

2022 ECOLOGICAL SURVEY REPORT (NOOSA RIVER SITE)

PREMIUM ECOTOURISM PRODUCTS, COOLOOLA GREAT WALK

Prepared for
Department of Environment and Science



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Director

2022 ECOLOGICAL SURVEY REPORT (NOOSA RIVER SITE)

Premium Ecotourism Products, Cooloola Great Walk

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Table of Terms and Abbreviations

BAAM	Biodiversity Assessment and Management Pty Ltd
DES	Queensland Department of Environment and Science
DAWE	Commonwealth Department of Agriculture, Water and the Environment
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
MNES	Matters of National Environmental Significance
MSES	Matters of State Environmental Significance
NC Act	Queensland <i>Nature Conservation Act 1992</i>
QPWS	Queensland Parks and Wildlife Service
RE	Regional Ecosystem
TEC	Threatened Ecological Community

1.0 INTRODUCTION

The Queensland Government seeks to raise the profile of the State's protected area estate by creating iconic, sustainable ecotourism experiences that showcase landscapes and nature-based experiences. This will include partnering with the private sector to deliver new tourism infrastructure in regional Queensland, including the Cooloola Great Walk. This trail is envisioned to feature multiple nodes stemming from the existing trail permitting diverse styles of eco-accommodation to complement existing (and continuing) State-owned campsites on the trail.

Following the completion of an initial desktop review of expected environmental opportunities and constraints to premium ecotourism products within the vicinity of the Cooloola Great Walk (BAAM, 2019) the Queensland Government, through the Department of Environment and Science (DES), commissioned a baseline ecological survey to verify the on-ground values in the vicinity of initially proposed eco-accommodation sites as selected by two proponents submitting ecotourism proposals. Based on the results of the baseline ecological survey (completed in July 2019) a number of "preferred" sites (from an ecological perspective) for each general location were identified/recommended, including some alternative sites to those identified by the proponents (BAAM, 2020a).

After consideration of the findings of the 2019 baseline ecological survey and other design constraints and opportunities DES commissioned subsequent site investigations and baseline surveys to verify ecological values at revised site locations selected by the preferred proponent.

A detailed ecological survey undertaken in March 2020 determined there was potential for significant impacts on important ecological values at the revised locations without the implementation of appropriate measures of avoidance and mitigation. Potential for direct impacts upon threatened ecological communities, threatened flora species, known habitat for threatened fauna species and/or "notable habitat trees"¹ within the boundaries of the camp site envelopes were identified. The site located near

the Noosa River was subject to review due to its location relative to existing camping areas.

Additional site investigations were undertaken in May and June 2020 in consultation with the preferred proponent to identify the locations of specific values and constraints and determine indicative campsite areas and access alignments to inform final project design. An assessment of the significance of potential impacts to matters of national and state environmental significance and other noteworthy ecological values resulting from the development of each proposed accommodation site, and recommendations for reducing impacts to acceptable levels in accordance with Commonwealth and State legislation and guidelines were then provided, as detailed in BAAM (2020b).

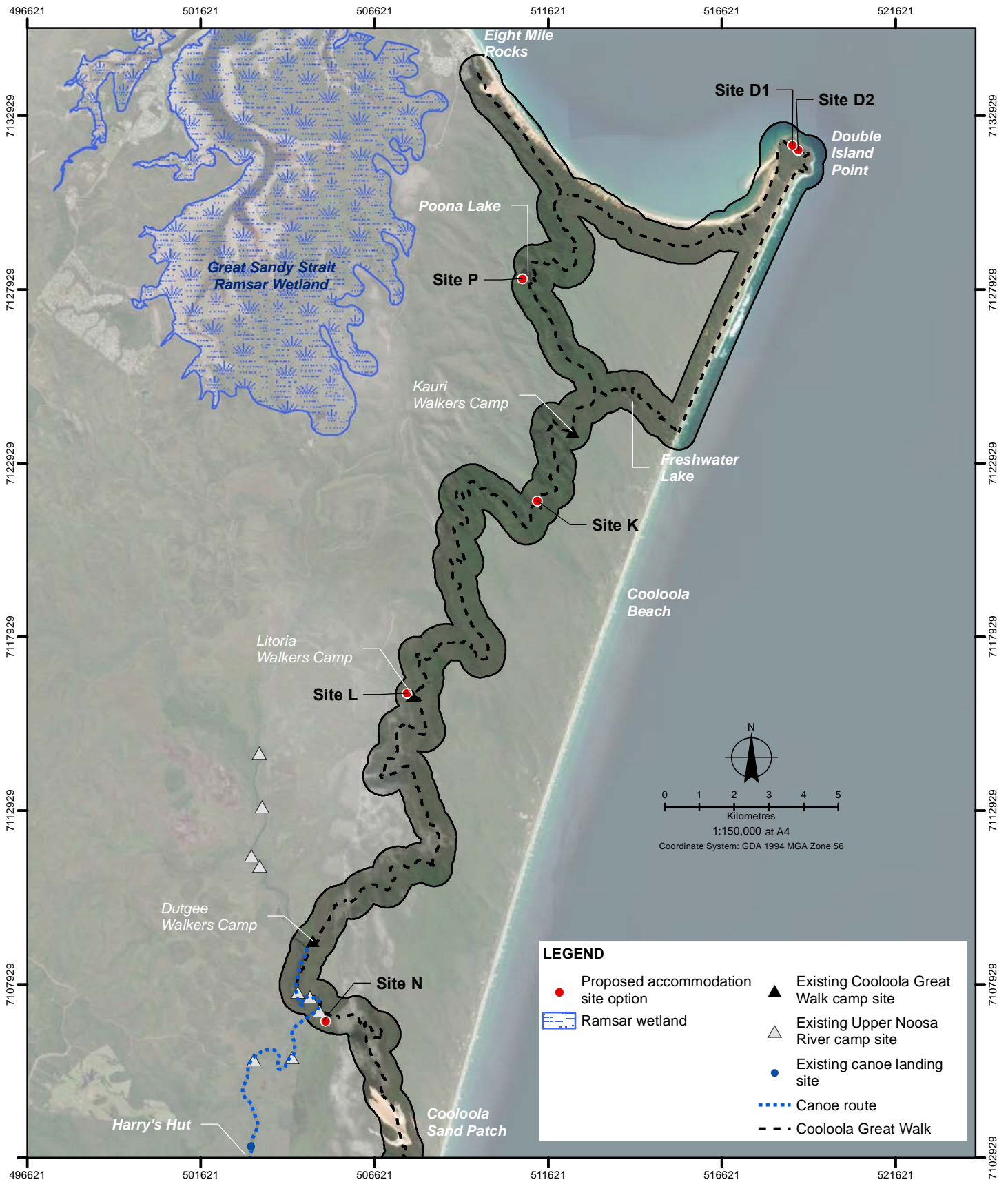
It is understood the project was referred to the Commonwealth Government following the completion of the 2020 investigations, informed by the findings of the associated report.

Following significant rainfall events in early 2022 the site options near the Noosa River were again revised to account for potential flooding issues, such that a targeted survey of a newly proposed site was required to identify the locations of specific values and constraints, inform a comparison between the site options, and determine if any new matters of national environmental significance not previously assessed by the Commonwealth require consideration, and/or whether there is a higher risk of significant impacts in relation to the newly proposed site.

This report presents the findings of a survey of the newly proposed Site N undertaken in April 2022.

The general locations of the proposed accommodation sites are shown on **Figure 1.1**, while **Figure 1.2** shows the "Surveyed Area" investigated for the positioning of the proposed lease area during the April 2022 survey, along with proposed walker access routes to the site. **Figure 1.2** also shows the "Proposed Lease Area" determined on the basis of the survey results, and assessed within this report.

¹ For the purposes of this assessment, "notable habitat trees" are defined as native trees with a diameter at breast height of 30cm or greater, and/or native trees of any size with hollows or signs of fauna use (e.g. scratches, nests).



Data Sources:
Ramsar sites - Queensland
Published 25/11/2002

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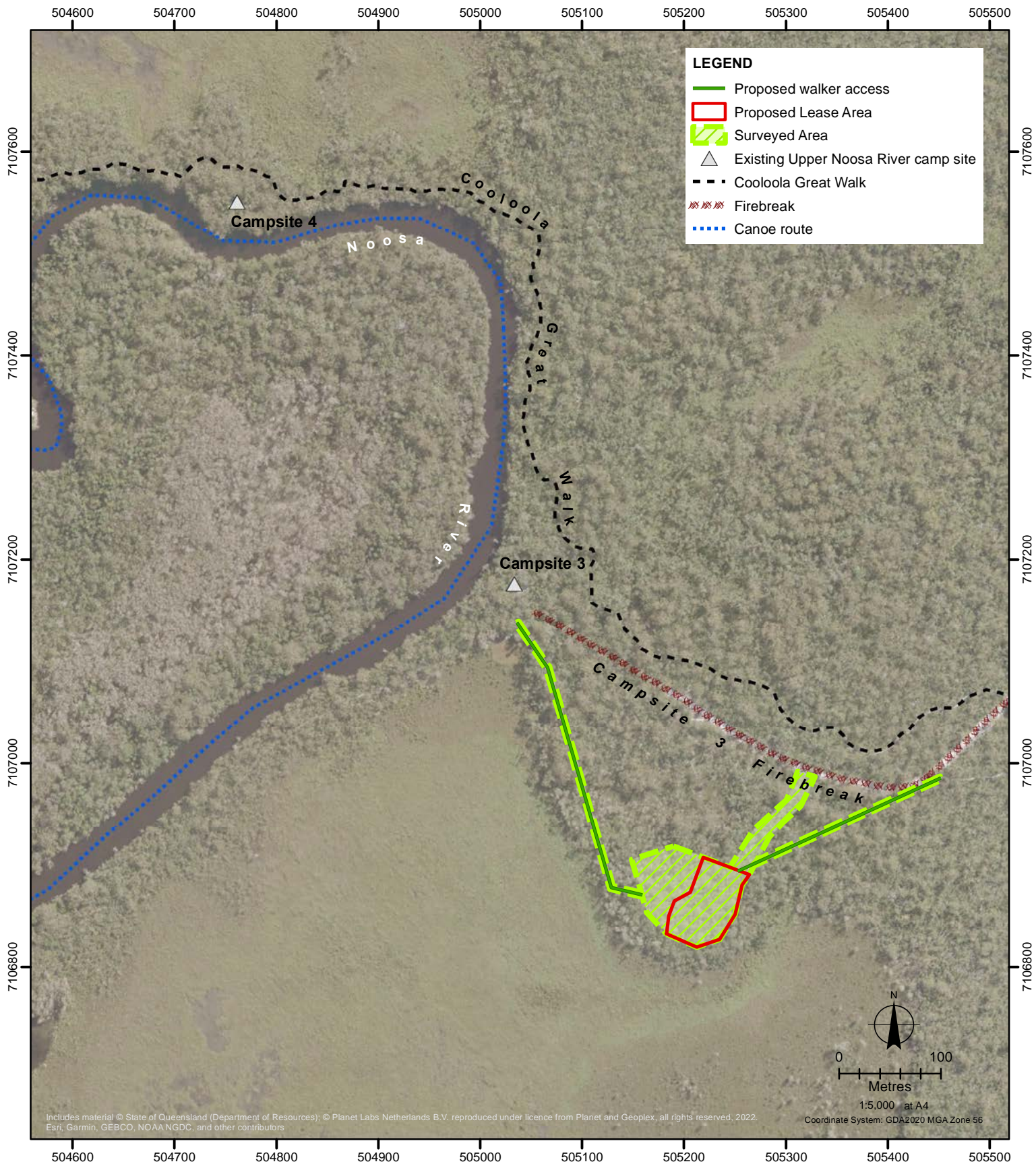
Figure: 1.1

Title: Site Locations

Project: Premium Ecotourism Products – Cooloola Great Walk

Client: Department of Environment and Science





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Figure: 1.2
Title: Accommodation Site Location - Site N
Project: Premium Ecotourism Products – Cooloola Great Walk
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2.0 METHODOLOGY

2.1 FIELD SURVEY

Methodologies associated with the initial desktop review, the 2019 baseline survey and the preliminary, detailed and additional site investigations undertaken in 2020 are described in BAAM (2020b).

Assessment of the newly proposed Site N (as shown on **Figure 1.2**) was undertaken by Dr Jarrah Wills with representatives from DES on 28 April 2022. The assessment aimed to:

- identify the locations of specific values and constraints focused on matters of national environmental significance (MNES) protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and matters of state environmental significance (MSES) protected under state legislation;
- determine an appropriate (least impact) site location; and
- inform final project design in relation to avoiding or minimising ecological impacts.

2.2 SPECIES LIKELIHOOD ASSESSMENT

Following the 2022 site investigation, data were analysed and interpreted to enable an informed assessment of species presence/absence, habitat value, and the accuracy of current State mapping of ecological values. The likelihood of occurrence of threatened and/or migratory species was assessed through integration of the following sources of information:

- database search results that identify whether there are records of the species in the vicinity;
- review of the published literature pertaining to the known distributions and habitat requirements of the species (including seasonal variations); and
- current mapping of REs/habitats, and the results of habitat assessments during the field survey.

In addition to species recorded during the survey, species were considered to have potential to occur if (1) there were records of the species in the vicinity (i.e. within 15km of the site), (2) the species was not considered locally extinct, and (3) suitable habitat was found to occur.

2.3 IMPACT ASSESSMENT

Potential impacts to the identified values resulting from the project were identified, and their significance assessed in accordance with the Commonwealth Department of Agriculture, Water and the Environment's (DAWE) Significant Impact Guidelines for MNES, the State Government's Significant Residual Impact Guideline for matters assessed under the *Nature Conservation Act 1992* (NC Act), *Environmental Protection Act 1994* and *Marine Parks Act 2004*, and the Queensland Parks and Wildlife Service's (QPWS) Operational Policy and Procedural Guide for assessing the impact of QPWS actions on natural and cultural values.

3.0 ECOLOGICAL VALUES

The following sections provide an overview of MNES and MSES known or potentially occurring within the vicinity (i.e. within 15 km) of the Cooloola Great Walk based on desktop assessment and their known or potential occurrence within or close to (i.e. within 100m) of the "Proposed Lease Area" and associated access for Site N. **Table 3.2** provides a summary of the ecological values recorded at the new site compared to those recorded at previously proposed sites near the Noosa River.

3.1 MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE (MNES)

3.1.1 *Wetlands of International Importance (Ramsar)*

The Great Sandy Strait Ramsar wetland is to the north-west of the Cooloola Great Walk (**Figure 1.1**). Site N is located approximately 20 km from the Ramsar wetland and there are no hydrological connections between the site and the wetland. Consequently, construction and operation of the site is not expected to result in any significant impacts upon the Ramsar wetland.

3.1.2 *Threatened Ecological Communities*

The EPBC Protected Matters Search Tool (using a 4km radius centred on the proposed lease area) (**Appendix 1**) indicated three EPBC Act listed threatened ecological communities (TECs) could occur within the vicinity of the accommodation site:

- Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East

Queensland ecological community (currently listed as Endangered).

- Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland (Endangered).
- Lowland Rainforest of Subtropical Australia (Critically Endangered).

The field survey confirmed vegetation within the western portion of the surveyed area, but outside of the proposed lease area, is representative of the Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland TEC (**Figure 3.1**).

No vegetation representing the other two TECs listed within the EPBC Protected Matters Search Tool results was recorded within or adjacent to the proposed lease area during the survey.

A summary description of vegetation recorded at the site is provided in **Table 3.2**.

3.1.3 Threatened Species

Flora

The EPBC Protected Matters Search Tool (**Appendix 1**) indicates numerous EPBC Act listed threatened flora species could potentially occur. Those species known to occur within 15 km the Cooloola Great Walk based on previous records include:

- *Acacia attenuata* (Vulnerable).
- *Acronychia littoralis* (Endangered).
- *Allocasuarina emuina* (Endangered).
- *Archidendron lovelliae* (Vulnerable).
- *Arthraxon hispidus* (Vulnerable).
- *Boronia keysii* (Vulnerable).
- *Bosistoia transversa* (Vulnerable).
- *Cryptocarya foetida* (Vulnerable).
- *Eucalyptus conglomerata* (Endangered).
- *Floydia praealta* (Vulnerable).
- *Macadamia integrifolia* (Vulnerable).
- *Macadamia ternifolia* (Vulnerable).
- *Macrozamia pauli-guilielmi* (Endangered).
- *Prostanthera spathulata* (Vulnerable).
- *Romnalda strobilacea* (Vulnerable).
- *Xanthostemon oppositifolius* (Vulnerable).

No EPBC Act listed threatened flora species were detected within or within close vicinity to the proposed lease area despite targeted searches within suitable habitat, where present within the surveyed area. In particular, no EPBC Act listed threatened flora species were recorded within surveyed heath/sedgeland habitat near the proposed lease area, despite the potential for many of these species to occur within this habitat type.


Fauna


The EPBC Protected Matters Search Tool (**Appendix 1**) indicates numerous EPBC Act listed threatened fauna species could potentially occur. Those species known to occur within the vicinity of the Cooloola Great Walk based on previous records (excluding species exclusively or primarily associated with the open ocean, beaches, estuaries or intertidal environments, and/or lacustrine or riverine wetlands) include:

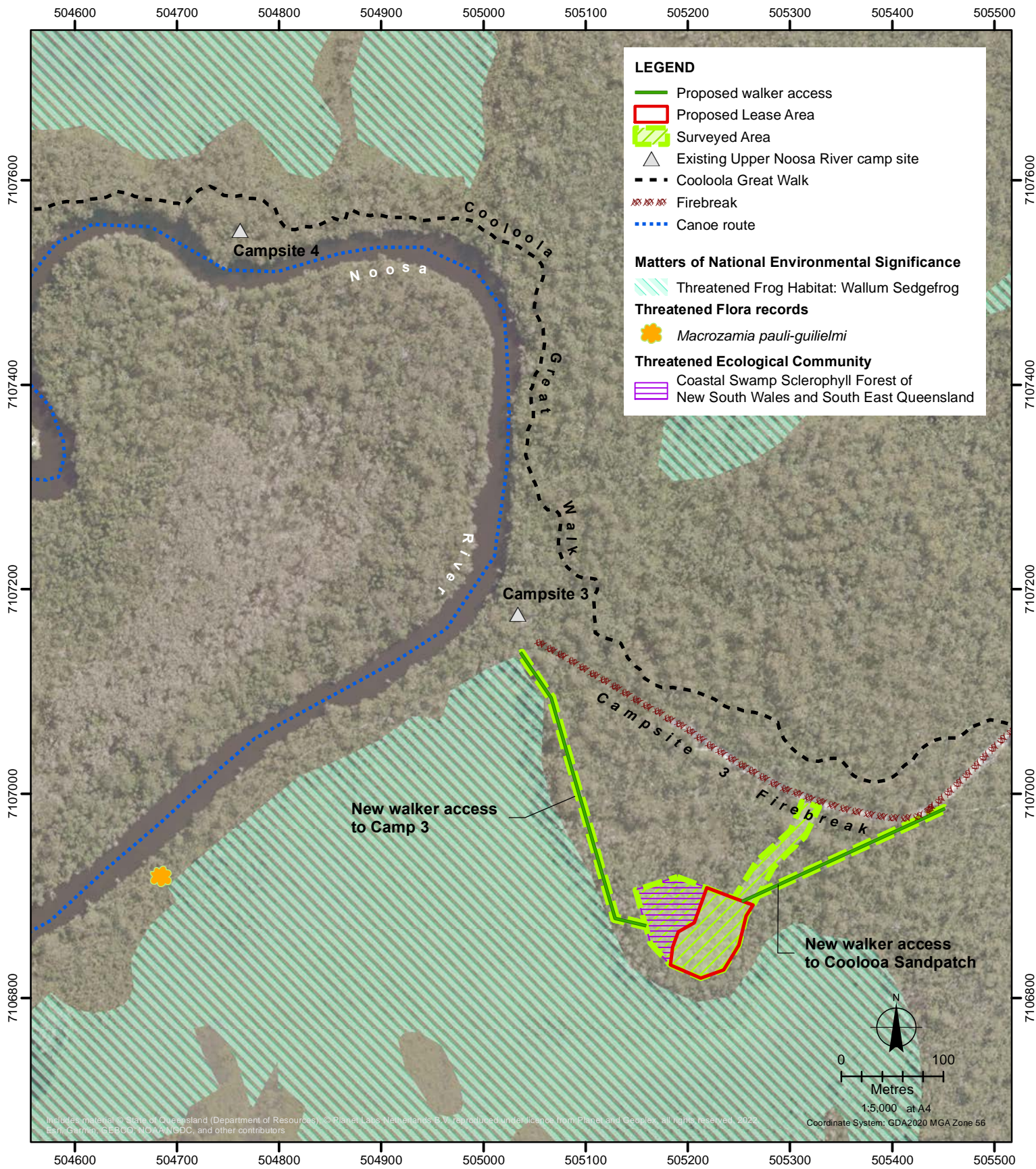
- Three-toed Snake-tooth Skink *Coeranoscincus reticulatus* (Vulnerable)
- Spotted-tailed Quoll (southern subspecies) *Dasyurus maculatus maculatus* (Endangered)
- Red Goshawk *Erythrotriorchis radiatus* (Vulnerable)
- Painted Honeyeater *Grantiella picta* (Vulnerable)
- Wallum Sedgefrog *Litoria olongburensis* (Vulnerable)
- Oxleyan Pygmy Perch *Nannoperca oxleyana* (Endangered)
- Southern Greater Glider *Petauroides volans* (Vulnerable)
- Koala *Phascolarctos cinereus* (Endangered)
- Grey-headed Flying-fox *Pteropus poliocephalus* (Vulnerable)
- Australian Painted Snipe *Rostratula australis* (Endangered)
- Black-breasted Button-Quail *Turnix melanogaster* (Vulnerable).

No EPBC Act listed threatened fauna species were detected within or close to the proposed lease area during the survey, although potentially suitable habitat for the following species occurs:

Table 3.2. Summary of ecological values and generally suitability of each proposed accommodation site option near the Noosa River

Site	Photos	Description of Ecological Values and General Suitability
Previous option 1 (refer BAAM 2020b)		<p>This previously proposed lease area is located along the walking track between the existing Noosa River campsites 2 and 3. The vegetation was ground-truthed as containing Of Concern RE 12.3.14a. Adjacent vegetation includes Least Concern REs 12.3.14a and 12.2.12. The vegetation on the edges of this proposed lease area contains some hollow bearing trees.</p> <p>This site is mapped within a wetland of high ecological significance, although the survey determined that wetland habitat does not occur within this proposed lease area. Adjacent wetland habitat provides high quality resources for threatened fauna species such as Wallum Sedgefrog, Wallum Froglet and Wallum Rocketfrog, and threatened plant species such as <i>Blandfordia grandiflora</i>. The site and surrounds also provide potential habitat for Grey-headed Flying Fox, Three-toed Snake-tooth Skink, Southern Emu-wren, Black-faced Monarch and Rufous Fantail. <i>Boronia rivularis</i> is also common in the surrounding landscape, while Oxleyan Pygmy Perch may occur in ponds and streams within adjacent wetland habitat. The large trees present have high value for breeding and denning for hollow dependant species. The potential for Koalas at this location is low, despite suitable food trees. There would be no impacts upon waterways and associated fish passage resulting from development of this site and associated access.</p> <p>This site was selected as an alternative to the originally proposed campsite envelope near existing Noosa River campsite 4, which was considered too close to the existing campsite and the Great Walk track. This site option maintains proximity to the Great Walk and the Noosa River, although is in close proximity to existing Noosa River campsite 3.</p>
Previous option 2 (refer BAAM 2020b)		<p>This previously proposed lease area is located along the walking track between the existing Noosa River campsites 2 and 3. The vegetation was ground-truthed as containing Of Concern RE 12.3.14a and Least Concern RE 12.2.9. Adjacent vegetation includes RE 12.3.14a and Least Concern REs 12.2.12 and 12.2.15. The vegetation within the site contains some hollow bearing trees, primarily within RE 12.3.14a.</p> <p>An isolated individual of <i>Macrozamia pauli-guilielmi</i> was detected adjacent to the north-eastern corner of this proposed lease area, while <i>Blandfordia grandiflora</i> has been detected on the edge of this proposed lease area. This site is mapped within a wetland of high ecological significance, although the survey determined that wetland habitat does not occur within this proposed lease area. Adjacent wetland habitat provides high quality resources for threatened fauna species such as Wallum Sedgefrog, Wallum Froglet and Wallum Rocketfrog, as and threatened plant species such as <i>Blandfordia grandiflora</i>. The site and surrounds also provide potential habitat for Grey-headed Flying Fox, Three-toed Snake-tooth Skink, Southern Emu-wren, Black-faced Monarch and Rufous Fantail. <i>Boronia rivularis</i> is also common in the surrounding landscape, while Oxleyan Pygmy Perch may occur in ponds and streams within adjacent wetland habitat. The potential for Koalas at this location is low, despite suitable food trees. The establishment of vehicular access to this site may impact upon fish passage within the waterway ground-truthed as occurring between this site and previous option 1.</p>

Site	Photos	Description of Ecological Values and General Suitability
		<p>This site was selected as an alternative to previous option 1, and another site close to existing Noosa River campsite 4, as it was a sufficient distance from existing campsites, but could still be readily accessed from the Great Walk and the Noosa River.</p>
<p>Currently proposed option</p>		<p>This proposed lease area would be accessed via new walking tracks linking with an existing firebreak running parallel to the Great Walk alignment near the existing Noosa River campsite 3. The vegetation within the proposed lease area was ground-truthed as containing Least Concern RE 12.2.9. Adjacent/nearby vegetation includes the same RE, as well as Least Concern REs , 12.2.7, 12.2.6 and 12.2.12. REs 12.2.7 and 12.2.12 are recognised as wetland REs, while the patch of RE 12.2.7 adjacent to the proposed lease area is representative of the Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland TEC.</p> <p>No threatened flora species were detected within or adjacent to this proposed lease area or proposed new walking tracks. Wetland habitat near the proposed lease area provides high quality resources for Wallum Sedgefrog, Wallum Froglet and Wallum Rocketfrog. The proposed lease area and surrounds also provide potential habitat for Grey-headed Flying Fox, Three-toed Snake-tooth Skink, Southern Emu-wren, Black-faced Monarch and Rufous Fantail. Oxleyan Pygmy Perch may occur in ponds and streams within nearby wetland habitat. The potential for Koalas at this location is low. There would be no impacts upon waterways and associated fish passage resulting from development of this site and associated access.</p> <p>It is noted that evidence of feral pigs (scats and disturbed ground) was recorded throughout this site during the field survey.</p> <p>This site was selected as an alternative to previous options 1 and 2, due to its relative flood immunity and position further away from sensitive wetland habitat.</p>



Data Sources:
 Threatened Frog Habitat
 Vegetation management regional ecosystem map - v12.0
 Published 05-04-2022
 Threatened Flora and Fauna Records
 BAAM - March 2020, May 2020, June 2020, May 2022

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 Drawn By: KM Reviewed by: JA Date: 20/06/2022

Figure: 3.1
Title: Confirmed MNES - Site N
Project: Premium Ecotourism Products – Cooloola Great Walk
Client: Department of Environment and Science



- Three-toed Snake-tooth Skink (Vulnerable) – open forest/woodland within and adjacent to the proposed lease area.
- Wallum Sedgefrog (Vulnerable) – wallum heaths and sedgeland/swamp near the proposed lease area (refer **Figure 3.1**).
- Oxleyan Pygmy Perch (Endangered) – ponds and streams within wallum heaths and sedgeland/swamp near the proposed lease area.
- Grey-headed Flying-fox (Vulnerable) - open forest/woodland within and adjacent to the proposed lease area.

Although potential habitat for Koala also occurs within the surveyed area, there were relatively few Koala habitat trees present within the proposed lease area, and no Koalas or evidence of their presence (i.e. scratches and scats) was found during the survey. Consequently, the species is considered unlikely to frequent the surveyed area, and potential occurrence within the proposed lease area is considered low.

The remaining threatened fauna species that have been previously recorded within 15 km of the Cooloola Great Walk are considered unlikely to occur within or adjacent to the proposed lease area due to a lack of suitable habitat and/or a lack of recent records within the local area.

3.1.4 Migratory Species

The EPBC Protected Matters Search Tool (**Appendix 1**) indicates numerous EPBC Act listed migratory species could potentially occur. Those species known to occur within the vicinity of the Cooloola Great Walk based on previous records (excluding species exclusively or primarily associated with the open ocean, beaches, estuaries or intertidal environments, and/or lacustrine or riverine wetlands) include:

- Oriental Cuckoo *Cuculus optatus*
- Latham's Snipe *Gallinago hardwickii*
- Black-faced Monarch *Monarcha melanopsis*
- Satin Flycatcher *Myiagra cyanoleuca*
- Eastern Osprey *Pandion cristatus*
- Glossy Ibis *Plegadis falcinellus*
- Rufous Fantail *Rhipidura rufifrons*
- Spectacled Monarch *Symposiachrus trivirgatus*.

No EPBC Act listed migratory species were detected within or within close vicinity to the proposed lease area during the survey, although potentially suitable habitat for the following species occurs:

- Black-faced Monarch.
- Rufous Fantail.

The remaining migratory species that have been previously recorded within 15 km of the proposed lease area are not expected to utilise the habitat types present within the proposed lease area.

3.2 MATTERS OF STATE ENVIRONMENTAL SIGNIFICANCE (MSES)

3.2.1 Regulated Vegetation

Categories of regulated vegetation that are recognised as prescribed MSES include:

- Remnant REs with an Endangered or Of Concern status under the Queensland *Vegetation Management Act 1999*;
- Remnant REs that intersect with an area shown as a wetland on the vegetation management wetlands map (to the extent of the intersection);
- Remnant REs located within a defined distance from the defining banks of a mapped watercourse; and
- An area of essential habitat on the essential habitat map for threatened plant or animal.

State mapping of regulated vegetation indicates numerous Of Concern REs and vegetated wetlands occur within the vicinity of the Cooloola Great Walk. A large proportion of these and other remnant REs are also mapped as essential habitat for State-listed threatened species, while numerous watercourses associated with remnant vegetation are also mapped.

The field survey confirmed the State mapping of regulated vegetation within the surveyed area is inaccurate. While the State maps the surveyed area as remnant, Least Concern RE 12.2.6, the field survey confirmed the proposed lease area comprises remnant, Least Concern RE 12.2.9, while the remainder of the surveyed area comprises remnant, Least Concern REs 12.2.9, 12.2.7 and 12.2.6 (**Figure 3.2**).

The field survey confirmed no Of Concern REs or remnant REs located within a defined distance from the defining banks of a mapped watercourse occur within or adjacent to the proposed lease area (**Figure 3.2**).

The State does not map any remnant REs that intersect with an area shown as a wetland on the vegetation management wetlands map within the surveyed area, although the field survey confirmed the presence of RE 12.2.7 (*Melaleuca quinquenervia* or rarely *M. dealbata* open forest on sand plains) adjacent to the proposed lease area, and the presence of 12.2.12 (closed heath on seasonally waterlogged sand plains) in close proximity to the proposed lease area, both of which are recognised as wetland REs.

The mapping of Essential Habitat for one or more of the threatened species associated with the State's mapping was confirmed within and adjacent to the proposed lease area (**Figure 3.4**).

3.2.2 Wetlands and Watercourses

Categories of wetlands and watercourses that are recognised as prescribed MSES include:

- A wetland in a wetland protection area;
- A wetland of high ecological significance shown on the map of Queensland wetland environmental values; and
- A wetland or watercourse in high ecological value waters.

State mapping indicates a wetland of high ecological significance occurs adjacent/near to the proposed lease area (**Figure 3.3**). The field survey confirmed this feature occurs at least 20m from the proposed lease area, whereas the mapping of this feature adjacent to the southern boundary of the proposed lease area is considered inaccurate (i.e. comprises woodland habitat, not wetland habitat).

3.2.1 Protected Wildlife Habitat

Protected wildlife habitat includes:

- an area that is shown as a high-risk area on the flora survey trigger map and that contains threatened plants;

- an area that is not shown as a high-risk area on the flora survey trigger map, to the extent the area contains threatened plants;
- a Koala habitat area;
- an area of land used by an animal that is listed as endangered wildlife or vulnerable wildlife or a special least concern animal (i.e. Short-beaked Echidna *Tachyglossus aculeatus* and Platypus *Ornithorhynchus anatinus*) under the NC Act for foraging, roosting, nesting or breeding.

The State maps Wildlife Habitat for threatened flora and fauna species over the site based on known records and/or modelling of suitable habitat (**Figure 3.4**). The field survey confirmed no threatened flora species occur within the proposed lease area, whereas the actual presence of threatened fauna species and their use of the proposed lease area would require more detailed, targeted field verification.

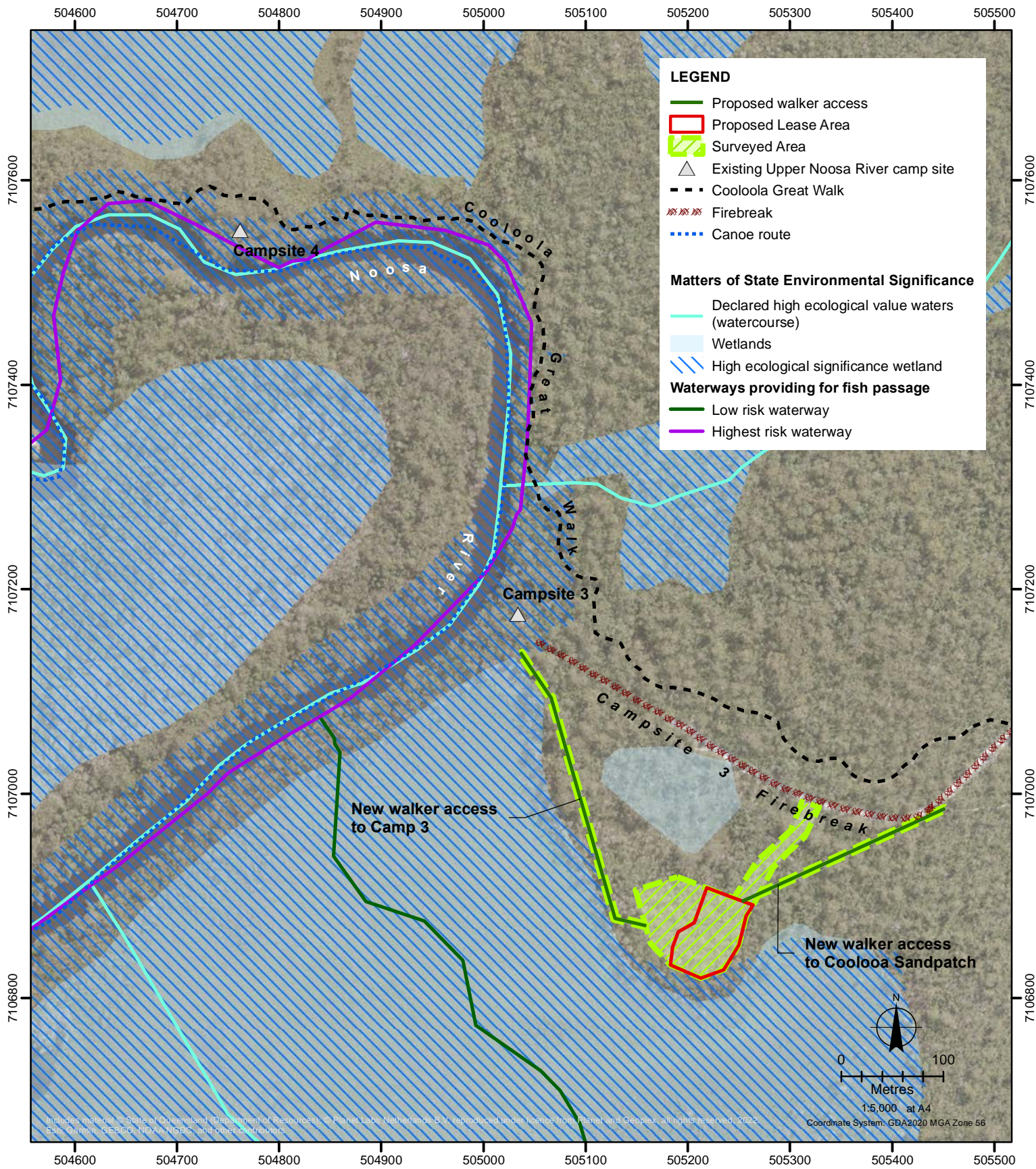
The State also maps Koala habitat "Core" within the surveyed area; however, the field survey determined that this mapping is inaccurate for areas ground-truthed as RE 12.2.9 (including the proposed lease area), as this is not a recognised Koala habitat RE². Consequently, ground-truthed mapping of Koala habitat "Core" within the surveyed area is restricted to vegetation ground-truthed as RE 12.2.27 and 12.2.6, as shown on **Figure 3.4**.

Flora species listed as Endangered or Vulnerable under the NC Act that are known to occur within the vicinity of the Cooloola Great Walk based on previous records include:

- *Acacia attenuata* (Vulnerable)
- *Acacia baueri* subsp. *Baueri* (Vulnerable)
- *Acronychia littoralis* (Endangered)
- *Allocasuarina emuina* (Endangered)
- *Archidendron lovelliae* (Vulnerable)
- *Arthraxon hispidus* (Vulnerable)
- *Blandfordia grandiflora* (Endangered)
- *Boronia keysii* (Vulnerable)
- *Bosistoia transversa* (Vulnerable)
- *Carex breviscapa* (Vulnerable)
- *Cryptocarya foetida* (Vulnerable)

² See Appendix 1 of [https://environment.des.qld.gov.au/data/assets/pdf_file/](https://environment.des.qld.gov.au/data/assets/pdf_file/0019/102835/guideline-request-to-make-amend-or-revoke-a-koala-habitat-area-determination.pdf)

[0019/102835/guideline-request-to-make-amend-or-revoke-a-koala-habitat-area-determination.pdf](https://environment.des.qld.gov.au/data/assets/pdf_file/0019/102835/guideline-request-to-make-amend-or-revoke-a-koala-habitat-area-determination.pdf)

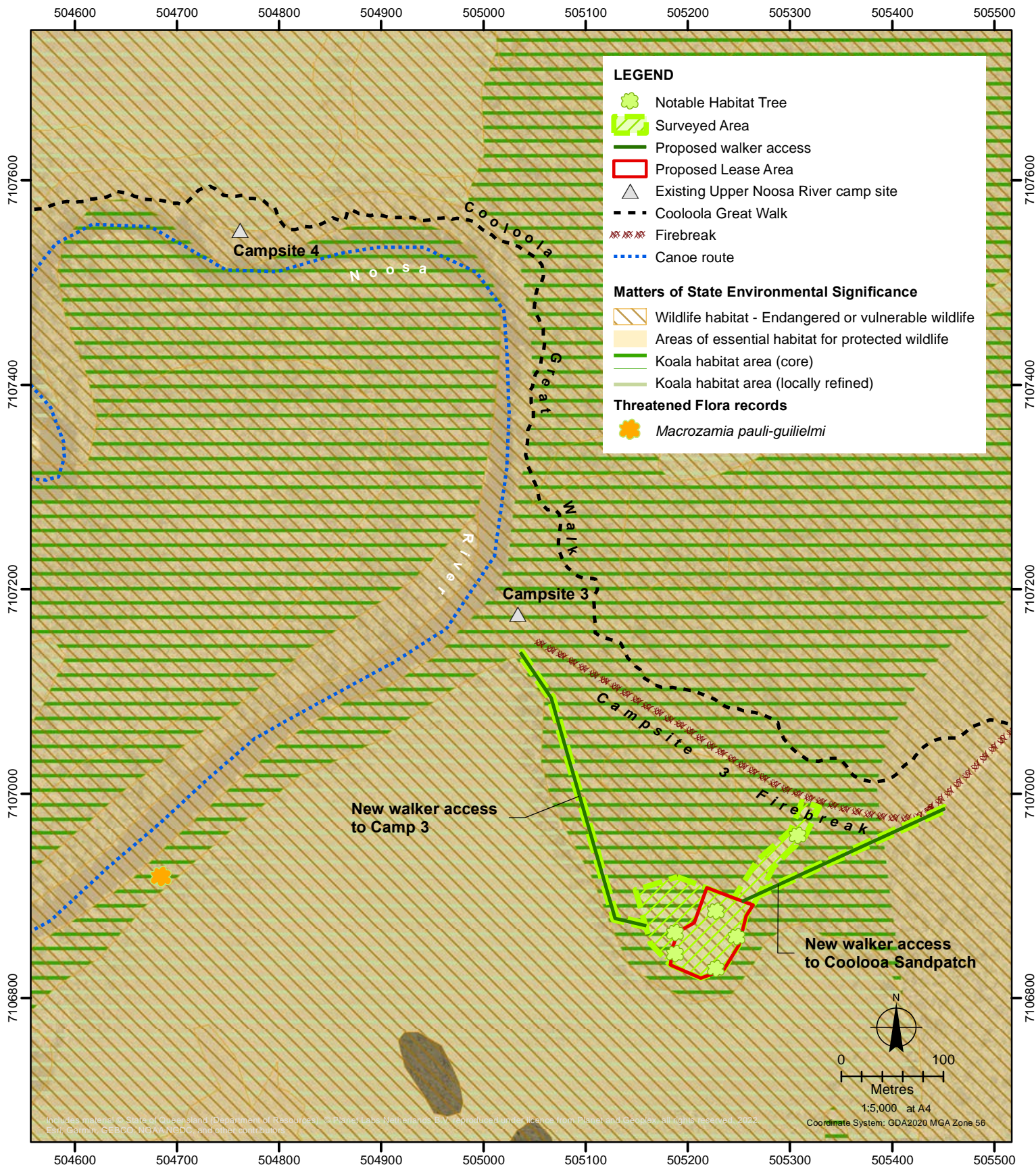


Data Sources:
 MSES - High ecological significance wetlands
 Published 19-03-2020
 MSES - High ecological value waters - waterways
 Published 30-06-2017
 Vegetation management wetlands map - v7.07
 Published 28-04-2022
 Queensland waterways for waterway barrier works
 Published 15-07-2016

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 Drawn By: KM Reviewed by: JA Date: 18/06/2022

Figure: 3.3
Title: MSES – Wetlands and Watercourses - Site N
Project: Premium Ecotourism Products – Cooloola Great Walk
Client: Department of Environment and Science





Data Sources:
 Threatened Flora Records
 BAAM - March 2020, May 2020, June 2020, May 2022
 MSES Regulated Vegetation Essential Habitat - Qld
 MSES - wildlife habitat - koala habitat areas - core
 MSES - wildlife habitat - koala habitat area - locally refined
 Publication Date 08-09-2021
 MSES Wildlife Habitat - Endangered or Vulnerable Wildlife
 Publication Date 03-02-2020

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Drawn By: KM Reviewed by: JA Date: 18/06/2022

Figure: 3.4
Title: MSES – Threatened Species and Habitat - Site N
Project: Premium Ecotourism Products – Cooloola Great Walk
Client: Department of Environment and Science



- *Eucalyptus conglomerata* (Endangered)
- *Floydia praealta* (Vulnerable)
- *Macadamia integrifolia* (Vulnerable)
- *Macadamia ternifolia* (Vulnerable)
- *Macrozamia pauli-guilielmi* (Endangered).
- *Mallotus megadontus* (Vulnerable)
- *Marsdenia coronata* (Vulnerable)
- *Parsonsia sankowskyana* (Endangered)
- *Pomaderris crassifolia* (Vulnerable)
- *Prostanthera spathulata* (Vulnerable)
- *Ricinocarpos speciosus* (Vulnerable)
- *Romnaldia strobilacea* (Vulnerable)
- *Xanthostemon oppositifolius* (Vulnerable).

No NC Act listed threatened flora species were detected within or within close vicinity to the proposed lease area despite targeted searches within suitable habitat, where this occurred within the surveyed area. In particular, no NC Act listed threatened flora species were recorded within heath/sedgeland habitat near the proposed lease area, despite the potential for many of these species to occur within this habitat type.

Fauna species listed as Endangered or Vulnerable under the NC Act that are known to occur within the vicinity of the Cooloola Great Walk based on previous records (excluding species exclusively or primarily associated with the open ocean, beaches, estuaries or intertidal environments, and/or lacustrine or riverine wetlands) include:

- Common Death Adder *Acanthophis antarcticus* (Vulnerable)
- Tusked Frog *Adelotus brevis* (Vulnerable)
- Glossy Black-Cockatoo *Calyptorhynchus lathami* (Vulnerable)
- Wallum Froglet *Crinia tinnula* (Vulnerable)
- Spotted-tailed Quoll (southern subspecies) (Vulnerable)
- Red Goshawk (Endangered)
- Painted Honeyeater (Vulnerable)
- Wallum Rocketfrog *Litoria freycineti* (Vulnerable)
- Wallum Sedgefrog (Vulnerable)
- Oxleyan Pygmy Perch (Vulnerable)
- Powerful Owl *Ninox strenua* (Vulnerable)

- Richmond Birdwing *Ornithoptera richmondia* (Vulnerable)
- Southern Greater Glider (Endangered)
- Ground Parrot (Eastern) *Pezoporus wallicus wallicus* (Vulnerable)
- Koala (Endangered)
- Plumed Frogmouth *Podargus ocellatus plumiferus* (Vulnerable)
- Australian Painted Snipe (Vulnerable)
- Southern Emu-wren *Stipiturus malachurus* (Vulnerable)
- Black-breasted Button-Quail (Vulnerable).

Platypus *Ornithorhynchus anatinus* and Short-beaked Echidna *Tachyglossus aculeatus* (both listed as Special Least Concern under the NC Act) are also known from the vicinity of the proposed lease area.

No NC Act listed threatened fauna species were detected within or within close vicinity to the proposed lease area during the survey, although potentially suitable habitat for the following species occurs:

- Wallum Froglet (Vulnerable) – *Melaleuca* woodland, wallum heaths and sedgeland/swamp adjacent to and near the proposed lease area.
- Wallum Sedgefrog (Vulnerable) – wallum heaths and sedgeland/swamp near the proposed lease area.
- Wallum Rocketfrog (Vulnerable) – wallum heaths and sedgeland/swamp near the proposed lease area.
- Southern Emu-wren (Vulnerable) – wallum heaths near the proposed lease area.
- Oxleyan Pygmy Perch (Vulnerable) – ponds and streams within wallum heaths and sedgeland/swamp near the proposed lease area.

Although the State maps Koala habitat within the surveyed area (**Figure 3.4**), there were relatively few Koala habitat trees present within the proposed lease area, and no Koalas or evidence of their presence (i.e. scratches and scats) was found during the survey. Consequently, the species is considered unlikely to frequent the surveyed area, and potential occurrence within the proposed lease area is considered low.

The remaining threatened fauna species that have been previously recorded within 15 km of the Cooloola Great Walk are considered unlikely to occur within or adjacent to the proposed lease area due to a lack of suitable habitat and/or a lack of recent records within the local area.

3.2.2 Protected Areas

The entire Cooloola Great Walk and the proposed accommodation site occurs with the Great Sandy National Park.

3.2.3 Marine Parks

There are no marine parks recognised within the vicinity of the Cooloola Great Walk.

3.2.4 Fish Habitat Areas

Lake Cooroibah is a recognised fish habitat area, a portion of which occurs near the southern-most portion of the Cooloola Great Walk. The proposed lease area is not located within or near this fish habitat area.

3.2.5 Waterways Providing for Fish Passage

A number of waterways mapped by the State as providing for fish passage occur in the vicinity of the Cooloola Great Walk. However, the field survey confirmed there are no fish passage waterways within the proposed lease area (**Figure 3.3**).

3.2.6 Marine Plants

State mapping of remnant vegetation and estuarine habitat indicates marine plants in the vicinity of the Cooloola Great Walk are likely to be restricted to Lake Cooroibah and its immediate surrounds.

The field survey confirmed no marine plants occur near the proposed lease area.

4.0 IMPACT ASSESSMENT

4.1 IMPACT MECHANISMS

4.1.1 *Vegetation Removal*

Some removal of vegetation (<0.5 ha) will need to occur for the siting and construction of accommodation infrastructure and access tracks in the lease area.

Removal of vegetation reduces the total amount of habitat for populations of flora and fauna and has the potential to result in fragmentation of habitats, changes to remaining vegetation that cause the loss of food, breeding and shelter resources for fauna, and exposure to introduced species that are either competitors or predators. The removal of vegetation can also result in direct loss of individual plants, including threatened or near threatened species, and large trees that may provide breeding and sheltering resources for fauna, and can result in the mortality of fauna present at the time of vegetation removal.

The extent of direct impact from clearing is restricted to the specific locations of vegetation removal. However, secondary impacts can affect peripheral vegetation through:

- soil disturbance/exposure and altered water flow patterns, and subsequent erosion and sedimentation, which may expose tree roots, smother vegetation, and potentially alter the physical form, chemical processes and ecological health of downstream aquatic and riparian habitats; and
- increased desiccation, light penetration, wind-throw, herbivory, weed invasion, nest predation, and parasitism for adjacent flora and fauna. In particular, introduced weeds can change vegetation community composition and, in some cases, increase the intensity of fire, leading to further community degradation.

The extent of these impacts (referred to as “edge effects”) vary according to vegetation/habitat type and other biophysical characteristics, as well as the nature and severity of the impact. A comprehensive review of edge effects by Murcia (1995) noted that most edge effects were reported to have disappeared within 50m of the remnant edge, whilst a review by Laurance (2001) concluded that most empirical studies of edge effects reported distances of penetration less than 150m (cited in McAlpine (2007)). For the purposes of this assessment, it is assumed vegetation/habitat up to 100m from the clearing footprint could be subject to edge effects, although significant impacts are unlikely beyond 50m from the clearing footprint.

The removal of vegetation can also create barriers to fauna movement through habitat fragmentation, affecting reproductive cycles and facilitating the incursion of pest species and aggressive, native “edge” species deeper into woodlands and forests.

4.1.2 *Construction and Operation*

In addition to vegetation removal and the associated secondary (or indirect) impacts, the construction and operation of the lease area (and the expected associated increase in use of the existing Cooloola Great Walk track) have the potential to result in on-going disturbance to surrounding habitats.

Artificial lighting may affect behaviour of both nocturnal and diurnal fauna, both vertebrate and invertebrate, including interfering with birds that migrate at night; altering reproductive behaviour of frogs; disrupting communication between individual mammals and birds; focusing the foraging activities of insectivores; and increasing the likelihood of predation for some species.

Similarly, noise, including background noise, generated by human activities can potentially affect behaviour and persistence of species and communities by, for example, masking of alarm and mating calls, location and motion of resources, obstructions or potential harms; in short, noise pollution affects the sending and reception of behavioural and social signals in faunal communities.

Construction/maintenance vehicles and accommodation guests have the potential to introduce and/or spread weed species and plant pathogens, and damage vegetation (including threatened or near threatened flora species and important habitat features) through unauthorised or inadvertent access to adjacent habitats.

Degradation of adjacent and downstream habitats can result from increased local nutrient loads (e.g. from insufficiently treated/contained wastewater), contamination (from insufficiently contained hazardous substances) and altered drainage.

The extent of these impacts would vary according to vegetation/habitat type and other biophysical characteristics, as well as the nature and severity of the impact.

General waste and land disturbance also have the potential to attract highly competitive and/or predatory native and exotic fauna species.

Without appropriate design, structures to facilitate vehicular access across waterways can represent barriers to the movement of fish and other aquatic fauna between upstream and downstream habitats.

4.1.3 Fire

Fire is a natural part of the Australian landscape, and is critical to the life cycles of many native species. However, some ecosystems (such as rainforests) have a low tolerance to fire, while others have adapted to specific fire “regimes” characterised by a combination of fire frequency, extent, intensity and season.

An increase in human presence, particularly that associated with camping activities, has the potential to increase the risk of accidental fires within vegetated areas, disrupting the natural fire regime and adversely affecting vegetation and habitat structure and habitat value for a range of significant species. These impacts can occur over large areas, well beyond the source of the fire, and can be long-lasting or irreversible.

4.2 RISK OF SIGNIFICANT IMPACTS UPON MNES

The following sections assess the risk of potentially significant impacts (i.e. beyond the risks of those impacts occurring as a result of the ongoing use of the Cooloola Great Walk and existing camps in the absence of any additional accommodation sites) on MNES, to determine the management measures required to eliminate the risks, or reduce or maintain risks at low levels.

The significance of potential impacts is based on recognised criteria for the matter being assessed, while risk levels have been assessed on the basis of the risk assessment matrix shown in **Figure 4.1**.

Likelihood	Consequence	
	Minor	Significant
Improbable	Low Risk	Low Risk
Possible	Low Risk	Moderate Risk
Probable	Low Risk	High Risk

Figure 4.1. Risk assessment matrix

4.2.1 Fire

Under certain conditions, accidental fires resulting from the operation of the proposed accommodation site would have the potential to result in significant impacts on all MNES occurring within the surrounding National Park. However, it is acknowledged that there is, and will continue to be, an existing risk of accidental fire from the

ongoing use of the Cooloola Great Walk and existing camping areas in the absence of any additional accommodation sites. Consequently, without appropriate management, the risk of an increase in these impacts as a result of the operation of the proposed accommodation site is assessed as low-moderate. This risk is able to be reduced or maintained at low levels through:

- restrictions on campfires and the numbers of guests,
- preventing use of the accommodation site during periods of extreme or catastrophic bushfire danger,
- ensuring site and equipment maintenance is undertaken at appropriate intervals,
- using dedicated storage structures for flammable liquids,
- ensuring guests are accompanied and supervised by highly trained guides, and
- educating guests on the causes and impacts of fire.

4.2.2 Other Potential Impacts

The field surveys have determined the construction and operation of the proposed lease area may result in impacts upon the following MNES:

- **Endangered Ecological Communities**, including the Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland TEC.
- **Endangered Fauna Species**, including Oxleyan Pygmy Perch.
- **Vulnerable Fauna Species**, including Wallum Sedgefrog, Three-toed Snake-tooth Skink and Grey-headed Flying-fox.
- **Migratory Fauna Species**, including , Rufous Fantail and Black-faced Monarch.

Tables 4.1 to 4.4 summarise an assessment of the significance and risk of potential impacts (other than fire – refer **Section 4.2.1**) upon these MNES, based on the criteria specified in the *Matters of National Environmental Significance: Significant Impact Guidelines 1.1* (DotE 2013). This includes an assessment of the risk of significant impact in the absence of impact management, and a description of impact management measures to eliminate the risk or achieve/maintain a low “residual” (post-management) risk.

Table 4.1: Assessment against significant impact criteria for Endangered TECs

Significant Impact Criteria	Potential Impact	Risk of Significant Impact without Impact Management	Impact Management Measures to Eliminate Risk, or Achieve/Maintain Low Residual Risk
<p><i>An action is likely to have a significant impact on an Endangered TEC if there is a real chance or possibility that it will:</i></p> <p><i>Reduce the extent of an ecological community</i></p>	<p>Possible minor impact without management. The establishment of accommodation infrastructure and associated access could result in the accidental removal of, or damage to, some nearby TEC vegetation.</p>	<p>Low Risk. This impact could occur in the absence of appropriate site design and management, but the extent of the impact would be very low (i.e. a small number of trees/shrubs).</p>	<p>Low residual risk with the following management measures:</p> <ul style="list-style-type: none"> • Incorporate suitable buffers (at least 20m) between higher risk elements of the development (e.g. wastewater sources, significant excavation, large footprint structures) and the adjacent TEC as part of detailed site design. • Clearly delineate and communicate clearing footprint boundaries and “no-go” areas during construction.
<p><i>Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines</i></p>	<p>Improbable minor impact without management. The establishment and operation of the proposed accommodation infrastructure would not fragment or increase fragmentation of the TEC.</p>	<p>n/a</p>	<p>n/a</p>
<p><i>Adversely affect habitat critical to the survival of an ecological community</i></p>	<p>Possible minor impact without management. The clearing of vegetation could lead to edge effects that extend into the nearby TEC. Construction/maintenance vehicles and accommodation guests could introduce and/or spread weed species and plant pathogens through unauthorised or inadvertent access into the nearby TEC.</p>	<p>Low Risk. Removal of some of the previously undisturbed canopy may lead to edge effects that extend into surrounding vegetation, including the nearby TEC, although the impact is unlikely to be significant given the canopy of the vegetation to be cleared is naturally very sparse. The spread of existing weed species is likely to occur without appropriate management measures, although the introduction of new species and pathogens beyond that which would occur from ongoing use of the Great Walk and existing camp sites is unlikely. Evidence of feral pig activity was recorded throughout this site during the field survey, suggesting this pest species is already established in the area.</p>	<p>Low residual risk with the following management measures:</p> <ul style="list-style-type: none"> • Position infrastructure within existing cleared areas and/or avoid the removal of canopy vegetation wherever possible. • Restrict the numbers of guests and ensure they are accompanied and supervised by highly trained guides and educated on access restrictions and the avoidance of environmental impact, particularly in relation to the introduction and spread of weeds and plant pathogens. • Cancel or postpone tours in response to high biosecurity risks. • Prepare and implement Environmental Management Plans that commit to the ongoing maintenance of the sites and appropriate environmental standards over the life of the project, and the ongoing monitoring and management of impacts. For example: <ul style="list-style-type: none"> – Ensure construction equipment and vehicles are cleaned and certified “weed free” before entering the National Park.

Significant Impact Criteria	Potential Impact	Risk of Significant Impact without Impact Management	Impact Management Measures to Eliminate Risk, or Achieve/Maintain Low Residual Risk
			<ul style="list-style-type: none"> - Provide chemical footbaths at the commencement of the Great Walk trail and at each accommodation site. - Train tour guides in the identification of weeds, feral pig presence and other indicators of ecological impact, such that they can provide regular feedback as part of a broader monitoring regime.
<p><i>Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns</i></p>	<p>Improbable minor impact without management. The establishment and operation of accommodation infrastructure and associated access would not destroy abiotic necessary for the ecological community's survival. In particular, there are no drainage lines impacted, and the site is positioned on highly permeable, sandy substrates with limited earthworks required. Hence, a substantial alteration of surface water drainage patterns and/or a reduction of groundwater levels would not be expected.</p>	n/a	n/a
<p><i>Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting</i></p>	<p>Improbable minor impact without management. The establishment and operation of accommodation infrastructure and associated access would not cause a substantial change in the species composition of the ecological communities occurring in the vicinity.</p>	n/a	n/a
<p><i>Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:</i></p> <ul style="list-style-type: none"> - assisting invasive species, that are harmful to the listed ecological community, to become established, or - causing regular mobilisation of fertilisers, herbicides or other 	<p>Possible minor impact without management. The clearing of vegetation could lead to edge effects that extend into the nearby TEC. Construction/maintenance vehicles and accommodation guests could introduce and/or spread weed species and plant pathogens through unauthorised or inadvertent access into the nearby TEC.</p>	<p>Low Risk. Removal of some of the previously undisturbed canopy may lead to edge effects that extend into surrounding vegetation, including the nearby TEC, although the impact is unlikely to be significant given the canopy of the vegetation to be cleared is naturally very sparse. The spread of existing weed species is likely to occur without appropriate management measures, although the introduction of new species and</p>	<p>Low residual risk with the following management measures:</p> <ul style="list-style-type: none"> • Position infrastructure within existing cleared areas and/or avoid the removal of canopy vegetation wherever possible. • Restrict the numbers of guests and ensure they are accompanied and supervised by highly trained guides and educated on access restrictions and the avoidance of environmental impact, particularly in relation to the introduction and spread of weeds and plant pathogens.

Significant Impact Criteria	Potential Impact	Risk of Significant Impact without Impact Management	Impact Management Measures to Eliminate Risk, or Achieve/Maintain Low Residual Risk
<i>chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community</i>		pathogens beyond that which would occur from ongoing use of the Great Walk and existing camp sites is unlikely. Evidence of feral pig activity was recorded throughout this site during the field survey, suggesting this pest species is already established in the area.	<ul style="list-style-type: none"> Cancel or postpone tours in response to high biosecurity risks. Prepare and implement Environmental Management Plans that commit to the ongoing maintenance of the sites and appropriate environmental standards over the life of the project, and the ongoing monitoring and management of impacts. For example: <ul style="list-style-type: none"> Ensure construction equipment and vehicles are cleaned and certified "weed free" before entering the National Park. Provide chemical footbaths at the commencement of the Great Walk trail and at each accommodation site. Train tour guides in the identification of weeds, feral pig presence, and other indicators of ecological impact, such that they can provide regular feedback as part of a broader monitoring regime.
<i>Interfere with the recovery of an ecological community.</i>	Improbable minor impact without management. The establishment and operation of the proposed accommodation infrastructure and associated access would not interfere with the recovery of the TEC.	n/a	n/a

Table 4.2: Assessment against significance impact criteria for Endangered fauna species

Significant Impact Criteria	Potential Impact	Risk of Significant Impact without Impact Management	Impact Management Measures to Eliminate Risk, or Achieve/Maintain Low Residual Risk
<i>An action is likely to have a significant impact on an Endangered species if there is a real chance or possibility that it will: Lead to a long-term decrease in the size of a population</i>	Possible minor impact without management. The establishment of accommodation infrastructure could lead to indirect impacts upon nearby potential habitat for Oxleyan Pygmy Perch.	Low risk Contamination and/or eutrophication of nearby wetland habitat could lead to a long-term decrease in the size of a population without appropriate measures. However, there are no drainage lines impacted, and the site is separated from the nearby wetland habitat by at	Low residual risk with the following management measures: <ul style="list-style-type: none"> Use fully contained septic/wastewater systems, with all waste products removed from site at appropriate intervals. Use dedicated storage structures for hazardous substances, with chemicals for weed treatment managed by specialist contractors and not stored on site. Prepare and implement Environmental Management Plans that commit to the ongoing maintenance of the site and appropriate environmental standards over the life of the

Significant Impact Criteria	Potential Impact	Risk of Significant Impact without Impact Management	Impact Management Measures to Eliminate Risk, or Achieve/Maintain Low Residual Risk
		least 20m of woodland vegetation. Hence, contamination or eutrophication of this wetland habitat would not be expected.	project, and the ongoing monitoring and management of impacts. <ul style="list-style-type: none"> • Train tour guides in the identification of ecological impact, such that they can provide regular feedback as part of a broader monitoring regime.
<i>Reduce the area of occupancy of the species</i>	Improbable minor impact without management. The establishment and operation of the proposed accommodation infrastructure and associated access will not reduce the area of occupancy of this endangered species.	n/a	n/a
<i>Fragment an existing population into two or more populations</i>	Improbable minor impact without management. The establishment and operation of the proposed accommodation infrastructure and associated access will not fragment existing populations into two or more populations.	n/a	n/a
<i>Adversely affect habitat critical to the survival of a species</i>	Possible minor impact without management. Potential habitat for Oxleyan Pygmy Perch near to the site could be impacted by contamination and eutrophication. Construction/maintenance vehicles and accommodation guests could introduce and/or spread weed species and plant/animal pathogens through unauthorised or inadvertent access into habitat for this endangered species.	Low Risk. Contamination and/or eutrophication of nearby wetland habitat could adversely affect important habitat for this species. However, there are no drainage lines impacted, and the site is separated from the nearby wetland habitat by at least 20m of woodland vegetation. Hence, contamination or eutrophication of this wetland habitat would not be expected. The spread of existing weed species is likely to occur without appropriate measures, although the introduction of new species and pathogens beyond that which would occur from ongoing use of the Great Walk and existing camp sites is unlikely. Evidence of feral pig activity was recorded throughout this site during the field survey,	Low residual risk with the following management measures: <ul style="list-style-type: none"> • Use fully contained septic/wastewater systems, with all waste products removed from site at appropriate intervals. • Use dedicated storage structures for hazardous substances, with chemicals for weed treatment managed by specialist contractors and not stored on site. • Prepare and implement Environmental Management Plans that commit to the ongoing maintenance of the sites and appropriate environmental standards over the life of the project, and the ongoing monitoring and management of impacts. • Train tour guides in the identification of ecological impact, such that they can provide regular feedback as part of a broader monitoring regime.

Significant Impact Criteria	Potential Impact	Risk of Significant Impact without Impact Management	Impact Management Measures to Eliminate Risk, or Achieve/Maintain Low Residual Risk
		suggesting this pest species is already established in the area.	
<i>Disrupt the breeding cycle of a population</i>	<p>Possible minor impact without management.</p> <p>Potential impacts to habitat for Oxleyan Pygmy Perch near to the site from contamination and eutrophication could disrupt the breeding cycle of this species at this location.</p>	<p>Low Risk.</p> <p>Contamination and/or eutrophication of nearby wetland habitat could adversely affect important habitat for this species. However, there are no drainage lines impacted, and the site is separated from the nearby wetland habitat by at least 20m of woodland vegetation. Hence, contamination or eutrophication of this wetland habitat would not be expected.</p>	<p>Low residual risk with the following management measures:</p> <ul style="list-style-type: none"> • Use fully contained septic/wastewater systems, with all waste products removed from site at appropriate intervals. • Use dedicated storage structures for hazardous substances, with chemicals for weed treatment managed by specialist contractors and not stored on site. • Prepare and implement Environmental Management Plans that commit to the ongoing maintenance of the sites and appropriate environmental standards over the life of the project, and the ongoing monitoring and management of impacts. • Training tour guides in the identification of animal breeding places, such that they can provide feedback on potential impacts to animal breeding activity as part of a broader monitoring and impact mitigation regime.
<i>Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline</i>	<p>Improbable minor impact without management.</p> <p>The establishment and operation of accommodation infrastructure and associated access would not modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that this endangered species is likely to decline.</p>	n/a	n/a
<i>Result in invasive species that are harmful to the species becoming established in the species' habitat</i>	<p>Possible minor impact without management.</p> <p>General waste and land disturbance have the potential to attract predatory exotic fauna species.</p>	<p>Low Risk.</p> <p>The introduction or spread of predatory exotic fauna species beyond that which has already occurred or that would occur from ongoing use of the Great Walk and existing camp sites is unlikely. Evidence of feral pig activity was recorded throughout this site during the field survey, suggesting this pest species is already established in the area.</p>	<p>Low residual risk with the following management measures:</p> <ul style="list-style-type: none"> • Restrict the numbers of guests and ensure they are accompanied and supervised by highly trained guides and educated on the avoidance of environmental impact, including the containment of waste. <ul style="list-style-type: none"> - Train tour guides in the identification of ecological impact, including evidence of feral pigs and other pest animal species, such that they can provide regular feedback as part of a broader monitoring regime.
<i>Introduce disease that may cause the species to decline</i>	<p>Possible minor impact without management.</p>	<p>Low Risk.</p> <p>The introduction of new pathogens beyond that which</p>	<p>Low residual risk with the following management measures:</p>

Significant Impact Criteria	Potential Impact	Risk of Significant Impact without Impact Management	Impact Management Measures to Eliminate Risk, or Achieve/Maintain Low Residual Risk
	Construction/maintenance vehicles and accommodation guests could introduce and/or spread animal pathogens through unauthorised or inadvertent access into habitat for endangered species.	would occur from ongoing use of the Great Walk and existing camp sites is unlikely.	<ul style="list-style-type: none"> Restrict the numbers of guests and ensure they are accompanied and supervised by highly trained guides and educated on access restrictions and the avoidance of environmental impact, particularly in relation to unauthorised access and the introduction and spread animal pathogens. <ul style="list-style-type: none"> Train tour guides in the identification of ecological impact, such that they can provide regular feedback as part of a broader monitoring regime.
<i>Interfere with the recovery of the species.</i>	Improbable minor impact without management. The establishment and operation of the proposed accommodation infrastructure and associated access would not interfere with the recovery of this endangered species.	n/a	n/a

Table 4.3: Assessment against significance impact criteria for Vulnerable fauna species

Significant Impact Criteria	Potential Impact	Risk of Significant Impact without Impact Management	Impact Management Measures to Eliminate Risk, or Achieve/Maintain Low Residual Risk
<p><i>An action is likely to have a significant impact on a Vulnerable species if there is a real chance or possibility that it will:</i></p> <p><i>Lead to a long-term decrease in the size of an important population³ of a species</i></p>	Possible minor impact without management. The establishment of accommodation infrastructure and associated access could result in the removal of <0.5 ha of habitat for Three-toed Snake-tooth Skink and Grey-headed Flying-fox. The removal of vegetation can also facilitate the incursion of pest species deeper into woodlands and forests, while general waste and land disturbance have the potential to attract predatory exotic fauna species.	Low Risk. Removal of habitat will occur, although the extent of habitat loss compared to that which will be retained within the surrounding landscape will be negligible. The introduction or spread of predatory exotic fauna species beyond that which has already occurred or that would occur from ongoing use of the Great Walk and existing camp sites is unlikely. Evidence of feral pig activity	Low residual risk with the following management measures: <ul style="list-style-type: none"> Position infrastructure within existing cleared areas wherever possible, and limit the removal of vegetation to that absolutely necessary for the establishment and operation of the camping area and associated access. Avoid the removal of important habitat features for Three-toed Snake-tooth Skink, Wallum Sedgefrog and Grey-headed Flying-fox wherever possible. Use appropriately qualified fauna spotters during vegetation clearing to ensure threatened fauna and

³ The *National recovery plan for the wallum sedgefrog and other wallum-dependent frog species* (Meyer et al, 2006) indicates the Great Sandy National Park comprises an important population for Wallum Sedgefrog.

The *Draft Recovery Plan for the Grey-headed Flying-fox Pteropus poliocephalus* (Commonwealth of Australia, 2017), suggests Grey-headed Flying-foxes utilising the National Park are part of a single, mobile population distributed across Queensland, NSW, Victoria, South Australia, Tasmania and the ACT; this would be considered an “important population”.

The potential occurrence of Three-toed Snake-tooth Skink, within relatively intact habitat within a protected area, suggests it may be part of an important population from a conservation perspective.

Significant Impact Criteria	Potential Impact	Risk of Significant Impact without Impact Management	Impact Management Measures to Eliminate Risk, or Achieve/Maintain Low Residual Risk
		was recorded throughout this site during the field survey, suggesting this pest species is already established in the area.	important habitat features are appropriately managed. <ul style="list-style-type: none"> Clearly delineate and communicate clearing footprint boundaries and “no-go” areas during construction. Restrict the numbers of guests and ensure they are accompanied and supervised by highly trained guides and educated the avoidance of environmental impact, including the containment of waste. Train tour guides in the identification of ecological impact, including evidence of feral pigs and other pest animal species, such that they can provide regular feedback as part of a broader monitoring regime.
<i>Reduce the area of occupancy of an important population</i>	Improbable minor impact without management. The establishment and operation of the proposed accommodation infrastructure and associated access will not reduce the area of occupancy of these vulnerable species.	n/a	n/a
<i>Fragment an existing important population into two or more populations</i>	Improbable minor impact without management. The establishment and operation of the proposed accommodation infrastructure and associated access will not fragment existing populations into two or more populations.	n/a	n/a
<i>Adversely affect habitat critical to the survival of a species</i>	Possible minor impact without management. The clearing of vegetation could lead to edge effects that extend into adjacent habitat. Construction/maintenance vehicles and accommodation guests could introduce and/or spread weed species and plant/animal pathogens through unauthorised or inadvertent access into habitat for these vulnerable species. The establishment and operation of the proposed accommodation infrastructure could impact adjacent, retained habitat through excess noise and artificial light. Wetland habitat for Wallum Sedgefrog near to the site could be impacted by increased local nutrient loads and contamination.	Low Risk. Grey-headed Flying-fox regularly forages and breeds in close proximity to human settlements. Removal of the previously undisturbed canopy may lead to edge effects that extend into surrounding habitat, although the impact is unlikely to be significant. The spread of existing weed species is likely to occur without appropriate measures, but the introduction of new species and pathogens beyond that which would occur from ongoing use of	Low residual risk with the following management measures: <ul style="list-style-type: none"> Position infrastructure within existing cleared areas and/or avoid the removal of canopy vegetation wherever possible. Restrict the numbers of guests and ensure they are accompanied and supervised by highly trained guides and educated on access restrictions and the avoidance of environmental impact, particularly in relation to unauthorised access and the introduction and spread of weeds and plant/animal pathogens, and excess noise. Cancel or postpone tours in response to high biosecurity risks.

Significant Impact Criteria	Potential Impact	Risk of Significant Impact without Impact Management	Impact Management Measures to Eliminate Risk, or Achieve/Maintain Low Residual Risk
		<p>the Great Walk and existing camp sites is unlikely.</p> <p>Evidence of feral pig activity was recorded throughout this site during the field survey, suggesting this pest species is already established in the area.</p> <p>Excess noise and artificial light are likely to impact surrounding habitat without appropriate measures, although the frequency and extent of the impact is unlikely to be significant.</p> <p>Contamination and/or eutrophication of nearby wetland habitat could impact important breeding habitat for Wallum Sedgefrog. However, there are no drainage lines impacted, and the site is separated from the nearby wetland habitat by at least 20m of woodland vegetation. Hence, contamination or eutrophication of this wetland habitat would not be expected.</p>	<ul style="list-style-type: none"> • Incorporate site designs that minimise impacts from artificial lighting. • Use fully contained septic/wastewater systems, with all waste products removed from site at appropriate intervals. • Use dedicated storage structures for hazardous substances, with chemicals for weed treatment managed by specialist contractors and not stored on site. • Prepare and implement Environmental Management Plans that commit to the ongoing maintenance of the site and appropriate environmental standards over the life of the project, and the ongoing monitoring and management of impacts. For example: <ul style="list-style-type: none"> - Ensure construction equipment and vehicles are cleaned and certified “weed free” before entering the National Park. - Provide chemical footbaths at the commencement of the Great Walk trail and at each accommodation site. - Train tour guides in the identification of ecological impact, so they can provide regular feedback as part of a broader monitoring regime.
<p><i>Disrupt the breeding cycle of an important population</i></p>	<p>Possible minor impact without management.</p> <p>Potential impacts to retained habitat near to the site from excess noise and light, contamination and eutrophication, could disrupt the breeding cycle of Wallum Sedgefrog.</p> <p>Grey-headed Flying-fox regularly forages and breeds in close proximity to human settlements. Their breeding cycle is unlikely to be disrupted by the establishment and operation of the proposed accommodation infrastructure.</p>	<p>Low Risk.</p> <p>Excess noise and artificial light are likely to impact adjacent habitat without appropriate measures, although the frequency and extent of the impact is unlikely to be significant.</p> <p>Contamination and/or eutrophication of adjacent wetland habitats could significantly impact important breeding habitat for Wallum Sedgefrog. However, there are no drainage lines impacted, and the site is separated from the nearby wetland habitat by at least 20m of woodland vegetation. Hence, contamination or eutrophication of this wetland habitat would not be expected.</p>	<p>Low residual risk with the following management measures:</p> <ul style="list-style-type: none"> • Restrict the numbers of guests and ensure they are accompanied and supervised by highly trained guides and educated on access restrictions and the avoidance of environmental impact, particularly in relation to unauthorised access and the introduction and spread of weeds and plant/animal pathogens, and excess noise. • Cancel or postpone tours in response to high biosecurity risks. • Incorporate site designs that minimise impacts from artificial lighting. • Use fully contained septic/wastewater systems, with all waste products removed from site at appropriate intervals.

Significant Impact Criteria	Potential Impact	Risk of Significant Impact without Impact Management	Impact Management Measures to Eliminate Risk, or Achieve/Maintain Low Residual Risk
			<ul style="list-style-type: none"> • Use dedicated storage structures for hazardous substances, with chemicals for weed treatment managed by specialist contractors and not stored on site. • Prepare and implement Environmental Management Plans that commit to the ongoing maintenance of the site and appropriate environmental standards over the life of the project, and the ongoing monitoring and management of impacts. For example: <ul style="list-style-type: none"> - Ensure construction equipment and vehicles are cleaned and certified “weed free” before entering the National Park. - Provide chemical footbaths at the commencement of the Great Walk trail and at each accommodation site. - Train tour guides in the identification of ecological impact, such that they can provide regular feedback as part of a broader monitoring regime. - Training tour guides in the identification of animal breeding places/activity, so they can provide feedback on potential impacts as part of a broader monitoring and impact mitigation regime.
<p><i>Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline</i></p>	<p>Improbable minor impact without management. The establishment and operation of accommodation infrastructure and associated access would not modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that these vulnerable species are likely to decline.</p>	<p>n/a</p>	<p>n/a</p>
<p><i>Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat</i></p>	<p>Possible minor impact without management. General waste and land disturbance have the potential to attract predatory exotic fauna species.</p>	<p>Low Risk. The introduction or spread of predatory exotic fauna species beyond that which has already occurred or that would occur from ongoing use of the Great Walk and existing camp sites is unlikely. Evidence of feral pig activity was recorded throughout this site during the field survey, suggesting this</p>	<p>Low residual risk with the following management measures:</p> <ul style="list-style-type: none"> • Restrict the numbers of guests and ensure they are accompanied and supervised by highly trained guides and educated the avoidance of environmental impact, including the containment of waste. • Train tour guides in the identification of ecological impact, including evidence of feral pigs and other pest animal species, such that they can provide

Significant Impact Criteria	Potential Impact	Risk of Significant Impact without Impact Management	Impact Management Measures to Eliminate Risk, or Achieve/Maintain Low Residual Risk
		pest species is already established in the area.	regular feedback as part of a broader monitoring regime.
<i>Introduce disease that may cause the species to decline</i>	Possible minor impact without management. Construction/maintenance vehicles and accommodation guests could introduce and/or spread animal pathogens through unauthorised or inadvertent access into habitat for these vulnerable species.	Low Risk. The introduction of new pathogens beyond that which would occur from ongoing use of the Great Walk and existing camp sites is unlikely.	Low residual risk with the following management measures: <ul style="list-style-type: none"> Restrict the numbers of guests and ensure they are accompanied and supervised by highly trained guides and educated on access restrictions and the avoidance of environmental impact, particularly in relation to unauthorised access and the introduction and spread animal pathogens. Train tour guides in the identification of ecological impact, such that they can provide regular feedback as part of a broader monitoring regime.
<i>Interfere with the recovery of the species</i>	Improbable minor impact without management. The establishment and operation of the proposed accommodation infrastructure and associated access would not interfere with the recovery of these vulnerable species.	n/a	n/a

Table 4.4: Assessment against significance impact criteria for Migratory fauna species

Significant Impact Criteria	Potential Impact	Risk of Significant Impact without Impact Management	Impact Management Measures to Eliminate Risk, or Achieve/Maintain Low Residual Risk
<i>An action is likely to have a significant impact on a Migratory species if there is a real chance or possibility that it will:</i> <i>Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of</i>	Possible minor impact without management. The establishment of proposed accommodation infrastructure and associated access could result in the removal of <0.5 ha of habitat for Black-faced Monarch and Rufous Fantail.	Low Risk. These species are common, widely-distributed species that are neither known to be declining nor at the limit of their range within the local area. Potential impacts from clearing, edge effects, excessive noise and artificial light, are negligible compared to the extent of habitat available within the surrounding landscape. These impacts will not substantially modify, destroy or isolate an area of important habitat for these migratory species.	Low residual risk with the following management measures: <ul style="list-style-type: none"> Position infrastructure within existing cleared areas wherever possible, and limit the removal of vegetation to that absolutely necessary for the establishment and operation of the camping area and associated access.

Significant Impact Criteria	Potential Impact	Risk of Significant Impact without Impact Management	Impact Management Measures to Eliminate Risk, or Achieve/Maintain Low Residual Risk
<i>important habitat⁴ for a migratory species</i>			
<i>Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species</i>	Possible minor impact without management. The clearing of vegetation and resultant edge effects on adjacent habitat could facilitate the introduction or spread of aggressive, native “edge” species that may be harmful to the relevant migratory species.	Low risk. The introduction or spread of aggressive, native “edge” species beyond that which has already occurred or that would occur from ongoing use of the Great Walk and existing camp sites is unlikely.	Low residual risk with the following management measures: <ul style="list-style-type: none"> Position infrastructure within existing cleared areas wherever possible, and limit the removal of vegetation to that absolutely necessary for the establishment and operation of each camping area and associated access.
<i>Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species</i>	Possible minor impact without management. The establishment of proposed accommodation infrastructure and associated access could result in the removal of <0.5 ha of habitat for Black-faced Monarch and Rufous Fantail.	Low Risk. These species are common, widely-distributed species that are neither known to be declining nor at the limit of their range within the local area. Potential impacts from clearing, edge effects, excessive noise and artificial light, are negligible compared to the extent of habitat available within the surrounding landscape. These impacts will not seriously disrupt the lifecycle of an ecologically significant proportion of the population of these migratory species.	Low residual risk with the following management measures: <ul style="list-style-type: none"> Position infrastructure within existing cleared areas wherever possible, and limit the removal of vegetation to that absolutely necessary for the establishment and operation of the camping area and associated access.

⁴ The *Matters of National Environmental Significance: Significant Impact Guidelines* (DotE 2013) define an area of “important habitat” for a migratory species as:

- habitat utilised by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population of the species, and/or
- habitat that is of critical importance to the species at particular life-cycle stages, and/or
- habitat utilised by a migratory species which is at the limit of the species range, and/or
- habitat within an area where the species is declining.

The guidelines also suggest that, what is an “ecologically significant proportion” of the population varies with the species, and requires consideration of the species’ population status, genetic distinctiveness and species specific behavioural patterns (for example, site fidelity and dispersal rates).

It is unknown whether the National Park represents “important habitat” for any of the known or potentially occurring migratory species, and/or if an “ecologically significant proportion” of the population occurs within the National Park. This assessment assumes the National Park may represent important habitat and/or support an ecologically significant proportion of the population for one or more of the relevant species.

4.3 RISK OF SIGNIFICANT IMPACTS UPON MSES

4.3.1 Fire

Under certain conditions, accidental fires resulting from the operation of the proposed lease area would have the potential to result in significant impacts on all MSES occurring within the surrounding National Park. However, it is acknowledged that there is, and will continue to be, an existing risk of accidental fire from the ongoing use of the Cooloola Great Walk and existing camping areas in the absence of any additional accommodation sites. Consequently, without appropriate management, the risk of an increase in these impacts as a result of the operation of the proposed accommodation site is assessed as low-moderate. This risk is able to be reduced or maintained at low levels through restrictions on campfires and the numbers of guests, preventing use of the accommodation sites during periods of extreme or catastrophic bushfire danger, ensuring site and equipment maintenance is undertaken at appropriate intervals, using dedicated storage structures for flammable liquids, ensuring guests are accompanied and supervised by highly trained guides, and educating guests on the causes and impacts of fire.

4.3.2 Other Potential Impacts

It is understood the proposed activities will constitute “prescribed activities” conducted under an authority granted, made, issued or given under the NC Act in a protected area, which require assessment of impacts to relevant “prescribed environmental matters” prior to the issuing of the authority. For prescribed activities conducted under an authority granted, made, issued or given under the NC Act in a protected area, all MSES listed in Schedule 2 of the *Environmental Offsets Regulation* are relevant “prescribed environmental matters” requiring assessment.

The field surveys have confirmed the construction and operation of the proposed lease area could result in impacts upon the following prescribed MSES, without appropriate management:

- **Regulated Vegetation**, including:
 - remnant vegetation intersecting with a mapped wetland; and
 - essential habitat.
- **Wetlands of High Ecological Significance.**

- **Protected Wildlife Habitat for Endangered or Vulnerable Fauna Species**, including Oxleyan Pygmy Perch, Wallum Froglet, Wallum Sedgefrog, Wallum Rocketfrog, Southern Emu-wren and Koala.
- **Protected Areas** (Great Sandy National Park).

Table 4.5 summarises an assessment of the significance of potential impacts (other than fire – refer **Section 4.3.1**) upon these prescribed MSES, based on the criteria specified in the State Government’s Significant Residual Impact Guideline for matters assessed under the NC Act, *Environmental Protection Act 1994* and *Marine Parks Act 2004*. This includes an assessment of the risk of significant impact in the absence of impact management, and a description of impact management measures to eliminate the risk or achieve/maintain a low “residual” (post-management) risk.

Table 4.5: Assessment against significance impact criteria for prescribed MSES

Prescribed MSES	Significant Impact Criteria	Potential Impact	Risk of Significant Impact without Impact Management	Impact Management Measures to Eliminate Risk, or Achieve/Maintain Low Residual Risk
Regulated Vegetation - Remnant vegetation intersecting with a mapped wetland	For clearing for linear infrastructure:- greater than 10m wide in a dense to mid-dense (structural category) regional ecosystem. For clearing other than clearing for linear infrastructure: - area greater than 0.5 ha where in a dense to mid-dense (structural category) regional ecosystem. and ⁵ Clearing within 50m of the defining bank.	Improbable minor impact without management. The proposed lease area is separated from the nearby, mapped wetland habitat by at least 20m of woodland vegetation. Hence, no clearing of the mapped wetland vegetation would be expected.	n/a	n/a
Regulated Vegetation - Essential habitat.	As for Protected Wildlife Habitat (see below).	As for Protected Wildlife Habitat (see below).	As for Protected Wildlife Habitat (see below).	As for Protected Wildlife Habitat (see below).
Wetlands of High Ecological Significance	An action is likely to have a significant residual impact on prescribed wetlands or watercourses if it is likely that the action will result in environmental values being affected in any of the following ways: <ul style="list-style-type: none"> • areas of the wetland or watercourse being destroyed or artificially modified; • a measurable change in water quality of the wetland or watercourse—for example a change in the level of the physical and/or chemical characteristics of the water, including salinity, pollutants, or nutrients in the wetland or watercourse, to a level that exceeds the water quality guidelines for the waters; or • the habitat or lifecycle of native species, including invertebrate fauna and fish species, dependent upon the wetland being seriously affected; or 	Possible minor impact without management. The establishment of accommodation infrastructure and associated access will occur near to a mapped wetland of high ecological significance, which may result in this wetland being artificially modified through increased local nutrient loads and contamination. Construction/maintenance vehicles and accommodation guests could introduce and/or spread weed species and plant/animal pathogens through unauthorised or	Low Risk. Contamination and/or eutrophication of the nearby wetland could impact this feature. However, there are no drainage lines impacted, and the field survey has determined the site is separated from nearby wetland habitat by at least 20m of woodland vegetation. Hence, contamination or eutrophication of this wetland habitat would not be expected. The introduction or spread of predatory exotic fauna species beyond that which has	Low residual risk with the following management measures: <ul style="list-style-type: none"> • Restrict the numbers of guests and ensure they are accompanied and supervised by highly trained guides and educated on access restrictions and the avoidance of environmental impact, particularly in relation to unauthorised access, the introduction and spread of weeds and plant/animal pathogens, and the containment of waste. • Cancel or postpone tours in response to high biosecurity risks. • Use fully contained septic/wastewater systems, with all waste products removed from site at appropriate intervals. • Use dedicated storage structures for hazardous substances, with chemicals for weed treatment managed by specialist contractors and not stored on site. • Prepare and implement Environmental Management Plans that commit to the ongoing maintenance of the sites and appropriate environmental standards over the life of

⁵ For a prescribed activity to have a significant residual impact on a regional ecosystem that lies within a mapped wetland, both sets of criteria 1 and 2 must be exceeded.

Prescribed MSES	Significant Impact Criteria	Potential Impact	Risk of Significant Impact without Impact Management	Impact Management Measures to Eliminate Risk, or Achieve/Maintain Low Residual Risk
	<ul style="list-style-type: none"> a substantial and measurable change in the hydrological regime or recharge zones of the wetland, e.g. a substantial change to the volume, timing, duration and frequency of ground and surface water flows to and within the wetland; or an invasive species that is harmful to the environmental values of the wetland being established (or an existing invasive species being spread) in the wetland. 	inadvertent access into the wetland. General waste and land disturbance have the potential to attract predatory exotic fauna species.	already occurred or that would occur from ongoing use of the Great Walk and existing camp sites is unlikely. Evidence of feral pig activity was recorded throughout this site during the field survey, suggesting this pest species is already established in the area.	the project, and the ongoing monitoring and management of impacts. For example: <ul style="list-style-type: none"> Ensure construction equipment and vehicles are cleaned and certified "weed free" before entering the National Park. Provide chemical footbaths at the commencement of the Great Walk trail and at each accommodation site. Train tour guides in the identification of ecological impact, such that they can provide regular feedback as part of a broader monitoring regime.
Protected Wildlife Habitat for Endangered or Vulnerable Fauna Species, including Oxleyan Pygmy Perch, Wallum Froglet, Wallum Sedgefrog, Wallum Rocketfrog and Southern Emu-wren.	An action is likely to have a significant impact on endangered and vulnerable wildlife if the impact on the habitat is likely to: <ul style="list-style-type: none"> lead to a long-term decrease in the size of a local population; or reduce the extent of occurrence of the species; or fragment an existing population; or result in genetically distinct populations forming as a result of habitat isolation; or result in invasive species that are harmful to an endangered or vulnerable species becoming established in the endangered or vulnerable species' habitat; or introduce disease that may cause the population to decline, or interfere with the recovery of the species; or cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species. 	Refer to Tables 4.2 and 4.3 for an assessment of the risk of significant impacts on Oxleyan Pygmy Perch and Wallum Sedgefrog in relation to these criteria. This suggests there is only a low risk of significant impacts to habitat for these species, without appropriate measures. The same levels of risk apply to Wallum Rocketfrog and Southern Emu-wren. Accidental removal of adjacent, potential habitat for Wallum Froglet may occur without adequate controls, although the extent of habitat loss compared to that which will be retained within the surrounding landscape would be negligible.		Low residual risk with the following management measures: <ul style="list-style-type: none"> Position infrastructure within existing cleared areas wherever possible, and limit the removal of vegetation to that absolutely necessary for the establishment and operation of the camping area and associated access. Avoid the removal of important habitat features for threatened fauna species wherever possible. Use appropriately qualified fauna spotters during vegetation clearing to ensure threatened fauna and important habitat features are appropriately managed. Clearly delineate and communicate clearing footprint boundaries and "no-go" areas during construction. Restrict the numbers of guests and ensure they are accompanied and supervised by highly trained guides and educated the avoidance of environmental impact, particularly in relation to the introduction and spread of weeds and plant/animal pathogens, excessive noise, and the containment of waste. Cancel or postpone tours in response to high biosecurity risks. Incorporate site designs that minimise impacts from artificial lighting. Use fully contained septic/wastewater systems, with all waste products removed from site at appropriate intervals. Use dedicated storage structures for hazardous substances, with chemicals for weed treatment managed by specialist contractors and not stored on site. Prepare and implement Environmental Management Plans that commit to the ongoing maintenance of the site and appropriate environmental standards over the life of

Prescribed MSES	Significant Impact Criteria	Potential Impact	Risk of Significant Impact without Impact Management	Impact Management Measures to Eliminate Risk, or Achieve/Maintain Low Residual Risk
				the project, and the ongoing monitoring and management of impacts. For example: <ul style="list-style-type: none"> - Ensure construction equipment and vehicles are cleaned and certified “weed free” before entering the National Park. - Provide chemical footbaths at the commencement of the Great Walk trail and at each accommodation site. - Train tour guides in the identification of ecological impact, including evidence of pest animal species, such that they can provide regular feedback as part of a broader monitoring regime. - Training tour guides in the identification of animal breeding places, such that they can provide feedback on potential impacts to animal breeding activity as part of a broader monitoring and impact mitigation regime.
Protected Wildlife Habitat for Koala ⁶	A significant residual impact on Koala habitat in SEQ is any prescribed activity that will remove a non-juvenile koala habitat tree (i.e. a koala habitat tree that is more than 4m high, or has a trunk with a circumference of more than 31.5cm at 1.3m above the ground).	Possible significant impact without management. The establishment of accommodation infrastructure and associated access lead to the accidental removal of non-juvenile koala habitat trees from within mapped Koala habitat adjacent to the proposed lease area.	Moderate risk. Vegetation clearing activities could result in the accidental removal of non-juvenile koala habitat trees within mapped Koala habitat adjacent to the proposed lease area, without appropriate measures.	Low residual risk with the following management measures: <ul style="list-style-type: none"> • Position infrastructure within existing cleared areas wherever possible, and limit the removal of vegetation to that absolutely necessary for the establishment and operation of the camping area and associated access. • Clearly delineate and communicate clearing footprint boundaries and “no-go” areas during construction.
Protected Areas (Great Sandy National Park).	Under section 8(2) of the <i>Environmental Offsets Act 2014</i> , an impact on a protected area is significant if a prescribed activity results, or will or is likely to result, in one or more of the following: <ul style="list-style-type: none"> • the authorised clearing or inundation of all or part of the protected area for the 	High Risk. The proposed infrastructure will result in the authorised clearing of parts of the protected area for the construction of private or publicly owned infrastructure on the area. Hence, there will be a significant impact on the Great Sandy National Park, based on these criteria.		Residual risk of significant (or high) impact is unavoidable, but minimised with the following management measures: <ul style="list-style-type: none"> • Position infrastructure within existing cleared areas wherever possible and limit the removal of vegetation to that absolutely necessary for the establishment and operation of the camping area and associated access.

⁶ This impact assessment assumes the extent of Koala habitat matches that ground-truthed during the field survey, as shown on **Figure 3.4**. This would require an amendment to current State mapping, which inaccurately maps Koala habitat within the proposed lease area.

Prescribed MSES	Significant Impact Criteria	Potential Impact	Risk of Significant Impact without Impact Management	Impact Management Measures to Eliminate Risk, or Achieve/Maintain Low Residual Risk
	construction of private or publicly owned infrastructure on the area; • the exclusion of, or reduction in, the public use or enjoyment of all or part of the protected area; • a reduction in the natural or cultural values of all or part of the protected area.			

5.0 IMPACT MANAGEMENT

The assessments outlined in **Sections 4.2 and 4.3** have determined there is a low risk that the proposed activities will result in a significant impact on MNES and a low to high risk that the proposed activities will result in a significant impact on MSES. Accordingly, measures are required to eliminate or achieve/maintain a low risk of significant impact, as also outlined in **Sections 4.2 and 4.3**. In this respect, the overarching principle of relevant State and Commonwealth environmental protection policies is to avoid impacts as much as possible in the first instance, following which mitigation measures are used in an attempt to reduce unavoidable impacts to acceptable/insignificant levels. Where impacts remain at unacceptable/significant levels post-mitigation, only then should compensatory measures (e.g. offsets) be employed as a last resort.

5.1 IMPACT AVOIDANCE

The most effective means of avoiding direct impacts associated with the removal of vegetation and associated loss of habitat and flora species is through appropriate development footprint location and design.

The positioning of the proposed lease area outside of ground-truthed TECs, wetland habitat and core Koala habitat avoids direct impacts on the majority of MNES and MSES.

Other key measures recommended for the purposes of impact avoidance include:

- Positioning of the site and associated infrastructure to include existing cleared areas wherever possible.
 - Avoiding notable habitat trees and other canopy trees wherever possible.
 - Use of an appropriately qualified ecologist during vegetation clearing to ensure direct impacts to threatened or near threatened species and other significant ecological features are avoided in accordance with site design.
 - Using fully contained septic/wastewater systems, with all waste products removed from site at appropriate intervals.
 - Using dedicated storage structures for flammable liquids and other hazardous substances, with chemicals for weed treatment managed by specialist contractors and not stored on site.
- Limiting guests per night/tour to small numbers (<30), with all guests accompanied and supervised by highly trained guides and educated on the avoidance of environmental impact, particularly in relation to fire and access restrictions to prevent unnecessary impacts to vegetation and important habitat, and containment of waste.
 - Cancelling or postponing tours during periods of extreme or catastrophic bushfire danger and/or in response to high biosecurity risks.
 - Preparation and implementation of Environmental Management Plans that commit to the ongoing maintenance of the site and appropriate environmental standards over the life of the project, and the ongoing monitoring and management of avoidable impacts.

5.2 IMPACT MITIGATION

Key measures outlined for the purposes of impact mitigation include:

- Limiting the total removal of vegetation and associated habitat to the smallest area possible to accommodate structures and associated access.
- Incorporating suitable buffers (at least 20 m) between high risk elements of the development (e.g. wastewater sources, significant excavation, large footprint structures) and the nearby, ground-truthed Wetland of State significance as part of detailed site design.
- Use of appropriately qualified fauna spotters during vegetation clearing to ensure any resident fauna and important habitat features are appropriately managed.
- Incorporating site designs that minimise impacts from artificial lighting.
- Limiting guests per night/tour to small numbers (<30), with all guests accompanied and supervised by highly trained guides and educated on the minimisation of ecological impact, particularly in terms of introducing / spreading weeds and plant pathogens, bushfire risk and excessive noise.
- Preparation and implementation of Environmental Management Plans that commit to the ongoing maintenance of the site and appropriate environmental standards over the life of the project, and the ongoing monitoring and mitigation of impacts. For example:

- Ensuring construction equipment and vehicles are cleaned and certified “weed free” before entering the National Park.
- providing chemical footbaths at the commencement of the Great Walk trail and at each accommodation site.
- training tour guides in the identification of weeds and other indicators of ecological impact (such as evidence of plant pathogens and pest animal species), such that they can provide regular feedback as part of a broader monitoring regime.
- training tour guides in the identification of animal breeding places, such that they can provide feedback on potential impacts to animal breeding activity (e.g. if a nest or flying-fox roost is established within or within close proximity to one of the sites) as part of a broader monitoring and impact mitigation regime.

5.3 OFFSETS FOR SIGNIFICANT RESIDUAL IMPACTS

The implementation of the measures outlined in **Sections 5.1 and 5.2** is expected to eliminate or achieve/maintain a low risk of significant impact in relation to the relevant criteria outlined in **Tables 4.1-4.4**. The exception is the authorised clearing of part of the Great Sandy National Park protected area, which is unavoidable and unable to be mitigated to level that would be considered insignificant. Consequently, it is understood an offset or other appropriate conservation outcome would be required to compensate for this impact.

6.0 SITE COMPARISON IN RELATION TO MNES

As noted in **Section 1.0** of this report, one of the objectives of the targeted survey of the newly proposed site near the Noosa River was to inform a comparison between this and the previous site options to determine if any new MNES not previously assessed by the Commonwealth require consideration, and/or whether there is a higher risk of significant impacts to MNES in relation to the newly proposed site.

In terms of new MNES, the newly proposed site occurs adjacent to the Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland TEC, whereas the previously proposed sites do not occur adjacent to this or any other TECs. Even so, the newly proposed site will be positioned to avoid this TEC, and the risk of significant, indirect impacts is assessed as

low (with or without mitigation). Consequently, it is considered a re-referral of the project in relation to potential impacts upon this MNES is not warranted.

In terms of whether there is a higher risk of significant impacts to MNES in relation to the newly proposed site, the risk assessment exercise has determined the following:

- The development of one of the previously proposed sites could impact upon a known specimen of the threatened flora species *Macrozamia pauli-guilielmi*, and the risk of a significant impact upon this MNES is assessed as low-moderate for this site (without mitigation). The other previously proposed site and the newly proposed site do not occur adjacent to any threatened flora species, and the risk of a significant impact upon threatened flora species is assessed as low for these sites (with or without mitigation).
- The previously proposed sites occur directly adjacent to potential habitat for the threatened fauna species Oxleyan Pygmy Perch and Wallum Sedgefrog, whereas the newly proposed site is separated from this wetland/habitat by at least 20m of woodland vegetation. The risk of a significant impact upon these MNES is assessed as low-moderate for the previously proposed sites (without mitigation), but low for the newly proposed site (with or without mitigation).
- All sites comprise potential habitat for the threatened fauna species Three-toed Snake-tooth Skink and Grey-headed Flying-fox, and the risk of a significant impact to these MNES is assessed as low for all sites (with or without mitigation).
- All sites comprise potential habitat for the migratory species Rufous Fantail and Black-faced Monarch, and the risk of a significant impact to these MNES is assessed as low for all sites (with or without mitigation).

Overall, the risk of a significant impact to MNES as a result of developing the previously proposed sites has been assessed as low-moderate for certain MNES (without mitigation), whereas the risk of a significant impact to MNES as a result of developing the newly proposed sites has been assessed as low for all MNES (with or without mitigation). Consequently, it is considered a re-referral of the project in relation to potential increase in the significance of impacts upon MNES is not warranted.

7.0 REFERENCES

- BAAM (2019).** Ecological Desktop Assessment, Premium Ecotourism Products, Cooloola Great Walk. Prepared by Biodiversity Assessment and Management Pty Ltd (BAAM) for the Department of Environment and Science.
- BAAM (2020a).** Ecological Survey Report: Premium Ecotourism Products, Cooloola Great Walk. Prepared by Biodiversity Assessment and Management Pty Ltd (BAAM) for the Department of Environment and Science.
- BAAM (2020b).** 2020 Ecological Survey Report, Premium Ecotourism Products, Cooloola Great Walk. Prepared by Biodiversity Assessment and Management Pty Ltd (BAAM) for the Department of Environment and Science.
- Commonwealth of Australia (2017).** Draft Recovery Plan for the Grey-headed Flying-fox *Pteropus poliocephalus*, January 2017. Commonwealth of Australia, Canberra.
- Department of the Environment (DotE) (2013).** Matters of National Environmental Significance: Significant Impact Guidelines 1.1. Commonwealth of Australia, Canberra.
- Laurance, W.F. (1991).** Edge effects in tropical forest fragments: application of a model for the design of nature reserves. *Biological Conservation* 57:205-219. **Cited in McAlpine et al (2007).**
- McAlpine, C., Rhodes, J., Peterson, A., Possingham, H., Callaghan, J., Curran, T., Mitchell, D., and Lunney, D. (2007).** Planning guidelines for koala conservation and recovery: A guide to best planning practice. Brisbane, Australia: Australian Koala Foundation and The University of Queensland.
- Meyer, E., Hero, J-M., Shoo, L. and Lewis, B. (2006).** National recovery plan for the wallum sedgefrog and other wallum-dependent frog species. Queensland Environmental Protection Agency, Brisbane.
- Murcia, C (1995).** Edge effects in fragmented forests: implications for conservation. *Trends in Ecology & Evolution* 10(2):58-62. **Cited in McAlpine et al (2007).**

APPENDIX 1

EPBC Protected Matters Search Tool Report



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: 20-Jun-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)	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	84
Listed Migratory Species:	60

Other Matters Protected by the EPBC Act

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

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:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	92
Whales and Other Cetaceans:	13
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	1

Extra Information

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

State and Territory Reserves:	3
Regional Forest Agreements:	None
Nationally Important Wetlands:	1
EPBC Act Referrals:	2
Key Ecological Features (Marine):	None
Biologically Important Areas:	5
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities

[\[Resource Information \]](#)

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

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

Community Name	Threatened Category	Presence Text	Buffer Status
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may 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
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area	In feature area

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	Foraging, feeding or related behaviour may occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely 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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Endangered	Species or species habitat may occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat known to 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
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 likely 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 likely to occur within 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	Species or species habitat may 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
Phoebastria fusca Sooty Albatross [1075]	Vulnerable	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
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely 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 carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In buffer area only
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
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	Species or species habitat may occur within area	In buffer area only
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area	In feature area

FISH

Epinephelus daemeli Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat may 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
Nannoperca oxleyana Oxleyan Pygmy Perch [64468]	Endangered	Species or species habitat known to occur within area	In feature area
Pseudomugil mellis Honey Blue Eye, Honey Blue-eye [26180]	Vulnerable	Species or species habitat may occur within area	In feature area
Thunnus maccoyii Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only

FROG

Litoria olongburensis Wallum Sedge Frog [1821]	Vulnerable	Species or species habitat likely to occur within area	In feature area
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Scientific Name	Threatened Category	Presence Text	Buffer Status
Mixophyes fleayi Fleay's Frog [25960]	Endangered	Species or species habitat may occur within area	In feature area
INSECT			
Argynnis hyperbius inconstans Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area	In feature area
Phyllodes imperialis smithersi Pink Underwing Moth [86084]	Endangered	Species or species habitat may occur within area	In buffer area only
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 may occur within area	In feature area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely 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 likely 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 [254]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Petaurus australis australis Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)</u>			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area	In feature area
<u>Potorous tridactylus tridactylus</u>			
Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<u>Pteropus poliocephalus</u>			
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
<u>Xeromys myoides</u>			
Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat known to occur within area	In feature area
PLANT			
<u>Acacia attenuata</u>			
[10690]	Vulnerable	Species or species habitat may occur within area	In feature area
<u>Acronychia littoralis</u>			
Scented Acronychia [8582]	Endangered	Species or species habitat may occur within area	In feature area
<u>Archidendron lovelliae</u>			
Bacon Wood, Tulip Siris [13451]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<u>Arthraxon hispidus</u>			
Hairy-joint Grass [9338]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<u>Baloghia marmorata</u>			
Marbled Baloghia, Jointed Baloghia [8463]	Vulnerable	Species or species habitat may occur within area	In feature area
<u>Boronia keysii</u>			
Key's Boronia [21632]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<u>Bosistoa transversa</u>			
Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Cryptocarya foetida Stinking Cryptocarya, Stinking Laurel [11976]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Macadamia ternifolia Small-fruited Queensland Nut, Gympie Nut [7214]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Macrozamia pauli-guilielmi Pineapple Zamia [5712]	Endangered	Species or species habitat known to occur within area	In feature area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat likely to occur within area	In feature area
Prasophyllum wallum Wallum Leek-orchid [55148]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Samadera bidwillii Quassia [29708]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Triunia robusta Glossy Spice Bush [14747]	Endangered	Species or species habitat likely to occur within area	In feature area
Xanthostemon oppositifolius Penda, Southern Penda, Luya's Hardwood [8738]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
REPTILE			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area	In buffer area only
Coeranoscincus reticulatus Three-toed Snake-tooth Skink [59628]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In buffer area only
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding 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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding 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
Ardenna grisea Sooty Shearwater [82651]		Species or species habitat may occur within area	In buffer area only
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat may occur within area	In buffer area only
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely 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	Species or species habitat may occur within area	In buffer area only
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may 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]		Species or species habitat may occur within area	In buffer area only
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In buffer area only
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
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	Species or species habitat may occur within area	In buffer area only
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may 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
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	Breeding known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area	In buffer area only
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dugong dugon Dugong [28]		Species or species habitat may occur within area	In buffer area only
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
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area	In buffer area only
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known 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	Breeding known to occur within area	In buffer area only
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Species or species habitat may 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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding 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]		Breeding known to occur within area	In buffer area only
Migratory Terrestrial Species			
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may 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
Monarcha melanopsis Black-faced Monarch [609]		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
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
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 melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat 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
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			

Scientific Name	Threatened Category	Presence Text	Buffer Status
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
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna 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
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]		Species or species habitat may occur within area	In buffer area only
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		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 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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat may occur within area	In buffer area only
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea antipodensis gibsoni as Diomedea gibsoni Gibson's Albatross [82270]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely 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
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		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	Species or species habitat may 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
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to 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
Pachyptila turtur Fairy Prion [1066]		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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In buffer area only
Phoebastria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Rhipidura rufifrons Rufous Fantail [592]		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]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Sternula albifrons as Sterna albifrons Little Tern [82849]		Species or species habitat may 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 carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In buffer area only
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may 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	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area	In feature area
Fish			
Acentronura tentaculata Shortpouch Pygmy Pipehorse [66187]		Species or species habitat may occur within area	In buffer area only
Campichthys tryoni Tryon's Pipefish [66193]		Species or species habitat may occur within area	In buffer area only
Corythoichthys amplexus Fijian Banded Pipefish, Brown-banded Pipefish [66199]		Species or species habitat may occur within area	In buffer area only
Corythoichthys ocellatus Orange-spotted Pipefish, Ocellated Pipefish [66203]		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
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area	In buffer area only
Hippichthys cyanospilos Blue-speckled Pipefish, Blue-spotted Pipefish [66228]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hippichthys heptagonus Madura Pipefish, Reticulated Freshwater Pipefish [66229]		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 kelloggi Kellogg's Seahorse, Great Seahorse [66723]		Species or species habitat may occur within area	In buffer area only
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area	In buffer area only
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area	In buffer area only
Hippocampus trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may 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
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
Micrognathus andersonii Anderson's Pipefish, Shortnose Pipefish [66253]		Species or species habitat may occur within area	In buffer area only
Micrognathus brevirostris thorntail Pipefish, Thorn-tailed Pipefish [66254]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Microphis manadensis Manado Pipefish, Manado River Pipefish [66258]		Species or species habitat may occur within area	In buffer area only
Solegnathus dunckeri Duncker's Pipehorse [66271]		Species or species habitat may occur within area	In buffer area only
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		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 nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In buffer area only
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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dugong dugon Dugong [28]		Species or species habitat may occur within area	In buffer area only
Reptile			
Acalyptophis peronii Horned Seasnake [1114]		Species or species habitat may occur within area	In buffer area only
Aipysurus laevis Olive Seasnake [1120]		Species or species habitat may occur within area	In buffer area only
Astrotia stokesii Stokes' Seasnake [1122]		Species or species habitat may occur within area	In buffer area only
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area	In buffer area only
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In buffer area only
Disteira kingii Spectacled Seasnake [1123]		Species or species habitat may occur within area	In buffer area only
Disteira major Olive-headed Seasnake [1124]		Species or species habitat may occur within area	In buffer area only
Emydocephalus annulatus Turtle-headed Seasnake [1125]		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
Hydrophis elegans Elegant Seasnake [1104]		Species or species habitat may occur within area	In buffer area only
Laticauda laticaudata a sea krait [1093]		Species or species habitat may occur within area	In buffer area only
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding 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
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In buffer area only

Current Scientific Name	Status	Type of Presence	Buffer Status
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
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat known to occur within area	In buffer area only
Orcaella heinsohni as Orcaella brevirostris Australian Snubfin Dolphin [81322]		Species or species habitat may 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]		Breeding known 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

Habitat Critical to the Survival of Marine Turtles

Scientific Name	Behaviour	Presence	Buffer Status
Nov-Feb			
Caretta caretta Loggerhead Turtle [1763]	Nesting	Known to occur	In buffer area only

Extra Information

State and Territory Reserves [[Resource Information](#)]

Protected Area Name	Reserve Type	State	Buffer Status
Great Sandy	National Park	QLD	In feature area
Noosa River (Rev.2)	Fish Habitat Area (A)	QLD	In buffer area only
Tarangau Station	NRS Addition - Gazettal in Progress	QLD	In buffer area only

Nationally Important Wetlands [[Resource Information](#)]

Wetland Name	State	Buffer Status
Noosa River Wetlands	QLD	In feature area

EPBC Act Referrals [[Resource Information](#)]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Cooloola Great Walk Ecotourism Project, QLD	2021/8954	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

Biologically Important Areas

Scientific Name	Behaviour	Presence	Buffer Status
Dolphins			
Sousa chinensis			
Indo-Pacific Humpback Dolphin [50]	Breeding	Known to occur	In buffer area only
Tursiops aduncus			
Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Breeding	Likely to occur	In buffer area only

Marine Turtles

Caretta caretta			
Loggerhead Turtle [1763]	Nesting	Known to occur	In buffer area only

Sharks

Carcharias taurus			
Grey Nurse Shark [64469]	Foraging	Known to occur	In buffer area only

Whales

Megaptera novaeangliae			
Humpback Whale [38]	Migration (north and south)	Known to occur	In buffer area only

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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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