brevipes as Heteroscelus brevipes Grey-tailed Tattler [851]		Roosting known to occur within area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area overfly marine area	In feature area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area overfly marine area	In buffer area only
Xenus cinereus Terek Sandpiper [59300]		Roosting known to occur within area overfly marine area	In buffer area only
Fish			
Acentronura tentaculata Shortpouch Pygmy Pipehorse [66187]		Species or species habitat may occur within area	In buffer area only
Festucalex cinctus Girdled Pipefish [66214]		Species or species habitat may occur within area	In buffer area only
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area	In buffer area only
Heraldia nocturna Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area	In buffer area only
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area	In buffer area only
Hippocampus abdominalis Big-belly Seahorse, Eastern Potbelly Seahorse, New Zealand Potbelly Seahorse [66233]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hippocampus whitei White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Histiogamphelus briggsii Crested Pipefish, Briggs' Crested Pipefish, Briggs' Pipefish [66242]		Species or species habitat may occur within area	In buffer area only
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area	In buffer area only
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In buffer area only
Notiocampus ruber Red Pipefish [66265]		Species or species habitat may occur within area	In buffer area only
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area	In buffer area only
Solegnathus spinosissimus Spiny Pipehorse, Australian Spiny Pipehorse [66275]		Species or species habitat may occur within area	In buffer area only
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area	In buffer area only
Solenostomus paradoxus Ornate Ghostpipefish, Harlequin Ghost Pipefish, Ornate Ghost Pipefish [66184]		Species or species habitat may occur within area	In buffer area only
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area	In buffer area only
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area	In buffer area only
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area	In buffer area only
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area	In buffer area only
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In buffer area only
Mammal			
Arctocephalus forsteri Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area	In buffer area only
Arctocephalus pusillus Australian Fur-seal, Australo-African Fur-seal [21]		Species or species habitat may occur within area	In buffer area only
Dugong dugon Dugong [28]		Species or species habitat may occur within area	In buffer area only
Reptile			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Pelamis platurus Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area	In buffer area only
Whales and Other Cetaceans [Resource Information]			
Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area	In buffer area only
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
Caperea marginata Pygmy Right Whale [39]		Foraging, feeding or related behaviour may occur within area	In buffer area only
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In buffer area only
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area	In buffer area only

Current Scientific Name	Status	Type of Presence	Buffer Status
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat known to occur within area	In buffer area only
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area	In buffer area only
Sousa sahalensis as Sousa chinensis Australian Humpback Dolphin [87942]		Species or species habitat likely to occur within area	In buffer area only
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area	In buffer area only
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In buffer area only
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In buffer area only

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Awabakal	Nature Reserve	NSW	In buffer area only
Blue Gum Hills	Regional Park	NSW	In buffer area only
Glenrock	State Conservation Area	NSW	In buffer area only
Hexham Swamp	NRS Addition - Gazettal in Progress	NSW	In buffer area only
Hunter Wetlands	National Park	NSW	In buffer area only
Lake Macquarie	State Conservation Area	NSW	In buffer area only

Protected Area Name	Reserve Type	State	Buffer Status
Pambalong	Nature Reserve	NSW	In buffer area only
Tingira Heights	Nature Reserve	NSW	In buffer area only
Worimi	Regional Park	NSW	In buffer area only

Regional Forest Agreements

[[Resource Information](#)]

Note that all areas with completed RFAs have been included.

RFA Name	State	Buffer Status
North East NSW RFA	New South Wales	In feature area

Nationally Important Wetlands

[[Resource Information](#)]

Wetland Name	State	Buffer Status
Hexham Swamp	NSW	In buffer area only
Jewells Wetland	NSW	In buffer area only
Kooragang Nature Reserve	NSW	In buffer area only
Lake Macquarie	NSW	In buffer area only
Shortland Wetlands Centre	NSW	In buffer area only

EPBC Act Referrals

[[Resource Information](#)]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Construction and Sequential Filling of Waste Emplacement Facility	2008/4652	Controlled Action	Post-Approval	In buffer area only
F3 to Branxton Link Electricity Adjustments	2007/3814	Controlled Action	Post-Approval	In buffer area only
Former Rifle Range Residential Development, Popplewell Road, Fern Bay, NSW	2017/7993	Controlled Action	Proposed Decision	In buffer area only
Gas Transmission Pipeline	2011/5917	Controlled Action	Completed	In buffer area only
Gloucester Coal Seam Methane Gas Project	2008/4432	Controlled Action	Post-Approval	In buffer area only
Hunter River Port and Transport Corridor	2001/419	Controlled Action	Completed	In buffer area only
Hunter River south arm dredging	2003/950	Controlled Action	Post-Approval	In buffer area only
Kooragang Island Waste Emplacement Facility - Area 2 Closure Works, NSW	2016/7670	Controlled Action	Post-Approval	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Kooragang Wetland Rehabilitation Project	2007/3220	Controlled Action	Post-Approval	In buffer area only
Kurri Kurri Lateral Pipeline Project	2021/9113	Controlled Action	Assessment Approach	In buffer area only
M1 Motorway extension to Raymond Terrace, NSW	2018/8288	Controlled Action	Assessment Approach	In buffer area only
Newcastle gas storage facility project	2010/5752	Controlled Action	Post-Approval	In buffer area only
Newcastle inner city bypass Rankin Park to Jesmond NSW	2015/7550	Controlled Action	Post-Approval	In feature area
Newcastle LNG export facility	2011/5915	Controlled Action	Completed	In buffer area only
Newcastle Power Station Project, Tomago, NSW	2019/8425	Controlled Action	Post-Approval	In buffer area only
New dual carriageway from F3 Fwy to Branxton Link	2007/3431	Controlled Action	Post-Approval	In buffer area only
Newstan Mine Extension Project	2019/8528	Controlled Action	Assessment Approach	In buffer area only
Nobby's Lighthouse redevelopment	2006/3179	Controlled Action	Completed	In buffer area only
Northbank Enterprise Hub	2021/9058	Controlled Action	Guidelines Issued	In buffer area only
Northbank Enterprise Hub, Industrial and Business Park	2010/5660	Controlled Action	Completed	In buffer area only
Open cut coal mine and extension to underground mine.	2006/2542	Controlled Action	Completed	In buffer area only
Port Site and Materials Handling Development	2001/242	Controlled Action	Completed	In feature area
Protech Cold Mill Facility	2001/274	Controlled Action	Post-Approval	In feature area
Queensland Hunter Gas Pipeline, approximately 825 km in length	2008/4483	Controlled Action	Completed	In buffer area only
Remediation Works, Kooragang island waste facility emplacement facility NSW	2011/5920	Controlled Action	Completed	In buffer area only
Residential development, Hillsborough, NSW	2014/7217	Controlled Action	Further Information Request	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
River Dredging Operations	2001/249	Controlled Action	Completed	In feature area
Rutile and Zircon Mining on Stockton Rifle Range	2000/8	Controlled Action	Post-Approval	In buffer area only
Steel Mill	2001/231	Controlled Action	Completed	In buffer area only
Terminal 4 Coal Export Terminal Project, Kooragang Island	2011/6029	Controlled Action	Post-Approval	In buffer area only
Tomago Road Industrial Subdivision	2007/3343	Controlled Action	Post-Approval	In buffer area only
Upgrade existing coal preparation, infrastructure & transport as part of Coal Logistics Project, NS	2013/6906	Controlled Action	Post-Approval	In buffer area only
Wyndham Way Eleebana Residential Subdivision	2017/7931	Controlled Action	Post-Approval	In buffer area only
Not controlled action				
Abel Coal Project	2007/3695	Not Controlled Action	Completed	In buffer area only
Blue Gum Vista Estate Residential development off Minmi Road	2004/1507	Not Controlled Action	Completed	In buffer area only
construction of a hydrological control structure at the mouth of Wader Creek and	2002/780	Not Controlled Action	Completed	In buffer area only
Construction of a Jetty	2002/784	Not Controlled Action	Completed	In buffer area only
Controlling Water Levels in Shortland Wetlands	2010/5468	Not Controlled Action	Completed	In buffer area only
Demolition of Ablutions Block, Snapper Island, NSW	2018/8303	Not Controlled Action	Completed	In buffer area only
Expansion of Marmong Point Marina	2008/4277	Not Controlled Action	Completed	In buffer area only
Expansion to Kooragang Coal Terminal	2007/3352	Not Controlled Action	Completed	In buffer area only
Fort Scratchley refurbishment works	2005/2283	Not Controlled Action	Completed	In feature area
Fort Scratchley site remediation	2005/2075	Not Controlled Action	Completed	In buffer area only
Geological exploration and historical research of convict coal mines beneath For	2004/1421	Not Controlled Action	Completed	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Green & Golden Bell Frog Habitat Enhancement Project	2004/1795	Not Controlled Action	Completed	In feature area
Hexam Train Support Facility	2012/6285	Not Controlled Action	Completed	In buffer area only
Hexham Relief Roads Project	2012/6309	Not Controlled Action	Completed	In buffer area only
Hunter Natural Gas Pipeline	2004/1902	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Industrial and Residential Subdivision, Minmi and Black Hill, Lower Hunter	2008/4603	Not Controlled Action	Completed	In buffer area only
Kooragang Coal Terminal Arrival Roads Stage 2 Upgrade, Newcastle, NSW	2014/7229	Not Controlled Action	Completed	In buffer area only
Newcastle Inner City Bypass - Sandgate to Shortland	2007/3633	Not Controlled Action	Completed	In buffer area only
Nobbys Headland Redevelopment	2008/4672	Not Controlled Action	Completed	In buffer area only
Northlakes Estate Residential Subdivision	2009/5111	Not Controlled Action	Completed	In buffer area only
Proposed maintenance and manufacturing facility to support industrial activities	2007/3592	Not Controlled Action	Completed	In buffer area only
Proposed Residential Subdivision	2005/2127	Not Controlled Action	Completed	In buffer area only
Queensland Hunter Gas Pipeline, approximately 833 km in length	2008/4620	Not Controlled Action	Completed	In buffer area only
Retail development, Lots 10-14, South Street, Windale, NSW	2013/7031	Not Controlled Action	Completed	In buffer area only
Revised alignment Hunter Natural Gas Pipeline	2005/2470	Not Controlled Action	Completed	In buffer area only
Richmond Vale Rail Trail	2019/8568	Not Controlled Action	Completed	In buffer area only
RTA Five Islands Road Upgrade	2000/44	Not Controlled Action	Completed	In buffer area only
sale of property located at 96, Hunter Street	2003/1097	Not Controlled Action	Completed	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Sandgate Rail Grade Separation	2005/1948	Not Controlled Action	Completed	In feature area
Shorebird and wader habitat rehabilitation	2001/457	Not Controlled Action	Completed	In buffer area only
Stockpiling of lump coal up to 40,000 tonnes	2003/1304	Not Controlled Action	Completed	In buffer area only
Tomago Aluminium Rod & Conductor Manufacturing Facility	2011/6085	Not Controlled Action	Completed	In buffer area only
Tomago to Tomaree Electricity Supply Upgrade	2003/1023	Not Controlled Action	Completed	In buffer area only
Tomago Trunk Watermain Upgrade	2008/4049	Not Controlled Action	Completed	In buffer area only
Tomago Wetland Rehabilitation Project	2011/5894	Not Controlled Action	Completed	In buffer area only
Wallarah Peninsula Residential development	2004/1490	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
2D marine seismic survey in PEP-11 permit area, NSW	2002/879	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Extensions to the north and south of an existing quarry and proposed transmission lines	2011/5988	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Fort Wallace Residential Development Proposal, north of Newcastle, NSW	2017/7951	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Kooragang Island coal export terminal	2006/2987	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Kooragang Island Waste Emplacement Facility Closure Works	2012/6464	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Rehabilitation of Hexham Swamp	2003/1244	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Star of the South Offshore Surveys	2019/8525	Not Controlled Action (Particular	Post-Approval	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action (particular manner)				
		Manner)		
TransGrid 132kV Power Transmission Line	2002/794	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Referral decision				
Breeding program for Grey Nurse Sharks	2007/3245	Referral Decision	Completed	In buffer area only
Residential Development and 132kV Sub-transmission Line Relocation	2008/4574	Referral Decision	Completed	In buffer area only
Biologically Important Areas				
Scientific Name		Behaviour	Presence	Buffer Status
Dolphins				
Tursiops aduncus				
Indo-Pacific/Spotted Bottlenose Dolphin [68418]		Breeding	Likely to occur	In buffer area only
Tursiops aduncus				
Indo-Pacific/Spotted Bottlenose Dolphin [68418]		Foraging	Known to occur	In buffer area only
Seabirds				
Ardenna carneipes				
Flesh-footed Shearwater [82404]		Foraging	Known to occur	In buffer area only
Ardenna grisea				
Sooty Shearwater [82651]		Foraging	Likely to occur	In buffer area only
Ardenna pacifica				
Wedge-tailed Shearwater [84292]		Foraging	Likely to occur	In buffer area only
Ardenna tenuirostris				
Short-tailed Shearwater [82652]		Foraging	Likely to occur	In buffer area only
Diomedea exulans antipodensis				
Antipodean Albatross [82269]		Foraging	Known to occur	In buffer area only
Procellaria parkinsoni				
Black Petrel [1048]		Foraging	Likely to occur	In buffer area only
Sharks				
Carcharias taurus				
Grey Nurse Shark [64469]		Foraging	Known to occur	In buffer area only
Whales				

Scientific Name	Behaviour	Presence	Buffer Status
Megaptera novaeangliae			
Humpback Whale [38]	Foraging	Known to occur	In buffer area only

Bioregional Assessments			
SubRegion	BioRegion	Website	Buffer Status
Hunter	Northern Sydney Basin	BA website	In feature area

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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.

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