# Flora and Fauna Assessment

## Vincentia High School Upgrade

NSW Department of Education

27 March 2025

| | | | |
|---|---|---|---|
| **School Name** | Vincentia High School | **Consultancy Name** | Water Technology |
| **School ID Number** | Vincentia High School | **Report Status** | Final |
| **School Address** | 142 The Wool Rd, Vincentia | **Report Date** | 21 March 2025 |
| **School Region** | South Coast | **Contract Number** | DDWO05306-23 |

## Document Status

| Version | Doc type | Reviewed by | Approved by | Date issued |
|---|---|---|---|---|
| 1.0 | Draft | C. Radford | M. Aberton | 21 January 2025 |
| 2.0 | Draft | C. Radford | M. Aberton | 17 February 2025 |
| 3.0 | Final | M. Aberton | M. Aberton | 27 March 2025 |

## Project Details

| | |
|---|---|
| **Project Name** | Vincentia High School Upgrade |
| **Client** | NSW Department of Education |
| **Water Technology Project Manager** | Narelle Poole |
| **Water Technology Project Director** | Steven Molino |
| **Authors** | Marion Huxley, Petra Arola |
| **Document Number** | Biodiversity REF-FFA-Vincentia HS 8593-WT-DDWO05306_23 |

NSW GOVERNMENT Education


### COPYRIGHT

Water Technology Pty Ltd has produced this document in accordance with instructions from NSW Department of Education for their use only. The concepts and information contained in this document are the copyright of Water Technology Pty Ltd. Use or copying of this document in whole or in part without written permission of Water Technology Pty Ltd constitutes an infringement of copyright.

Water Technology Pty Ltd does not warrant this document is definitive nor free from error and does not accept liability for any loss caused, or arising from, reliance upon the information provided herein.



Suite 3, Level 1, 20 Wentworth Street
Parramatta NSW 2150
Telephone (02) 8080 7346
ACN 093 377 283
ABN 60 093 377 283


Certified System Quality ISO 9001 SAI GLOBAL
Certified System Environment ISO 14001 SAI GLOBAL
Certified System OHS ISO 45001 SAI GLOBAL

# ACKNOWLEDGEMENT OF COUNTRY

The Board and employees of Water Technology acknowledge and respect the Aboriginal and Torres Strait Islander Peoples as the Traditional Custodians of Country throughout Australia. We specifically acknowledge the Traditional Custodians of the land on which our offices reside and where we undertake our work.

We respect the knowledge, skills and lived experiences of Aboriginal and Torres Strait Islander Peoples, who we continue to learn from and collaborate with. We also extend our respect to all First Nations Peoples, their cultures and to their Elders, past and present.

*Artwork by Maurice Goolagong 2023. This piece was commissioned by Water Technology and visualises the important connections we have to water, and the cultural significance of journeys taken by traditional custodians of our land to meeting places, where communities connect with each other around waterways.*

*The symbolism in the artwork includes:*

- *Seven circles representing each of the States and Territories in Australia where we do our work*
- *Blue dots between each circle representing the waterways that connect us*
- *The animals that rely on healthy waterways for their home*
- *Black and white dots representing all the different communities that we visit in our work*
- *Hands that are for the people we help on our journey*

# EXECUTIVE SUMMARY

A Flora and Fauna Assessment has been conducted to identify potential constraints that may impede the future school infrastructure upgrades for the Vincentia High School. This assessment aims to seek approval for a “development permitted without consent” application under Part 5 of the EP&A Act, mitigating any risks during the delivery of the school upgrades. This report documents the findings of the biodiversity assessment, identifying potential biodiversity constraints relevant to the proposed development under the NSW *Biodiversity Conservation Act 2016,* Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, and the NSW *Fisheries Management Act 1994*.

Species with a high likelihood of occurrence within the site include the South-eastern Glossy Black-Cockatoo (*Calyptorhynchus lathami*), Eastern Bristlebird (*Dasyornis brachypterus*), Yellow-bellied Glider (*Petaurus australis*), Grey-headed Flying-fox (*Pteropus poliocephalus*), and Eastern Pygmy-possum (*Cercartetus nanus*), due to previous sightings nearby and the presence of suitable habitat. The site contains Plant Community Type (PCT) 4019 - Coastal Alluvial Bangalay Forest, a listed threatened ecological community under both the BC Act and EPBC Act, although it was in a cleared and highly degraded state. Other mapped PCTs were also degraded and occurred only as small, fragmented patches. The site has no Key Fish habitat.

The Flora and Fauna Assessment concluded that there will be no significant impacts on Matters of National Environmental Significance. As the habitat on site was considered low-quality for the listed threatened species, and no threatened species were found, a Test of Significance was not required. Consequently, no referral to the Australian Minister for the Environment under the *Environment Protection and Biodiversity Conservation Act 1999* is required. The proposal would be unlikely to cause a significant impact on the environment. Therefore, it is not necessary for an Environmental Impact Statement to be prepared and approval to be sought from the Minister for Planning under the *Environment Protection and Biodiversity Conservation Act 1999*.

The extent and nature of potential impacts are moderate and will not have significant impact on the locality, community and/or the environment.

Potential impacts can be appropriately mitigated or managed to ensure that there is minimal impact on the locality, community and/or the environment.

# CONTENTS

EXECUTIVE SUMMARY 3

1 INTRODUCTION 7
1.1 Determination 7
1.2 Statement of Significance 7
1.3 Site Location and Background 7
1.4 Proposed Activity Description 9

2 DELIVERABLES 11

3 PROJECT JUSTIFICATION 12
3.1 Options 12
3.2 Consideration of Ecologically Sustainable Development 12

4 RELEVANT LEGISLATION 13
4.1 Environmental Planning, Assessment Act 1979 and Local Government Act 1993 13
4.1.1 State Environmental Planning Policy (Transport and Infrastructure) 2021 13
4.2 Water Management Act 2000 13
4.3 Biodiversity Conservation Act 2016 13
4.4 Fisheries Management Act 1994 14
4.5 Environment Protection and Biodiversity Conservation Act 1999 14
4.6 Shoalhaven Local Environmental Plan 2014 14
4.7 Shoalhaven Development Control Plan 2014 15

5 EXISTING ENVIRONMENT 16
5.1 Desktop Search 16
5.1.1 Vegetation communities 16
5.1.2 Threatened Species 16
5.1.3 National Parks and Wildlife Service Estate 17
5.1.4 Bushfire Prone Land 17
5.2 Site Visit 22
5.2.1 Native Vegetation 22
5.2.2 Fauna Observations 23

6 POTENTIAL IMPACTS 26
6.1 Construction Impacts 26
6.1.1 Trees 26
6.1.2 Nests and Hollows 26
6.1.3 Contractors and Staff Inductions 26
6.1.4 Hygiene 26
6.2 Operational Impacts 26
6.3 Mitigation Measures 26

7 EVALUATION OF ENVIRONMENTAL IMPACTS 30
8 CONCLUSION AND RECOMMENDATIONS 31
9 REFERENCES 32

## APPENDICES

Appendix A Protected Matters Search
Appendix B Likelihood of Occurrence

## LIST OF FIGURES

Figure 1-1 Aerial Photograph of the Site 8
Figure 1-2 Site Plan 10
Figure 5-1 Plant Community Types 18
Figure 5-2 Threatened species 19
Figure 5-3 National Parks Estate Land 20
Figure 5-4 Bushfire Prone Land 21

## LIST OF TABLES

Table 2-1 FFA Deliverable 11
Table 3-1 Consideration of principles of ecologically sustainable development (ESD) 12
Table 5-1 Native Species list 23
Table 5-2 Exotic species list, no Weeds of National Significance were found 23
Table 5-3 Planted garden varietals 24
Table 5-4 Fauna species list 24
Table 6-1 Mitigation measures to be implemented pre-construction 27
Table 6-2 Mitigation measures to be implemented during construction 28

# ACRONYMS AND DEFINITIONS

| Acronym | Definition |
|---|---|
| **BC Act** | *Biodiversity Conservation Act 2016* |
| **BV** | Biodiversity Values |
| **DCP** | Development Control Plan |
| **DD** | Due Diligence |
| **DoE** | NSW Department of Education |
| **EP&A Act** | *Environmental Planning and Assessment Act 1979* |
| **EPBC Act** | *Environment Protection and Biodiversity Conservation Act 1999* |
| **FM Act** | *Fisheries Management Act 1994* |
| **LEP** | Local Environment Plan |
| **LGA** | Local Government Area |
| **MNES** | Matter of National Environmental Significance |
| **PCT** | Plant Community Type |
| **FFA** | Flora and Fauna Assessment |
| **SEARS** | Secretary's Environmental Assessment Requirements |
| **SSD** | State Significant Development |
| **TEC** | Threatened Ecological Community |
| **WM Act** | *Water Management Act 2000* |

# 1 INTRODUCTION

This Flora and Fauna Assessment has been prepared to support a Review of Environmental Factors (REF) for the NSW Department of Education (DoE) for Vincentia High School upgrade (the activity).

The purpose of the REF is to assess the potential environmental impacts of the activity prescribed by *State Environmental Planning Policy (Transport and Infrastructure) 2021* (T&I SEPP) as "development permitted without consent" on land carried out by or on behalf of a public authority under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The activity is to be undertaken pursuant to Chapter 3, Part 3.4, Section 3.37 of the T&I SEPP.

This document has been prepared in accordance with the *Guidelines for Division 5.1 assessments* (the Guidelines) by the Department of Planning, Housing and Infrastructure (DPHI) as well as the *Addendum Division 5.1 guidelines for schools*. The purpose of this report is to document the direct and indirect impacts on biodiversity resulting from the proposed school upgrades.

## 1.1 Determination

- The proposed activity can proceed subject to mitigation measures and/or conditions relayed in this FFA.
- The activity will not be classed as a controlled action under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) so no referral is required.

## 1.2 Statement of Significance

Based on the identification of potential issues, and an assessment of the nature and extent of the impacts of the proposed activity, it was determined that:

- The extent and nature of potential impacts are moderate and will not have significant adverse effects on the locality, community and the environment.
- Potential impacts can be appropriately mitigated or managed to ensure that there is minimal effect on the locality, community.

## 1.3 Site Location and Background

The site is located at 142 The Wool Road, Vincentia, NSW, 2540 and has an approximate site area of 8.09ha. The site is comprised of two lots, legally referred to as Lot 1 Deposited Plan P809057 and Lot 1 Deposited Plan 550361 and is located within the Shoalhaven City Local Government Area (LGA). An aerial photograph of the site is provided at Figure 1-1.

The site is zoned SP2 Educational Establishment and existing development comprises various buildings, a car park, landscaping, a sports field and sports courts associated with Vincentia High School. Vincentia High School currently comprises 49 permanent teaching spaces (PTS) and 17 demountable teaching spaces (DTS). The eastern portion of the site contains natural bushland.

The site is an irregularly shaped lot. Vehicle access is provided to The Wool Road via a driveway that connects to a signalised intersection. There is a footpath and cycleway along The Wool Road. The surrounding land consists of extensive natural bushland (Jervis Bay National Park).


**Figure 1-1 Aerial Photograph of the Site**

*Source: Urbis, January, 2024*

## 1.4 Proposed Activity Description

The proposed activity relates to upgrades to Vincentia High School. Specifically, the proposed activity comprises the following:

- Construction of a new two-storey home base building.
- Installation of solar panels.
- Construction of new stairs and covered walkways.
- Internal road upgrade which involves providing a new drop off zone, parking spaces and pedestrian pathway.
- Relocation of existing shade structure.
- External landscape works.
- Tree removal.

Any works relating to the existing demountables or associated with substations will be undertaken via a separate planning pathway. Figure 1-2 provides an extract of the proposed site plan.

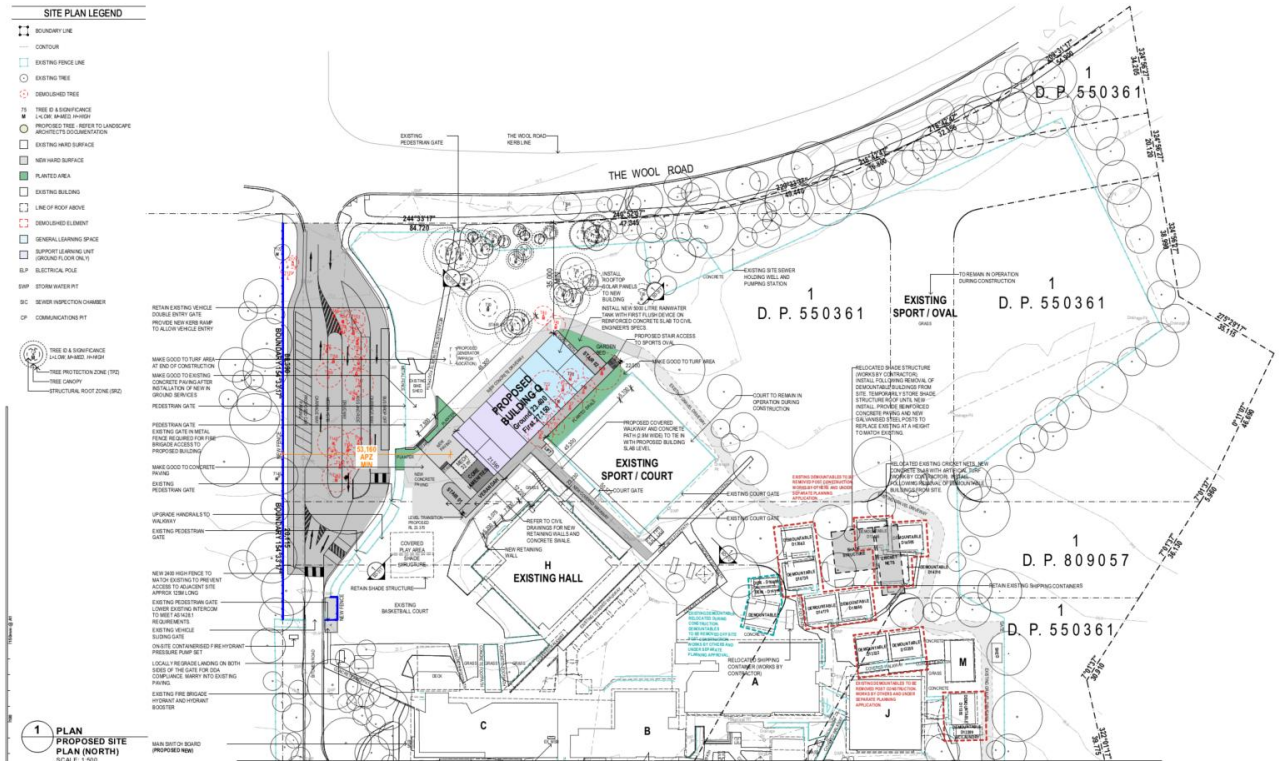


**Figure 1-2 Site Plan**

*Source: Fulton Trotter, 2025*

# 2 DELIVERABLES

Table 2-1 below presents the FFA deliverable requirements from NSW Department of Education.

**Table 2-1 FFA Deliverable**

| Item | Requirement | Relevant Section of Report |
|---|---|---|
| 1.0 | Address all relevant legislation, environmental planning instruments (EPIs) (including drafts), plans, policies, guidelines and planning circulars. | See Section 4 |
| 2.0 | Trees and Landscaping | See Section 6 |
| | Assess the number, location, condition and significance of trees to be removed and retained and note any existing canopy coverage to be retained on-site. | See Section 6<br>See Arborist Report |
| 3.0 | Ecologically Sustainable Development (ESD) | See Section 3.2 |
| 4.0 | Biodiversity | See Section 5 |

# 3 PROJECT JUSTIFICATION

The Vincentia High School Upgrade is part of the NSW Government's plan to rebuild public education in 2024-25. This upgrade will ensure growing communities get access to public education.

## 3.1 Options

**Option 1 – Do Nothing:** The current school will continue to become dilapidated and outdated.

**Option 2 – Implement Project Proposal (preferred option):** Vincentia High School Upgrade enhanced by providing more educational facilities for the local community. By providing enhanced services and spaces, the new proposed Vincentia High School Upgrade aims to meet the current and future needs of the community.

## 3.2 Consideration of Ecologically Sustainable Development

The proposal has been considered against the principles of ecologically sustainable development (ESD) (refer to Table 3-1).

**Table 3-1 Consideration of principles of ecologically sustainable development (ESD)**

| ESD Principle | Consideration in FFA |
|---|---|
| Precautionary principle | The proposal will not result in serious or irreversible environmental damage and there is no scientific uncertainty relating to the proposal. |
| Intergenerational equity | The proposal will help to meet the needs of future generations by providing education facilities, which can be used for future generations. |
| Conservation of biological diversity and ecological integrity | The proposal will not significantly impact on biological diversity or impact ecological integrity. |
| Improved valuation, pricing and incentive mechanisms | The proposal will provide cost efficient use of resources and provide optimum outcomes for the community, environment and with respect to financial cost. |

# 4 RELEVANT LEGISLATION

Legislation and policy relevant to the biodiversity component of works within the subject site are outlined below:

## 4.1 Environmental Planning, Assessment Act 1979 and Local Government Act 1993

Planning and development within NSW is regulated by the Environmental Planning & Assessment Act 1979 (EP&A Act).

The proposed works are permitted without consent under the State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP). Where works do not require development consent but require approval of a Government organisation under any legislation, then they are defined as an activity under Part 5 of the EP&A Act. Division 5.1 and Section 5.7 of the EP&A Act requires any such Government body to determine whether the impacts of the activity are likely to be significant. A FFA contributes to that determination.

A FFA is prepared, to inform a Review of Environmental Factors, to meet the requirements of Clause 171 of the *Environmental Planning and Assessment Regulation 2023*.

### 4.1.1 State Environmental Planning Policy (Transport and Infrastructure) 2021

The State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP) provides for the efficient provision of public infrastructure in NSW. The aim of this Policy is to facilitate the effective delivery of infrastructure across the State.

## 4.2 Water Management Act 2000

The Water Management Act 2000 (WM Act) provides for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations. The WM Act defines principles of water management, sets out water licensing laws and environmental water provisions.

Section 91 (2) states that: *waterfront land means—…where the prescribed distance is 40 metres or (if the regulations prescribe a lesser distance, either generally or in relation to a particular location or class of locations) that lesser distance.*

This project is being carried out further than 40 metres so is exempt from requiring a Controlled Activity Approval in accordance with the WM Act.

## 4.3 Biodiversity Conservation Act 2016

The Biodiversity Conservation Act 2016 (BC Act) includes the Biodiversity Offsets Scheme (BOS) that governs how biodiversity offsets will be used to ensure they offset the loss due to development and deliver conservation outcomes. The Act and Regulations also govern the Biodiversity Assessment Method (BAM) as a scientific method that assesses biodiversity losses from impacts at development sites and gains from conserving land at stewardship sites.

Public authorities seeking to undertake an activity under Part 5 of the EP&A Act can voluntarily opt-in to the BOS and BAM scheme, or alternatively can elect to undertake an Assessment of Significance and proceed with a Part 5 approval. It will be required to:

- take serious and irreversible impacts into consideration
- determine if there are any additional and appropriate measures that will minimise the impact if the activity is to be carried out or approved
- The potential ecological impacts of the proposal are discussed in Section 6 of this FFA

## 4.4 Fisheries Management Act 1994

The provisions of the Fisheries Management Act 1994 relating to project development and approval processes operate similarly to the BC Act. The Act identifies threatened aquatic species, populations and ecological communities, as well as Key Fish Habitat.

Significant impacts trigger the need for a species impact statement for Part 4 and Part 5 projects. The potential ecological impacts of the proposal are discussed in Section 6 of this FFA report. It is concluded that the proposal is not likely to have a significant impact on any threatened aquatic species, populations or communities, or Key Fish Habitat.

## 4.5 Environment Protection and Biodiversity Conservation Act 1999

Under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), Commonwealth approval is required for certain actions. Actions which have or may have or are likely to have a significant impact on Matters of National Environmental Significance (MNES). MNES include nationally threatened species or endangered ecological communities. Under the EPBC Act an assessment of the impact of a proposal on a MNES must be undertaken to determine whether there is likely to be a significant impact. If the assessment concludes there is a significant impact, then it will become a controlled action under the EPBC Act and the proposal must be referred to the Commonwealth. Approval from the relevant Federal Minister is also required for any actions that may have a significant impact on matters of National Environmental Significance, except in circumstances which are set out in the EPBC Act.

Approval from the Commonwealth is in addition to any approvals under NSW legislation.

The potential ecological impacts of the proposal are discussed in Section 6 of this FFA. It is concluded that the proposal is not likely to have a significant impact on any EPBC listed threatened species, populations or communities nor is it likely to impact on any MNES and so does not require referral to the Commonwealth under the EPBC Act.

## 4.6 Shoalhaven Local Environmental Plan 2014

The Shoalhaven Local Environmental Plan 2014 (LEP) (current version) came into effect on 18 August 2023. This plan aims to make local environmental planning provisions for land in the Shoalhaven LGA in accordance with the relevant standard environmental planning instrument.

The proposed activities, in accordance with the Review of Environmental Factors (REF), meet the zoning objectives, as they will establish new school infrastructure at this location and will not have a significant impact.

The site is zoned under the SP2 – Infrastructure zone.

The works are to be conducted as per LEP zoned land. The objectives of this zone include:

- Zone SP2 Infrastructure
  1. Objectives of zone
     - To provide for infrastructure and related uses.
     - To prevent development that is not compatible with or that may detract from the provision of infrastructure.
  2. 2 Permitted without consent
     - Nil
  3. Permitted with consent
     - Aquaculture; Roads; The purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose

4 4 Prohibited

- Any development not specified in item 2 or 3.

It should be noted that the site is surrounded by zones C1 - National Parks and Nature Reserves and C2 - Environmental Conservation; C2, Environmental Management.

## 4.7 Shoalhaven Development Control Plan 2014

The aim of the Shoalhaven Development Control Plan 2014 (DCP) is to allow detailed provisions to be made to control and guide development and subdivision within the Shoalhaven LGA.

.

# 5 EXISTING ENVIRONMENT

## 5.1 Desktop Search

The site is approximately 8.09 hectares and is used as an educational establishment with trees scattered between school buildings. Ecologically, part of the site is mapped as having terrestrial biodiversity, and the surrounding land is classified as a Matter of National Environmental Significance. A portion of the site is in a Vegetation Category 1 bushfire zone, while the rest is designated as a buffer. There is no flood risk according to Shoalhaven Council's mapping. A Native Title Claim has been registered but not determined, and the site is adjacent to Colonial Road-Remnants of local significance.

Prior to undertaking the ecological field survey, desktop searches were conducted to provide a context of the surrounding environment.

### 5.1.1 Vegetation communities

The NSW State Vegetation Type Map provided a regional-scale overview of Plant Community Types (PCTs), Vegetation Classes, and Vegetation Formations across NSW. Four PCTs were mapped within the subject site, which contained native vegetation along the boundary fencing, as confirmed by satellite imagery. The identified PCTs were:

- PCT 4019: Coastal Alluvial Bangalay Forest
- PCT 3809: Shoalhaven Rockplate Heath
- PCT 3273: South Coast Lowland Shrub-Grass Forest
- PCT 3545: Coastal Sands Bloodwood Low Forest

The mapped PCT 4019 Coastal Alluvial Bangalay Forest was linked to two Threatened Ecological Communities:

1. Swamp Sclerophyll Forest on Coastal Floodplains (Endangered - BC Act 2016)
2. River-flat eucalypt forest on coastal floodplains (Critically Endangered - EPBC Act 1995)

An ecological site assessment was conducted to evaluate the native vegetation's presence, condition, and alignment with the mapped PCTs.

### 5.1.2 Threatened Species

A search of the NSW BioNet database identified 3,387 records of 71 threatened species within 10 km of the subject site over the past 10 years. Grey-headed Flying Fox (*Pteropus poliocephalus*) and Eastern Coastal Free-tailed Bat (*Mormopterus norfolkensis*) were previously sighted nearby, both listed as Vulnerable under the NSW BC Act and Commonwealth EPBC Act. Additionally, the Eastern Pygmy-possum (*Cercartetus nanus*) and Giant Burrowing Frog (*Heleioporus australiacus*), both listed as Vulnerable, were also recorded near the site.

The Protected Matters Search Tool also indicated 4 threatened ecological communities, 53 threatened species, and 17 migratory species within the same area. No World Heritage Properties, National Heritage Places, Protected Marine Areas, or Wetlands of international importance were recorded within 10 km of the site.

A Likelihood of Occurrence assessment indicated a high likelihood for species such as the South-eastern Glossy Black-Cockatoo (*Calyptorhynchus lathami lathami*), Eastern Bristlebird (*Dasyornis brachypterus*), Yellow-bellied Glider (*Petaurus australis*), Grey-headed Flying-fox (*Pteropus poliocephalus*), and Eastern , based on previous sightings and suitable habitat within the site (9Appendix B). The Giant Burrowing Frog (*Heleioporus australiacus*) and Eastern Coastal Free-tailed Bat (*Mormopterus norfolkensis*) were considered

to have a moderate likelihood of occurrence, although the site was not deemed to have suitable habitat for these species.

Additionally, the subject site was not mapped as containing any Key Fish Habitat, nor is it in proximity to significant waterways or waterfront land, thus no further provisions within the FM Act and WM Act are not required for the proposed activity.

### 5.1.3 National Parks and Wildlife Service Estate

The site occurs adjacent NSW National Parks and Wildlife Service (NPWS) Estate, Jervis Bay National Park (Figure 5-3). Areas within this estate land are reserved under the National Parks and Wildlife Act 1974.

The proposed works will be contained entirely with the existing SP2 – Educational Establishment zoned land of the existing school site, and works are not anticipated to encroach on the NSW National Parks and Wildlife Service Estate area. As such, the proposed works are considered to comply with the National Parks and Wildlife Service (NPWS) Estate, Jervis Bay National Park. As such, the existence of NSW National Parks and Wildlife Service (NPWS) Estate land immediately adjacent the subject site is not considered a constraint on the proposed activity.

### 5.1.4 Bushfire Prone Land

Bush Fire Prone Land mapping is intended to designate areas of the State that are considered to be higher bush fire risk for development control purposes. Bushfire Prone Land is an area of land that can support a bush fire or is likely to be subject to bush fire attack, as designated on a bush fire prone land map.

The subject land is mapped as bush fire prone land (BFPL) and the bushfire hazard is within 140 m of the proposed activity. (Figure 5-4).

The proposed development will need to address the specifications and requirements of the identified bushfire protection measures. Bushfire protection measures, such as the establishment of new Asset Protection Zones (APZ's) and the management of vegetation understorey may have additional impacts on biodiversity, beyond that caused by the construction of the new school infrastructure facilities. The current condition of the understorey vegetation close to the proposed activity area was observed as part of the site visit and is discussed in Section 5.2.1.

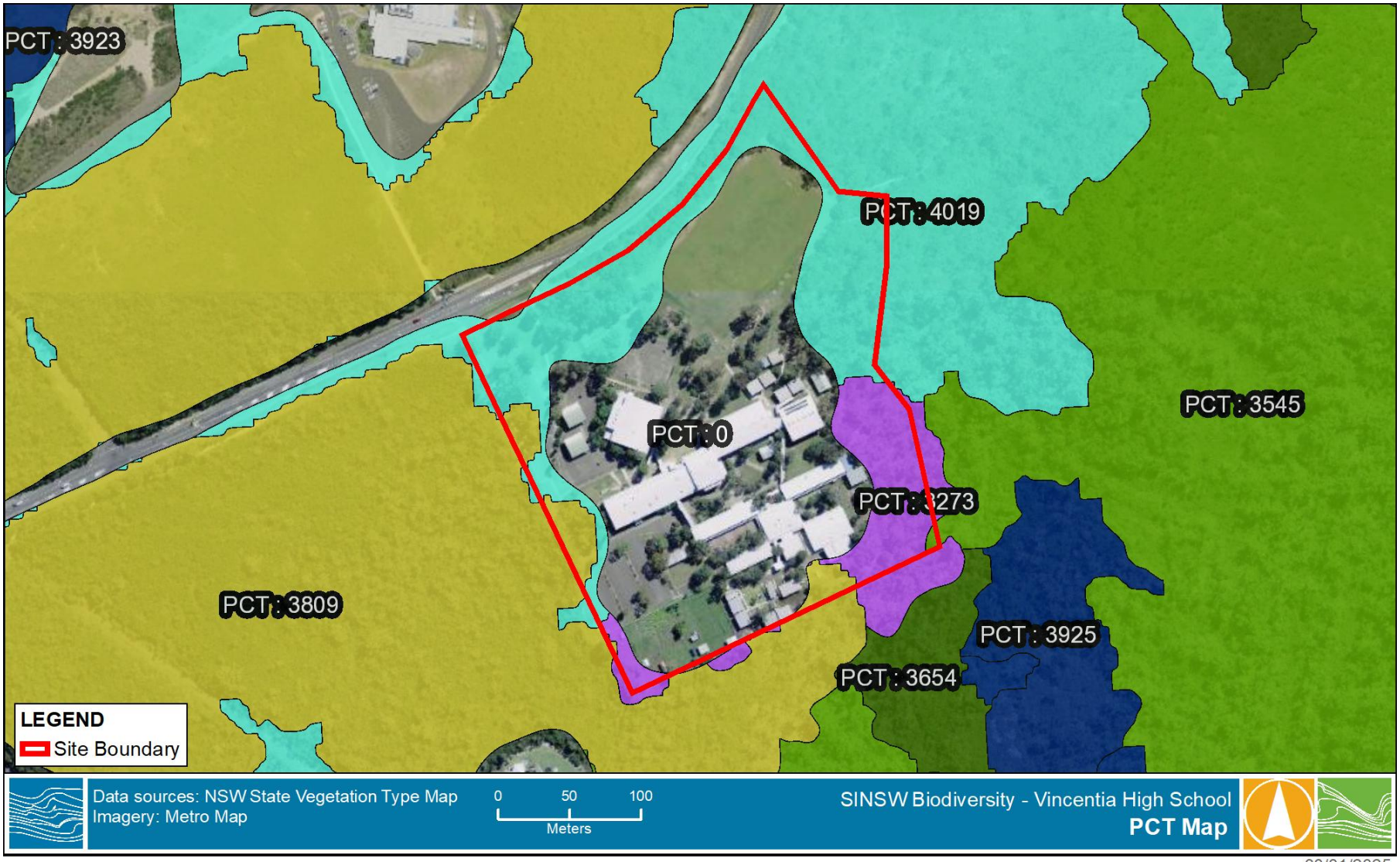


**Figure 5-1 Plant Community Types**

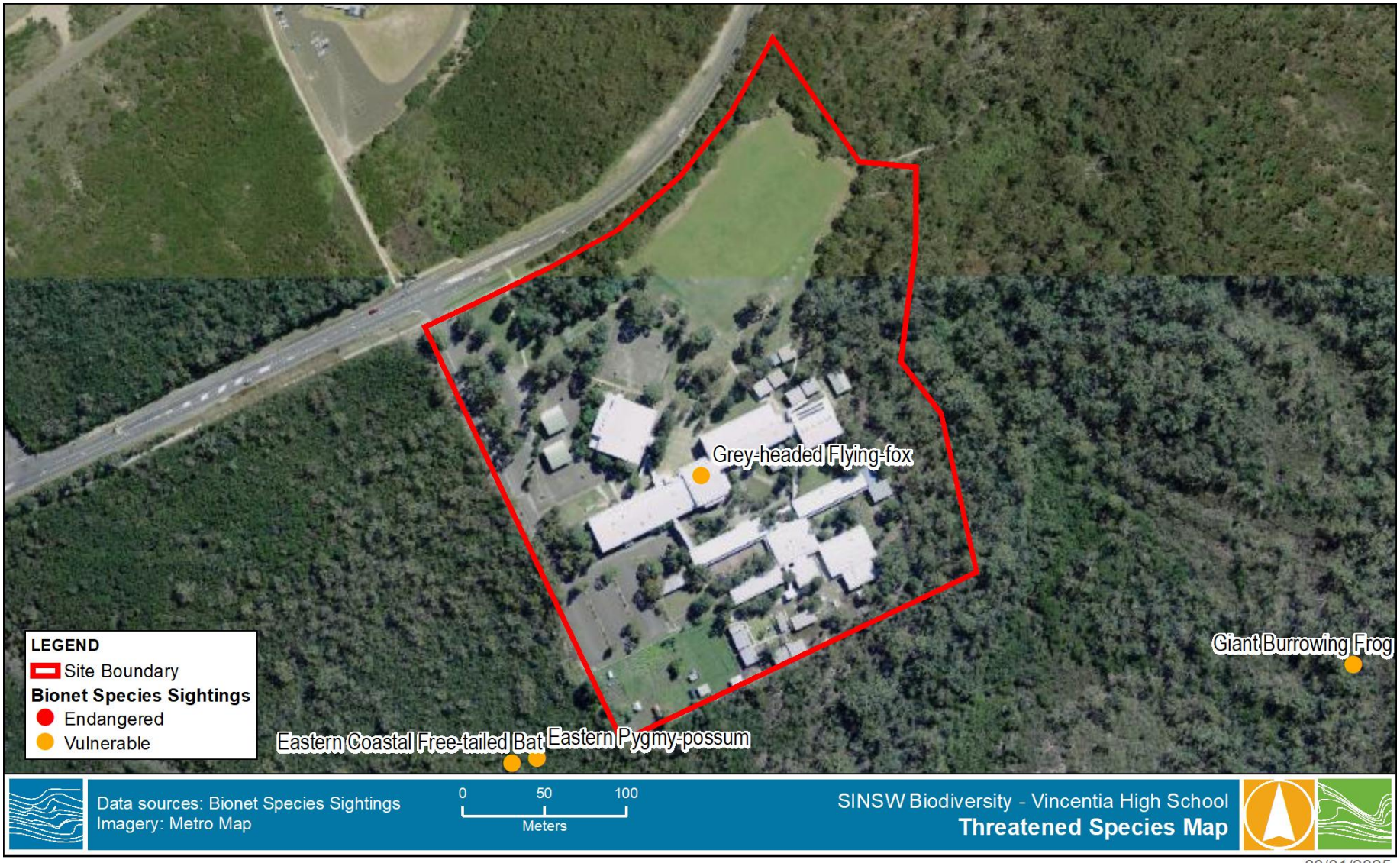


**Figure 5-2 Threatened species**

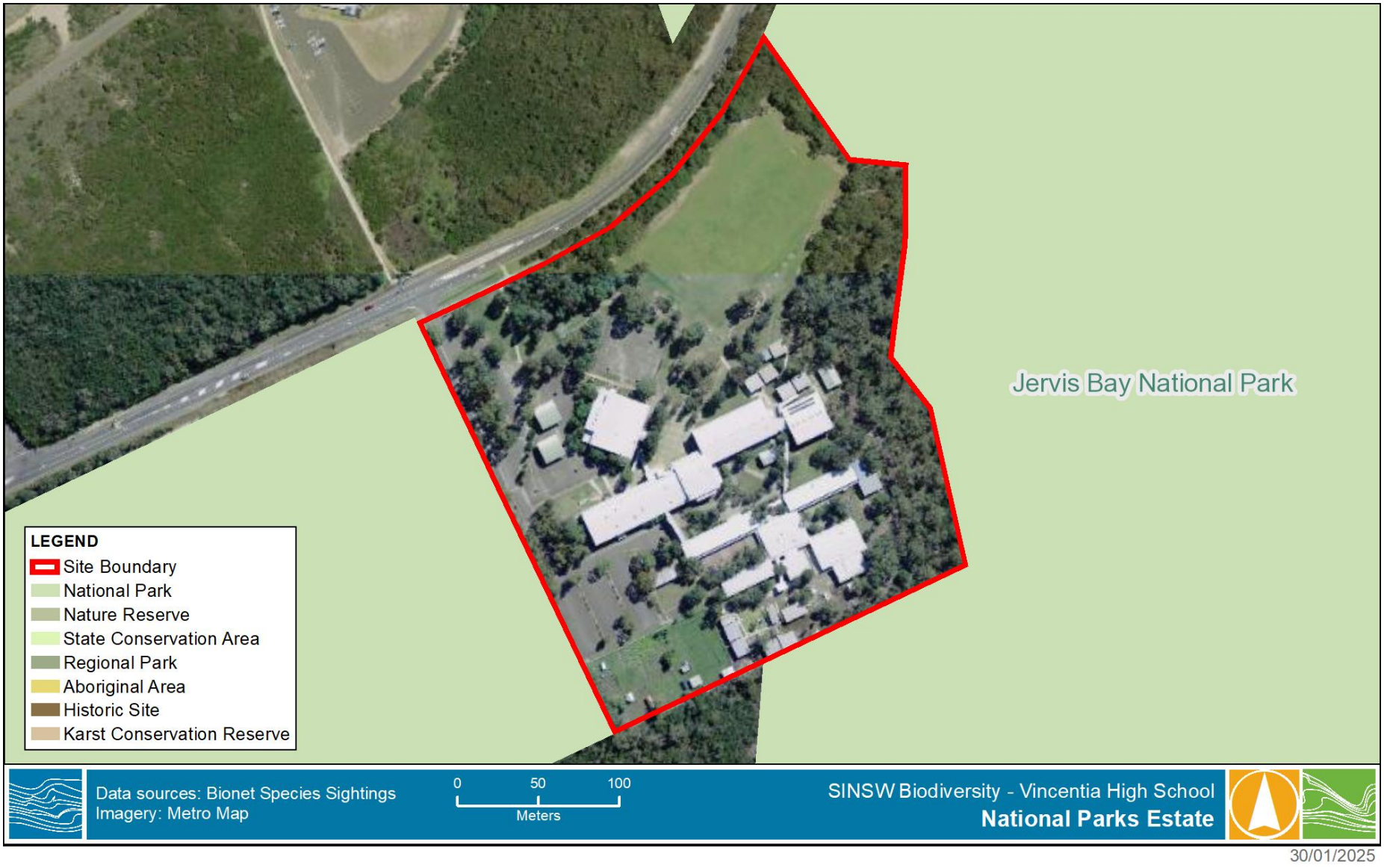


**Figure 5-3 National Parks Estate Land**

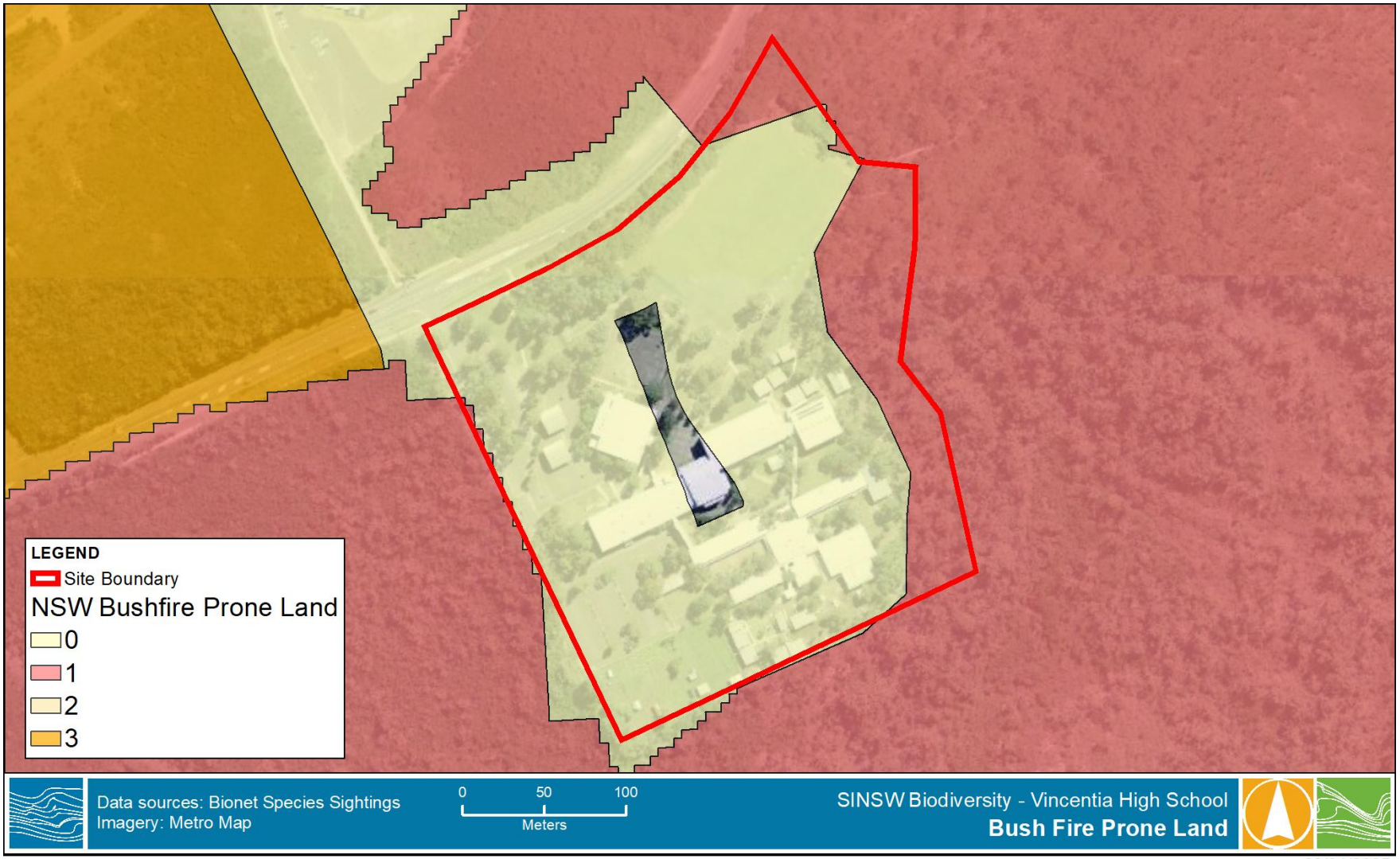


**Figure 5-4 Bushfire Prone Land**

## 5.2 Site Visit

An assessment of the site was undertaken on 14 January 2025 by ecologist Caroline Weller and previously by ecologist Clayton Woods on 13 September 2023. The survey comprised a walkthrough of all the accessible vegetated areas of the site. Flora species were surveyed by stratum and were identified and recorded. The vegetation communities observed were later cross checked with those already mapped surrounding the property.

An opportunistic fauna survey included searches for proxy evidence of fauna activity such as tree scratches, scat, and bird nests. The fauna assessment is largely an assessment of the potential of the site as habitat for various fauna species. Apart from species recorded from the site, there is no certainty as to the presence or absence of the species discussed. Therefore, it is important to adopt the precautionary principle such that it is assumed that any threatened species are likely to occur at the site if suitable habitat exists. An assessment of potential habitat features for threatened species, such as tree hollows or crevices in tree bark was also conducted.

### 5.2.1 Native Vegetation

Vegetation across the site occurs as scattered trees or small, sporadically placed garden areas. The vegetation largely represented highly cleared Plant Community Type (PCT) 4019, a Threatened Ecological Community (TEC). However, PCT 4019 was cleared and in a highly degraded condition so it would no longer be classified as a TEC (Figure 5-1).

The native canopy vegetation within the site consists of remnant native species endemic to New South Wales. The canopy is dominated by Spotted Gum (*Corymbia maculata*), with smaller occurrences of Red Bloodwood (*Corymbia gummifera*), Bangalay (*Eucalyptus botryoides*), Swamp Sheoak (*Casuarina glauca*), and Blackbutt (*Eucalyptus pilularis*). The mid-stratum is sparse, primarily comprising Black Wattle (*Acacia mearnsii*) and Saw Banksia (*Banksia serrata*), while overall mid-stratum diversity is low. Ground-stratum vegetation includes planted Basket Grass (*Lomandra longifolia*) and significant areas of exotic couch/kikuyu grasslands, resulting in low overall ground cover diversity dominated by non-native species. A comprehensive list of native flora species is provided in Table 5-1.

The northeastern sports field is dominated by managed couch/kikuyu grasslands with weeds, such as Fireweed, Plantain Ribwort, and Black Medic. Mature canopy trees, including Scribbly Gum and Bangalay, surround the field, but vegetation connectivity with nearby patches is poor, with moderate linkages to Jervis Bay National Park and roadside vegetation. The central courtyards feature scattered Scribbly Gum and Swamp Sheoak trees with minimal mid-stratum vegetation and managed grasslands. A comprehensive list of exotic flora species is provided in Table 5-2. No Weeds of National Significance were found.

The eastern boundary is characterised by numerous demountable classroom blocks, sparse canopy trees, and ground cover dominated by dirt and gravel due to high traffic and erosion. Vegetation connectivity with the adjacent national park is minimal, and no fauna habitats or threatened species activity were observed.

The school farm, located in the southwestern corner, is fenced and houses domestic animals, including geese and horses. Vegetation is limited to grazed grass, vegetable gardens, and planted fruit trees. A comprehensive list of garden varietals (exotics) species is provided in Table 5-3.

Between the site of the proposed activity and The Wool Road, understorey vegetation may require thinning as a bushfire protection measure for the new buildings. It was noted that this understorey vegetation was in a degraded condition.

### 5.2.2 Fauna Observations

A fauna survey identified several species within the site, including Rainbow Lorikeet (*Trichoglossus moluccanus*), Magpie Lark (*Grallina cyanoleuca*), Masked Lapwing (*Vanellus miles*), Willie Wagtail (*Rhipidura leucophrys*), Australian Magpie (*Gymnorhina tibicen*), and Australian Raven (*Corvus coronoides*).

A hollow in a Scribbly Gum, in the central courtyards, is likely used by abundant Rainbow Lorikeets. A Masked Lapwing family was observed in the northwest section of the site, near the proposed General Learning Hub (). A comprehensive list of fauna species is provided in Table 5-4.

**Table 5-1 Native Species list**

| Scientific Name | Common Name |
|---|---|
| *Acacia decurrens* | Black Wattle |
| *Acacia mearnsii* | Black Wattle |
| *Angophora floribunda* | Native Nearby |
| *Banksia integrifolia* | Coastal Banksia |
| *Banksia serrata* | Saw Banksia |
| *Casuarina cunninghamiana* | River Oak |
| *Casuarina glauca* | Swamp Sheoak |
| *Casuarina luehmannii* | River Sheoak |
| *Corymbia gummifera* | Red Bloodwood |
| *Corymbia maculata* | Spotted Gum |
| *Elaeocarpus reticulatus* | Blueberry Ash |
| *Eucalyptus botryoides* | Bangalay |
| *Eucalyptus pilularis* | Blackbutt |
| *Eucalyptus racemosa* | Scribbly Gum |
| *Eucalyptus rossii* | Scribbly Gum |
| *Eucalyptus sideroxylon* | Red Ironbark |
| *Lomandra longifolia* | Basket Grass |
| *Lophostemon confertus* | Queensland Box |

**Table 5-2 Exotic species list, no Weeds of National Significance were found**

| Scientific Name | Common Name |
|---|---|
| *Cerastium glomeratum* | Sticky Mouse Ear |
| *Cynodon dactylon* | Couch Grass |
| *Medicago lupulina* | Black Medic |
| *Modiola caroliniana* | Red-flowered Mallow |
| *Pennisetum clandestinum* | Kikuyu Grass |
| *Plantago lanceolata* | Plantain Ribwort |
| *Romulea rosea* | Onion Grass |
| *Senecio madagascariensis* | Fireweed |

| Scientific Name | Common Name |
|---|---|
| *Taraxacum sp.* | Dandelion |
| *Trifolium repens* | White Clover |

**Table 5-3 Planted garden varietals**

| Scientific Name | Common Name |
|---|---|
| *Acacia decurrens* | Black Wattle |
| *Acacia mearnsii* | Black Wattle |
| *Angophora floribunda* | Rough-barked Apple |
| *Banksia integrifolia* | Coastal Banksia |
| *Banksia serrata* | Saw Banksia |
| *Callistemon* spp. | Bottlebrush |
| *Casuarina cunninghamiana* | River Oak |
| *Casuarina glauca* | Swamp Sheoak |
| *Casuarina luehmannii* | River Sheoak |
| *Chlorophytum comosum* | Spider Plant |
| *Corymbia gummifera* | Red Bloodwood |
| *Corymbia maculata* | Spotted Gum |
| *Elaeocarpus reticulatus* | Blueberry Ash |
| *Eucalyptus botryoides* | Bangalay |
| *Eucalyptus pilularis* | Blackbutt |
| *Eucalyptus racemosa* | Scribbly Gum |
| *Eucalyptus rossii* | Scribbly Gum |
| *Eucalyptus sideroxylon* | Red Ironbark |
| *Eucalyptus* sp. (sapling) | Eucalyptus sapling |
| *Grevillea* spp. | Spider Ground Cover |
| *Leptospermum* | Leptospermum |
| *Lomandra longifolia* | Basket Grass |
| *Lophostemon confertus* | Queensland Box |
| *Prostanthera incisa* | Mint Bush |
| *Trifolium repens* | White Clover |
| *Xanthostemon chrysanthus* | Drumsticks, Fine Leaves |

**Table 5-4 Fauna species list**

| Scientific Name | Common Name |
|---|---|
| *Anatidae* (family) | Ducks |
| *Corvus coronoides* | Australian Raven |
| *Grallina cyanoleuca* | Magpie Lark |

| Scientific Name | Common Name |
|---|---|
| *Gymnorhina tibicen* | Australian Magpie |
| *Lichenostomus flavus* | Yellow Honeyeater |
| *Rhipidura leucophrys* | Willie Wagtail |
| *Trichoglossus moluccanus* | Rainbow Lorikeet |
| *Vanellus miles* | Masked Lapwing |

# 6 POTENTIAL IMPACTS

## 6.1 Construction Impacts

The following is a summary of the direct and indirect impacts to the biodiversity potentially existing on site as a result of the proposed activity.

### 6.1.1 Trees

The Arboricultural Impact Assessment (AIA) Report outlines the impact of the proposed activity on the trees at Vincentia High School. A total of 60 trees were assessed, focusing on their proximity to the proposed works. This includes any tree where the Tree Protection Zone (TPZ) or Structural Root Zone (SRZ) overlaps with the work area. Of these trees, 33 will require removal as they are within the footprint of the proposed activity.

Recommendations for each tree, based on its significance, condition, and the potential impact of the proposed activity, along with any available mitigation measures are provided in the AIA report.

### 6.1.2 Nests and Hollows

The site assessment found potential habitat features within the subject site, which may be impacted by the proposed activity. This included a family of masked lapwings (plovers) in the north west of the site, adjacent to the proposed general learning hub building (Figure 1-2). Mitigation measures will need to be implemented as detailed in Section 6.3.

Prior to the commencement of the construction, all trees and vegetation should be inspected for hollows and nests. If fauna is discovered inhabiting hollows or nests, an ecologist may be required to remove and relocate any fauna, if the tree or vegetation is to be encroached or removed.

### 6.1.3 Contractors and Staff Inductions

Induction of all contractors and staff outlining the ecological sensitivity of the site, no-go areas, the need to minimise ecological impact, and all other required mitigation measures is to be undertaken.

### 6.1.4 Hygiene

Basic hygiene protocols would be implemented for construction personnel and machinery on site to reduce the potential for invasion by plant pathogens including *Phytopthora cinnamomi*, the fungus myrtle rust *Uredo rangelli* and amphibian chytrid fungus.

## 6.2 Operational Impacts

No operational impacts to biodiversity are anticipated as a result of the proposal.

## 6.3 Mitigation Measures

Measures that will be implemented to address potential pre-construction impacts are listed in Table 2-1 and construction impacts are listed in Table 6-2. Detailed tree mitigation measures during pre-construction and construction should be adhered to, as described in in the AIA report.

**Table 6-1 Mitigation measures to be implemented pre-construction**

| Project Stage | Mitigation Measure | Reason for Mitigation Measure | Section of Report |
|---|---|---|---|
| C | Tree protection must be approved by a Consulting Arborist AQF Level 5. No materials, mixing, parking, disposal, repairs, refuelling, fires, stockpiling, or backfilling is allowed near remaining trees. Removal or lopping of trees needs written permission from the Superintendent. | To safeguard trees from construction activities which can impact trees through physical injury, soil compaction, and root damage. | Section 6.1.1 |
| C | All trees to be protected shall be clearly identified and all TPZs surveyed. | To ensure accurate recognition and protection of trees throughout the construction process. | Section 6.1.1 |
| C | Protective fencing around existing trees and within TPZs must be installed before any site work begins. The fence must be 1800mm high chain wire mesh fixed to galvanised steel posts, enclosing an area to prevent damage as defined in the Tree Protection Plan. No storage inside fenced area. | To ensure accurate recognition and protection of trees throughout the construction process. | Section 6.1.1 |
| C | Inspect all trees to be removed for hollows, nests and other signs of fauna habitat. If fauna is discovered, an ecologist will be required to remove and relocate any fauna if the tree or vegetation is to be removed. | To protect wildlife and comply with ecological regulations. | Section 6.1.2 |
| C | Attempt to deter Masked Lapwings from nesting within the activity zone **prior to constructing commencing** through the following measures:<br>▪ Letting the grass grow to a length of around 30 cm in height<br>▪ Installing a fake 'predator' cut outs such as eagles, kites or cats ideally with moving parts<br>These measures need to take place prior to the breeding season, i.e. after March and before August.<br>If nests are located within the works area they will need to be relocated under appropriate NSW National Parks and Wildlife Service permits. | Relocating nests is likely to have an impact on the birds, e.g. nest and chick abandonment.<br>Encouraging the birds to nest elsewhere is the most likely measure to successfully prevent biodiversity impact, particularly in the context of the site's surrounding environs. | Section 6.1.2 |
| C | Use AS 4454 leaf mulch with 90% recycled content for tree protection fencing. Chip trees marked for removal and use mulch 100mm deep. Avoid soil, weeds, sticks, and stones. Comply with AS 4454 (1999) and AS 4419 (1998). | To protect tree roots and soil from construction activities. | Section 6.1.1 |

| Project Stage | Mitigation Measure | Reason for Mitigation Measure | Section of Report |
|---|---|---|---|
| C | Tree protection signage must be attached to tree protection zones before works begin. Signs should be displayed prominently and repeated at 10m intervals or closer when the fence changes direction. Signs must include information about the tree protection zone, access restrictions, developer's contact details, and Site Arborist information. | To ensure accurate recognition and protection of trees throughout the construction process. | Section 6.1.1 |
| C | Induction of all contractors and staff outlining the ecological sensitivity of the site, no-go areas, the need to minimise ecological impact, and all other required mitigation measures is to be undertaken. | To ensure accurate recognition and protection of trees, protection of wildlife, and to comply with ecological regulations throughout the construction process. | Section 6.1.3 |

**Table 6-2 Mitigation measures to be implemented during construction**

| Project Stage | Mitigation Measure | Reason for Mitigation Measure | Section of Report |
|---|---|---|---|
| C | Tree Protection Zones (TPZs) will be maintained around vegetation to be retained. TPZs will be maintained in accordance with Australian Standard 4970 (2009) Protection of Trees on Development Sites (AS-4970). No activities are to take place within the Structural Root Zones (SRZs) of mature trees. No works, stockpiling of materials, excavation, parking or any other potentially harmful activities will be undertaken within TPZs unless a Level 5 Arborist has provided confirmation that the works will not impact the tree. | To safeguard trees from construction activities which can impact trees through physical injury, soil compaction, and root damage. | Section 6.1.1 |
| C | No pedestrian or plant access is permissible to the TPZ. | As above | Section 6.1.1 |
| C | Avoid storing bulk or harmful materials near trees. Keep spoil from excavations away from TPZs. Ensure wind-blown materials like cement don't harm trees. Contaminants stored properly with spill measures. | As above | Section 6.1.1 |
| C | Protect the trees from harm. Avoid tying ropes, cables, or similar items to trees. No personnel, plant, machinery, or materials can enter the tree protection fencing. | As above | Section 6.1.1 |

| Project Stage | Mitigation Measure | Reason for Mitigation Measure | Section of Report |
|---|---|---|---|
| C | Do not fill or compact soil above tree roots enclosed by protection fencing during construction near trees. Guidelines must be followed to prevent soil compaction in these areas. Protection includes using elevated planks attached to scaffolding to prevent ground compression. | As above | Section 6.1.1 |
| C | Trenching shall avoid the TPZ's. Proposed routes shall be re-routed outside of the TPZ. Underboring required if unable reroute. Any excavation in the area of a TPZ must be authorised and conditioned by the project arborist. | Protection of trees<br>Subsurface utilities | Section 6.1.1 |
| C | Contractors are to ensure plants are watered where necessary. Apply water at an appropriate rate suitable for the plant species during periods of little or no rainfall. | Construction impacts to site may alter soil hydrology and in turn tree root access to water. | Section 6.1.1 |
| C | All site facilities must be located outside of TPZ. Chemicals and contaminants must be stored properly in an enclosed area with a spill bund to prevent runoff in case of accidents. | To safeguard trees from construction including root damaging activities and contaminant spills. | Section 6.1.1 |
| C | Basic hygiene protocols would be implemented for construction personnel and machinery on site to reduce the potential for invasion by plant pathogens including *Phytophthora cinnamomi*, the fungus myrtle rust *Uredo rangelli* and amphibian chytrid fungus. | To prevent the spread of harmful pathogens and protects the local ecosystem. | Section 6.1.4 |

# 7 EVALUATION OF ENVIRONMENTAL IMPACTS

The extent and nature of potential impacts are moderate and will not have significant impact on the locality, community and/or the environment.

Potential impacts can be appropriately mitigated or managed to ensure that there is minimal impact on the locality, community and/or the environment.

# 8 CONCLUSION AND RECOMMENDATIONS

It is recommended that the mitigation measures presented in this report are implemented to ensure there is minimal impact on the flora and fauna of the site during the construction phase of the proposed activity. This includes precautions within the Tree Protection Zone (TPZ) to avoid damage during construction, with a qualified arborist overseeing the process and providing a Tree Protection Plan. Trees and vegetation will be inspected for hollows and nests, with an ecologist on-site during tree removal operations to rescue and relocate impacted fauna. Measures to deter the Masked Lapwing from breeding within the proposed activity site will be implemented prior to the breeding season (August - March). Contractors and staff will be inducted on the site's ecological sensitivity, and basic hygiene protocols will be implemented to prevent plant pathogens and fungi.

No operational impacts to fauna are anticipated.

A Flora and Fauna Assessment (FFA) conducted by Water Technology for the Vincentia High School site identified no significant biodiversity areas or threatened species directly within the site boundaries. While acknowledging the presence of threatened species in the vicinity and the possibility of occasional site visitation, the assessment determined the on-site habitat quality to be low. The proposed school upgrade is therefore anticipated to have minimal impact on local fauna, especially given the abundance of more suitable habitat within the adjacent Jervis Bay National Park. Based on these findings, the project is not expected to result in significant environmental impacts, and further referral or an Environmental Impact Statement is deemed unnecessary.

This conclusion supports the progression of the upgrades to project under the current planning and environmental regulations, ensuring that the school infrastructure upgrades can proceed with minimal biodiversity disruption.

# 9 REFERENCES

DAWE (2025) EPBC Protected Matters Search Tool [Online tool] Accessed 23 September 2024. Available at: https://pmst.awe.gov.au/#/map?lng=131.52832031250003&lat=-28.6905876542507&zoom=5&baseLayers=Imagery

Department of Environment, Climate Change and Water NSW (2009) Commonwealth Advice -. [Online]. Accessed 23 September 2024. Available at: https://www.environment.gov.au/biodiversity/threatened/communities/pubs/112-listing-advice.pdf

Department of Environment, Climate Change and Water NSW (2010b). Sydney Growth Centres Strategic Assessment Program Report. Department of Environment, Climate Change and Water NSW, Sydney.

Laurence, M., & Mertin, A. (2024). Preliminary Arboricultural Report: Vincentia High School. NSW Department of Education.

MetroMap (2023) Spatial satellite imagery dated 05/05/2022. [Online tool] Accessed 2025. Available at: https://web.metromap.com.au/map?lat=33.41671080587806&lng=149.6053356300763&z=17.459764213268205&layer_id=310

MetroMap (2023) Spatial satellite imagery. [Online tool] Accessed 2025. Available at: https://web.metromap.com.au/map?lat=-33.41671080587806&lng=149.6053356300763&z=17.459764213268205&layer_id=310

NSW DPE (2023) Biodiversity Values Map [Online tool] Accessed 2025. Available at: https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap

NSW DPE (2023) NSW Planning Portal. [Online tool] Accessed 2025. Available at: https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address

NSW DPE (2023) State Vegetation Type Map [Online tool] Accessed 2025. Available at: https://datasets.seed.nsw.gov.au/dataset/nsw-state-vegetation-type-map

NSW DPE (Department of Planning and Environment) (2022) Register of biodiversity certification orders. [Online] Accessed 2025. Available at: https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity-offsets-scheme/about-the-biodiversity-offsets-scheme/biodiversity-certification/biodiversity-certification-orders

NSW DPI (2023) Key Fish Habitat Mapping [Online tool] Accessed 2025. Available at: https://webmap.industry.nsw.gov.au/Html5Viewer/index.html?viewer=Fisheries_Data_Portal

NSW OEH (2023) BioNet Atlas of NSW Wildlife [Online tool] Accessed 2025. Available at: https://www.environment.nsw.gov.au/atlaspublicapp/UI_Modules/ATLAS_/AtlasSearch.aspx

NSW OEH (2023) BioNet Vegetation Classification [Online tool] Accessed 2025. Available at: https://www.environment.nsw.gov.au/NSWVCA20PRapp/LoginPR.aspx

NSW OEH (2023) NSW eSpade [Online tool] Accessed 2025. Available at: https://www.environment.nsw.gov.au/eSpade2Webapp/

NSW OEH (2023) Threatened biodiversity profile search [Online tool] Accessed 2025. Available at: https://www.environment.nsw.gov.au/threatenedspeciesapp/

NSW Sixmaps (2023) Spatial area tool . [Online tool] Accessed 2025. Available at: https://maps.six.nsw.gov.au/

Varley, W. (2024, November). Arboricultural Impact Assessment Report (Draft). Allied Tree Consultancy for Department of Education Infrastructure Planning.

# APPENDIX A
# PROTECTED MATTERS SEARCH

# 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-Sep-2023

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: | 4 |
| Listed Threatened Species: | 53 |
| Listed Migratory Species: | 17 |

## Other Matters Protected by the EPBC Act

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

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/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: | 28 |
| Whales and Other Cetaceans: | None |
| Critical Habitats: | None |
| Commonwealth Reserves Terrestrial: | None |
| Australian Marine Parks: | None |
| Habitat Critical to the Survival of Marine Turtles: | None |

## Extra Information

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

| | |
|---|---|
| State and Territory Reserves: | 1 |
| Regional Forest Agreements: | 1 |
| Nationally Important Wetlands: | None |
| EPBC Act Referrals: | 6 |
| Key Ecological Features (Marine): | None |
| Biologically Important Areas: | None |
| Bioregional Assessments: | 1 |
| 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 |
|---|---|---|
| Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community | Endangered | Community likely to occur within area |
| Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland | Endangered | Community may occur within area |
| Illawarra and south coast lowland forest and woodland ecological community | Critically Endangered | Community may occur within area |
| River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria | Critically Endangered | Community likely to occur within 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 |
|---|---|---|
| BIRD | | |
| Anthochaera phrygia | | |
| Regent Honeyeater [82338] | Critically Endangered | Species or species habitat known to occur within area |
| Botaurus poiciloptilus | | |
| Australasian Bittern [1001] | Endangered | Species or species habitat likely to occur within area |
| Calidris canutus | | |
| Red Knot, Knot [855] | Endangered | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Calidris ferruginea<br>Curlew Sandpiper [856] | Critically Endangered | Species or species habitat may occur within area |
| Callocephalon fimbriatum<br>Gang-gang Cockatoo [768] | Endangered | Species or species habitat known to occur within area |
| Calyptorhynchus lathami lathami<br>South-eastern Glossy Black-Cockatoo [67036] | Vulnerable | Species or species habitat known to occur within area |
| Charadrius leschenaultii<br>Greater Sand Plover, Large Sand Plover [877] | Vulnerable | Species or species habitat likely to occur within area |
| Climacteris picumnus victoriae<br>Brown Treecreeper (south-eastern) [67062] | Vulnerable | Species or species habitat may occur within area |
| Dasyornis brachypterus<br>Eastern Bristlebird [533] | Endangered | Species or species habitat known to occur within area |
| Falco hypoleucos<br>Grey Falcon [929] | Vulnerable | Species or species habitat may occur within area |
| Grantiella picta<br>Painted Honeyeater [470] | Vulnerable | Species or species habitat likely to occur within area |
| Hirundapus caudacutus<br>White-throated Needletail [682] | Vulnerable | Species or species habitat known to occur within area |
| Lathamus discolor<br>Swift Parrot [744] | Critically Endangered | Species or species habitat likely to occur within area |
| Limosa lapponica baueri<br>Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380] | Vulnerable | Species or species habitat likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Neophema chrysogaster<br>Orange-bellied Parrot [747] | Critically Endangered | Species or species habitat may occur within area |
| Neophema chrysostoma<br>Blue-winged Parrot [726] | Vulnerable | Species or species habitat may occur within area |
| Numenius madagascariensis<br>Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat known to occur within area |
| Pachyptila turtur subantarctica<br>Fairy Prion (southern) [64445] | Vulnerable | Species or species habitat likely to occur within area |
| Pycnoptilus floccosus<br>Pilotbird [525] | Vulnerable | Species or species habitat likely to occur within area |
| Rostratula australis<br>Australian Painted Snipe [77037] | Endangered | Species or species habitat likely to occur within area |
| Stagonopleura guttata<br>Diamond Firetail [59398] | Vulnerable | Species or species habitat likely to occur within area |
| Sternula nereis nereis<br>Australian Fairy Tern [82950] | Vulnerable | Species or species habitat may occur within area |
| Thinornis cucullatus cucullatus<br>Eastern Hooded Plover, Eastern Hooded Plover [90381] | Vulnerable | Species or species habitat may occur within area |
| FISH | | |
| Prototroctes maraena<br>Australian Grayling [26179] | Vulnerable | Species or species habitat may occur within area |
| FROG | | |
| Heleioporus australiacus<br>Giant Burrowing Frog [1973] | Vulnerable | Species or species habitat known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Litoria aurea | | |
| Green and Golden Bell Frog [1870] | Vulnerable | Species or species habitat likely to occur within area |
| Litoria watsoni | | |
| Watson's Tree Frog [91509] | Endangered | Species or species habitat likely to occur within area |
| MAMMAL | | |
| Chalinolobus dwyeri | | |
| Large-eared Pied Bat, Large Pied Bat [183] | Vulnerable | Species or species habitat may occur within area |
| Dasyurus maculatus maculatus (SE mainland population) | | |
| Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184] | Endangered | Species or species habitat likely to occur within area |
| Isoodon obesulus obesulus | | |
| Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) [68050] | Endangered | Species or species habitat may occur within area |
| Petauroides volans | | |
| Greater Glider (southern and central) [254] | Endangered | Species or species habitat known to occur within area |
| Petaurus australis australis | | |
| Yellow-bellied Glider (south-eastern) [87600] | Vulnerable | Species or species habitat known to occur within area |
| Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) | | |
| Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104] | Endangered | Species or species habitat likely to occur within area |
| Potorous tridactylus trisulcatus | | |
| Long-nosed Potoroo (southern mainland) [86367] | Vulnerable | Species or species habitat may occur within area |
| Pseudomys novaehollandiae | | |
| New Holland Mouse, Pookila [96] | Vulnerable | Species or species habitat known to occur within area |
| Pteropus poliocephalus | | |
| Grey-headed Flying-fox [186] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| PLANT | | |
| Banksia vincentia [88276] | Critically Endangered | Species or species habitat known to occur within area |
| Caladenia tessellata Thick-lipped Spider-orchid, Daddy Long-legs [2119] | Vulnerable | Species or species habitat likely to occur within area |
| Calochilus pulchellus Pretty Beard Orchid, Pretty Beard-orchid [84677] | Endangered | Species or species habitat known to occur within area |
| Cryptostylis hunteriana Leafless Tongue-orchid [19533] | Vulnerable | Species or species habitat known to occur within area |
| Cynanchum elegans White-flowered Wax Plant [12533] | Endangered | Species or species habitat likely to occur within area |
| Genoplesium baueri Yellow Gnat-orchid, Bauer's Midge Orchid, Brittle Midge Orchid [7528] | Endangered | Species or species habitat known to occur within area |
| Melaleuca biconvexa Biconvex Paperbark [5583] | Vulnerable | Species or species habitat known to occur within area |
| Persicaria elatior Knotweed, Tall Knotweed [5831] | Vulnerable | Species or species habitat may occur within area |
| Prasophyllum affine Jervis Bay Leek Orchid, Culburra Leek-orchid, Kinghorn Point Leek-orchid [2210] | Endangered | Species or species habitat known to occur within area |
| Prostanthera densa Villous Mintbush [12233] | Vulnerable | Species or species habitat may occur within area |
| Pterostylis gibbosa Illawarra Greenhood, Rufa Greenhood, Pouched Greenhood [4562] | Endangered | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Rhizanthella slateri | | |
| Eastern Underground Orchid [11768] | Endangered | Species or species habitat likely to occur within area |
| Rhodamnia rubescens | | |
| Scrub Turpentine, Brown Malletwood [15763] | Critically Endangered | Species or species habitat likely to occur within area |
| Syzygium paniculatum | | |
| Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307] | Vulnerable | Species or species habitat likely to occur within area |
| Thesium australe | | |
| Austral Toadflax, Toadflax [15202] | Vulnerable | Species or species habitat likely to occur within area |
| Xerochrysum palustre | | |
| Swamp Everlasting, Swamp Paper Daisy [76215] | Vulnerable | Species or species habitat may occur within area |
| REPTILE | | |
| Hoplocephalus bungaroides | | |
| Broad-headed Snake [1182] | Vulnerable | Species or species habitat may occur within area |

| Listed Migratory Species | | [ Resource Information ] |
|---|---|---|
| Scientific Name | Threatened Category | Presence Text |
| Migratory Marine Birds | | |
| Apus pacificus | | |
| Fork-tailed Swift [678] | | Species or species habitat likely to occur within area |
| Migratory Terrestrial Species | | |
| Cuculus optatus | | |
| Oriental Cuckoo, Horsfield's Cuckoo [86651] | | Species or species habitat may occur within area |
| Hirundapus caudacutus | | |
| White-throated Needletail [682] | Vulnerable | Species or species habitat known to occur within area |
| Monarcha melanopsis | | |
| Black-faced Monarch [609] | | Species or species habitat known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| [Myiagra cyanoleuca](#)<br>Satin Flycatcher [612] | | Species or species habitat known to occur within area |
| [Rhipidura rufifrons](#)<br>Rufous Fantail [592] | | Species or species habitat known to occur within area |
| [Symposiachrus trivirgatus as Monarcha trivirgatus](#)<br>Spectacled Monarch [83946] | | Species or species habitat may occur within area |
| **Migratory Wetlands Species** | | |
| [Actitis hypoleucos](#)<br>Common Sandpiper [59309] | | Species or species habitat may occur within area |
| [Calidris acuminata](#)<br>Sharp-tailed Sandpiper [874] | | Species or species habitat may occur within area |
| [Calidris canutus](#)<br>Red Knot, Knot [855] | Endangered | Species or species habitat may occur within area |
| [Calidris ferruginea](#)<br>Curlew Sandpiper [856] | Critically Endangered | Species or species habitat may occur within area |
| [Calidris melanotos](#)<br>Pectoral Sandpiper [858] | | Species or species habitat may occur within area |
| [Charadrius leschenaultii](#)<br>Greater Sand Plover, Large Sand Plover [877] | Vulnerable | Species or species habitat likely to occur within area |
| [Gallinago hardwickii](#)<br>Latham's Snipe, Japanese Snipe [863] | | Species or species habitat known to occur within area |
| [Limosa lapponica](#)<br>Bar-tailed Godwit [844] | | Species or species habitat likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Numenius madagascariensis | | |
| Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat known to occur within area |
| Tringa nebularia | | |
| Common Greenshank, Greenshank [832] | | Species or species habitat likely to occur within area |

## Other Matters Protected by the EPBC Act

| Listed Marine Species | | [ Resource Information ] |
|---|---|---|
| Scientific Name | Threatened Category | Presence Text |
| Bird | | |
| Actitis hypoleucos | | |
| Common Sandpiper [59309] | | Species or species habitat may occur within area |
| Apus pacificus | | |
| Fork-tailed Swift [678] | | Species or species habitat likely to occur within area overfly marine area |
| Bubulcus ibis as Ardea ibis | | |
| Cattle Egret [66521] | | Species or species habitat may occur within area overfly marine area |
| Calidris acuminata | | |
| Sharp-tailed Sandpiper [874] | | Species or species habitat may occur within area |
| Calidris canutus | | |
| Red Knot, Knot [855] | Endangered | Species or species habitat may occur within area overfly marine area |
| Calidris ferruginea | | |
| Curlew Sandpiper [856] | Critically Endangered | Species or species habitat may occur within area overfly marine area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Calidris melanotos<br>Pectoral Sandpiper [858] | | Species or species habitat may occur within area overfly marine area |
| Charadrius leschenaultii<br>Greater Sand Plover, Large Sand Plover [877] | Vulnerable | Species or species habitat likely to occur within area |
| Gallinago hardwickii<br>Latham's Snipe, Japanese Snipe [863] | | Species or species habitat known to occur within area overfly marine area |
| Haliaeetus leucogaster<br>White-bellied Sea-Eagle [943] | | Species or species habitat known to occur within area |
| Hirundapus caudacutus<br>White-throated Needletail [682] | Vulnerable | Species or species habitat known to occur within area overfly marine area |
| Lathamus discolor<br>Swift Parrot [744] | Critically Endangered | Species or species habitat likely to occur within area overfly marine area |
| Limosa lapponica<br>Bar-tailed Godwit [844] | | Species or species habitat likely to occur within area |
| Merops ornatus<br>Rainbow Bee-eater [670] | | Species or species habitat may occur within area overfly marine area |
| Monarcha melanopsis<br>Black-faced Monarch [609] | | Species or species habitat known to occur within area overfly marine area |
| Myiagra cyanoleuca<br>Satin Flycatcher [612] | | Species or species habitat known to occur within area overfly marine area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Neophema chrysogaster<br>Orange-bellied Parrot [747] | Critically Endangered | Species or species habitat may occur within area overfly marine area |
| Neophema chrysostoma<br>Blue-winged Parrot [726] | Vulnerable | Species or species habitat may occur within area overfly marine area |
| Numenius madagascariensis<br>Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat known to occur within area |
| Pachyptila turtur<br>Fairy Prion [1066] | | Species or species habitat likely to occur within area |
| Pterodroma cervicalis<br>White-necked Petrel [59642] | | Species or species habitat may occur within area |
| Rhipidura rufifrons<br>Rufous Fantail [592] | | Species or species habitat known to occur within area overfly marine area |
| Rostratula australis as Rostratula benghalensis (sensu lato)<br>Australian Painted Snipe [77037] | Endangered | Species or species habitat likely to occur within area overfly marine area |
| Sterna striata<br>White-fronted Tern [799] | | Migration route may occur within area |
| Symposiachrus trivirgatus as Monarcha trivirgatus<br>Spectacled Monarch [83946] | | Species or species habitat may occur within area overfly marine area |
| Thinornis cucullatus as Thinornis rubricollis<br>Hooded Plover, Hooded Dotterel [87735] | | Species or species habitat may occur within area overfly marine area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Thinornis cucullatus cucullatus as Thinornis rubricollis rubricollis | | |
| Eastern Hooded Plover, Eastern Hooded Plover [90381] | Vulnerable | Species or species habitat may occur within area overfly marine area |
| Tringa nebularia | | |
| Common Greenshank, Greenshank [832] | | Species or species habitat likely to occur within area overfly marine area |

## Extra Information

| State and Territory Reserves | | [ Resource Information ] |
|---|---|---|
| Protected Area Name | Reserve Type | State |
| Jervis Bay | National Park | NSW |

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

Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.

| RFA Name | State |
|---|---|
| Southern RFA | New South Wales |

| EPBC Act Referrals | | | [ Resource Information ] |
|---|---|---|---|
| Title of referral | Reference | Referral Outcome | Assessment Status |
| Controlled action | | | |
| Residential Subdivision and Town Centre Development, Vincentia | 2006/2927 | Controlled Action | Post-Approval |
| Not controlled action | | | |
| Clearance of native vegetation to create fire breaks | 2004/1534 | Not Controlled Action | Completed |
| Golf Course Extension | 2001/215 | Not Controlled Action | Completed |
| Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia | 2015/7522 | Not Controlled Action | Completed |
| INDIGO Central Submarine Telecommunications Cable | 2017/8127 | Not Controlled Action | Completed |
| Not controlled action (particular manner) | | | |
| INDIGO Marine Cable Route Survey (INDIGO) | 2017/7996 | Not Controlled Action (Particular Manner) | Post-Approval |

## Bioregional Assessments

| SubRegion | BioRegion | Website |
|---|---|---|
| Sydney | Sydney Basin | BA website |

# 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.

© Commonwealth of Australia
Department of Climate Change, Energy, the Environment and Water
GPO Box 3090
Canberra ACT 2601 Australia
+61 2 6274 1111

# APPENDIX B
# LIKELIHOOD OF OCCURRENCE

| Likelihood | Descriptor |
|---|---|
| Recorded | The species was observed in the study area during the current survey. |
| High | It is highly likely that a species inhabits the study area and is dependent on identified suitable habitat (i.e., for breeding or important life cycle periods such as winter flowering resources), has been recorded recently in the locality (10km) and is known or likely to maintain resident populations in the study area. Also includes species known or likely to visit the study area during regular seasonal movements or migration. |
| Moderate | Potential habitat is present in the study area. Species unlikely to maintain sedentary populations, however, may seasonally use resources within the study area opportunistically or during migration. The species is unlikely to be dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on habitat within the study area, or habitat is in a modified or degraded state. Includes cryptic flowering flora species that were not seasonally targeted by surveys and that have not been recorded. |
| Low | It is unlikely that the species inhabits the study area and has not been recorded recently in the locality (10km). It may be an occasional visitor, but habitat similar to the study area is widely distributed in the local area, meaning that the species is not dependent (i.e., for breeding or important life cycle periods such as winter flowering resources) on available habitat. Specific habitat is not present in the study area, or the species are a non-cryptic perennial flora species that were specifically targeted by surveys and not recorded. |
| None | Suitable habitat is absent from the study area. |

| Family | Scientific Name | Common Name | NSW status | Comm. status | Records | Comment | Likelihood |
|---|---|---|---|---|---|---|---|
| Fauna | | | | | | | |
| Myobatrachida | *Pseudophryne australis* | Red-crowned Toadlet | c,P | | 174 | Occurs in open forests, mostly on Hawkesbury and Narrabeen Sandstones. Inhabits periodically wet drainage lines below sandstone ridges that often have shale lenses or capping. Shelters under rocks and amongst masses of dense vegetation or thick piles of leaf litter. Breeding congregations occur in dense vegetation and debris beside ephemeral creeks and gutters. Red-crowned Toadlets have not been recorded breeding in waters that are even mildly polluted or with a pH outside the range 5.5 to 6.5. | Low |
| | Heleioporus australiacus | Giant Burrowing Frog | V | V | 69 | Prefers sandy or loamy soils in heathlands, woodlands, or forests near permanent water sources. | Moderate |
| Cheloniidae | *Caretta caretta* | Loggerhead Turtle | E1,P | E | 5 | Loggerhead Turtles are found in tropical and temperate waters off the Australian coast. In NSW they are seen as far south as Jervis Bay and have been recorded nesting on the NSW north coast and feeding around Sydney. | Low |
| Cheloniidae | *Chelonia mydas* | Green Turtle | V,P | V | 1 | Widely distributed in tropical and sub-tropical seas. Usually found in tropical waters around Australia but also occurs in coastal waters of NSW, where it is generally seen on the north or central coast, with occasional records from the south coast. | Low |

| Family | Scientific Name | Common Name | NSW status | Comm. status | Records | Comment | Likelihood |
|---|---|---|---|---|---|---|---|
| Dermochelyidae | *Dermochelys coriacea* | Leatherback Turtle | E1,P | E | 1 | Throughout the world's tropical and temperate seas and in all coastal waters of Australia. Most sightings are in temperate waters. Large numbers of Leatherback Turtles feed in coastal waters from southern Queensland to the central coast of NSW. | Low |
| Varanidae | *Varanus rosenbergi* | Rosenberg's Goanna | V,P | | 5 | Rosenberg's Goanna occurs on the Sydney Sandstone in Wollemi National Park to the north-west of Sydney, in the Goulburn and ACT regions and near Cooma in the south. There are records from the Southwest Slopes near Khancoban and Tooma River. Also occurs in South Australia and Western Australia. | Low |
| Dasyornithidae | *Dasyornis brachypterus* | Eastern Bristlebird | E | E | 1043 | Inhabits dense, low vegetation such as coastal heaths, grassy woodlands, and shrublands with minimal disturbance. | High |
| Petauridae | *Petaurus australis* | Yellow-bellied Glider | V | Not listed | 256 | Lives in tall, mature eucalypt forests and woodlands with an abundance of tree hollows and sap-bearing trees. | High |
| Apodidae | *Hirundapus caudacutus* | White-throated Needletail | P | V,C,J,K | 2 | In eastern Australia, it is recorded in all coastal regions of Queensland and NSW, extending inland to the western slopes of the Great Divide and occasionally onto the adjacent inland plains. | Low |
| Procellariidae | *Ardenna pacifica* | Wedge-tailed Shearwater | P | J | 3 | In tropical zones the species may feed over cool nutrient-rich waters. The species has been recorded in offshore waters of eastern Victoria and southern NSW, mostly over continental slope with sea-surface temperatures of 13.9–24.4 °C | Low |

| Family | Scientific Name | Common Name | NSW status | Comm. status | Records | Comment | Likelihood |
|---|---|---|---|---|---|---|---|
| Procellariidae | *Ardenna tenuirostris* | Short-tailed Shearwater | P | C,J,K | 2 | The Short-tailed Shearwater is found in coastal waters. In summer months, the Short-tailed Shearwater is the most common shearwater along the south and south-east coasts of Australia. | Low |
| Ardeidae | *Botaurus poiciloptilus* | Australasian Bittern | E1,P | E | 1 | Australasian Bitterns are widespread but uncommon over south-eastern Australia. In NSW they may be found over most of the state except for the far north-west. Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (*Typha spp*.) and spike rushes (*Eleocharis spp*.) | Low |
| Ardeidae | *Ixobrychus flavicollis* | Black Bittern | V,P | | 1 | The Black Bittern has a wide distribution, from southern NSW north to Cape York and along the north coast to the Kimberley region. The species also occurs in the south-west of Western Australia. In NSW, records of the species are scattered along the east coast, with individuals rarely being recorded south of Sydney or inland. Inhabits both terrestrial and estuarine wetlands, generally in areas of permanent water and dense vegetation. Where permanent water is present, the species may occur in flooded grassland, forest, woodland, rainforest, and mangroves. | Low |

| Family | Scientific Name | Common Name | NSW status | Comm. status | Records | Comment | Likelihood |
|---|---|---|---|---|---|---|---|
| Accipitridae | *Haliaeetus leucogaster* | White-bellied Sea-Eagle | V,P | | 20 | In New South Wales it is widespread along the east coast, and along all major inland rivers and waterways. Habitats are characterised by the presence of large areas of open water including larger rivers, swamps, lakes, and the sea. Occurs at sites near the sea or seashore, such as around bays and inlets, beaches, reefs, lagoons, estuaries, and mangroves; and at, or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs, and saltmarsh. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest). Breeding habitat consists of mature tall open forest, open forest, tall woodland, and swamp sclerophyll forest close to foraging habitat. Nest trees are typically large emergent eucalypts and often have emergent dead branches or large dead trees nearby which are used as 'guard roosts'. Nests are large structures built from sticks and lined with leaves or grass. | Low |
| Accipitridae | *Lophoictinia isura* | Square-tailed Kite | V,P,3 | | 1 | The Square-tailed Kite ranges along coastal and subcoastal areas from south-western to northern Australia, Queensland, NSW, and Victoria. In NSW, scattered records of the species throughout the state indicate that the species is a regular resident in the north, north-east and along the major west-flowing river systems. It is a summer breeding migrant to the south-east, including the NSW south coast, arriving in September, and leaving by March. | Low |

| Family | Scientific Name | Common Name | NSW status | Comm. status | Records | Comment | Likelihood |
|---|---|---|---|---|---|---|---|
| Accipitridae | *Pandion cristatus* | Eastern Osprey | V,P,3 | | 3 | Favour coastal areas, especially the mouths of large rivers, lagoons, and lakes. Feed on fish over clear, open water. Breed from July to September in NSW. Nests are made high up in dead trees or in dead crowns of live trees, usually within one kilometre of the sea. | Low |
| Charadriidae | *Pluvialis squatarola* | Grey Plover | P | C,J,K | 2 | Grey Plovers occur almost entirely in coastal areas, where they usually inhabit sheltered embayments, estuaries and lagoons with mudflats and sandflats, and occasionally on rocky coasts with wave-cut platforms or reef-flats, or on reefs within muddy lagoons. They also occur around terrestrial wetlands such as near-coastal lakes and swamps, or salt-lakes. The species is also very occasionally recorded further inland, where they occur around wetlands or salt-lakes | Low |
| Scolopacidae | *Actitis hypoleucos* | Common Sandpiper | P | C,J,K | 1 | The species utilises a wide range of coastal wetlands and some inland wetlands, with varying levels of salinity, and is mostly found around muddy margins or rocky shores and rarely on mudflats. The Common Sandpiper has been recorded in estuaries and deltas of streams, as well as on banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and claypans, and occasionally piers and jetties. The species is often associated with mangroves, and sometimes found in areas of mud littered with rocks or snags | Low |
| Laridae | *Thalasseus bergii* | Crested Tern | P | J | 23 | Occurs along coasts and estuaries; very rarely further inland or on freshwater ponds/lagoons. | Low |

| Family | Scientific Name | Common Name | NSW status | Comm. status | Records | Comment | Likelihood |
|---|---|---|---|---|---|---|---|
| Cacatuidae | *Calyptorhynchus lathami lathami* | South-eastern Glossy Black-Cockatoo | V,P,2 | V | 3 | Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of Sheoak occur. Black Sheoak (*Allocasuarina littoralis*) and Forest Sheoak (*A. torulosa*) are important foods. Inland populations feed on a wide range of Sheoaks, including Drooping Sheoak, *Allocasuaraina diminuta*, and *A. gymnathera*. Belah is also utilised and may be a critical food source for some populations. In the Riverina, birds are associated with hills and rocky rises supporting Drooping Sheoak, but also recorded in open woodlands dominated by Belah (*Casuarina cristata*). | HighDasyornis brachypteru |
| Psittacidae | *Glossopsitta pusilla* | Little Lorikeet | V,P | | 3 | Forages primarily in the canopy of open Eucalyptus Forest and woodland, yet also finds food in *Angophora sp*, *Melaleuca sp* and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity. Isolated flowering trees in open country, e.g., paddocks, roadside remnants and urban trees also help sustain viable populations of the species. Feeds mostly on nectar and pollen, occasionally on native fruits such as mistletoe, and only rarely in orchards | Low |

| Family | Scientific Name | Common Name | NSW status | Comm. status | Records | Comment | Likelihood |
|---|---|---|---|---|---|---|---|
| Psittacidae | *Lathamus discolor* | Swift Parrot | E1,P,3 | CE | 5 | On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany *Eucalyptus robusta*, Spotted Gum *Corymbia maculata*, Red Bloodwood *C. gummifera*, Forest Red Gum *E. tereticornis*, Mugga Ironbark *E. sideroxylon*, and White Box *E. albens*. Commonly used lerp infested trees include Inland Grey Box *E. microcarpa*, Grey Box *E. moluccana*, Blackbutt *E. pilularis*, and Yellow Box *E. melliodora*. Return to some foraging sites on a cyclic basis depending on food availability. | Low |
| Strigidae | *Ninox connivens* | Barking Owl | V,P,3 | | 4 | Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. It is flexible in its habitat use, and hunting can extend in to closed forest and more open areas. Sometimes able to successfully breed along timbered watercourses in heavily cleared habitats (e.g., western NSW) due to the higher density of prey found on these fertile riparian soils. Roost in shaded portions of tree canopies, including tall midstorey trees with dense foliage such as *Acacia* and *Casuarina* species. During nesting season, the male perches in a nearby tree overlooking the hollow entrance. Requires very large permanent territories in most habitats due to sparse prey densities. Monogamous pairs hunt over as much as 6000 hectares, with 2000 hectares being more typical in NSW habitats. | Low |

| Family | Scientific Name | Common Name | NSW status | Comm. status | Records | Comment | Likelihood |
|---|---|---|---|---|---|---|---|
| Strigidae | *Ninox strenua* | Powerful Owl | V,P,3 | | 402 | The Powerful Owl inhabits a range of vegetation types, from woodland and open sclerophyll forest to tall open wet forest and rainforest. The Powerful Owl requires large tracts of forest or woodland habitat but can occur in fragmented landscapes as well. The species breeds and hunts in open or closed sclerophyll forest or woodlands and occasionally hunts in open habitats. It roosts by day in dense vegetation comprising species such as Turpentine *Syncarpia glomulifera*, Black She-oak *Allocasuarina littoralis*, Blackwood *Acacia melanoxylon*, Rough-barked Apple *Angophora floribunda*, Cherry Ballart *Exocarpus cupressiformis* and a number of eucalypt species. | Moderate |
| Tytonidae | *Tyto tenebricosa* | Sooty Owl | V,P,3 | | 1 | Occupies the easternmost one-eighth of NSW, occurring on the coast, coastal escarpment, and eastern tablelands. Territories are occupied permanently. | Low |
| Neosittidae | *Daphoenositta chrysoptera* | Varied Sittella | V,P | | 1 | Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee, and Acacia woodland. | Low |
| Dasyuridae | *Dasyurus maculatus* | Spotted-tailed Quoll | V,P | E | 3 | Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath, and inland riparian forest, from the sub-alpine zone to the coastline.<br>Individual animals use hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites. | Low |

| Family | Scientific Name | Common Name | NSW status | Comm. status | Records | Comment | Likelihood |
|---|---|---|---|---|---|---|---|
| Phascolarctidae | *Phascolarctos cinereus* | Koala | E1,P | E | 5 | In New South Wales, koala populations are found on the central and north coasts, southern highlands, southern and northern tablelands, Blue Mountains, southern coastal forests, with some smaller populations on the plains west of the Great Dividing Range. Inhabit eucalypt woodlands and forests. Feed on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species. | Low |
| Burramyidae | *Cercartetus nanus* | Eastern Pygmy-possum | V,P | | 16 | The Eastern Pygmy-possum is found in south-eastern Australia, from southern Queensland to eastern South Australia and in Tasmania. In NSW it extends from the coast inland as far as the Pilliga, Dubbo, Parkes, and Wagga Wagga on the western slopes. | Low |
| Pteropodidae | *Pteropus poliocephalus* | Grey-headed Flying-fox | V,P | V | 574 | Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths, and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy. | High |
| Emballonuridae | *Saccolaimus flaviventris* | Yellow-bellied Sheathtail-bat | V,P | | 4 | Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. When foraging for insects, flies high and fast over the forest canopy, but lower in more open country. Forages in most habitats across its very wide range, with and without trees; appears to defend an aerial territory. | Low |

| Family | Scientific Name | Common Name | NSW status | Comm. status | Records | Comment | Likelihood |
|---|---|---|---|---|---|---|---|
| Molossidae | *Micronomus norfolkensis* | Eastern Coastal Free-tailed Bat | V,P | | 2 | Occur in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range. Roost mainly in tree hollows but will also roost under bark or in man-made structures. | Moderate |
| Vespertilionidae | *Chalinolobus dwyeri* | Large-eared Pied Bat | V,P | V | 4 | Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin (*Petrochelidon ariel*), frequenting low to mid-elevation dry open forest and woodland close to these features | Low |
| Vespertilionidae | *Myotis macropus* | Southern Myotis | V,P | | 51 | Generally, roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage. | Low |
| Vespertilionidae | *Scoteanax rueppellii* | Greater Broad-nosed Bat | V,P | | 4 | Utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest. Although this species usually roosts in tree hollows, it has also been found in buildings. Open woodland habitat and dry open forest suits the direct flight of this species as it searches for beetles and other large, slow-flying insects; this species has been known to eat other bat species. | Low |

| Family | Scientific Name | Common Name | NSW status | Comm. status | Records | Comment | Likelihood |
|---|---|---|---|---|---|---|---|
| Miniopteridae | *Miniopterus australis* | Little Bent-winged Bat | V,P | | 33 | Moist eucalypt forest, rainforest, vine thicket, wet and dry sclerophyll forest, *Melaleuca* swamps, dense coastal forests, and banksia scrub. Generally found in well-timbered areas. Little Bentwing-bats roost in caves, tunnels, tree hollows, abandoned mines, stormwater drains, culverts, bridges and sometimes buildings during the day, and at night forage for small insects beneath the canopy of densely vegetated habitats. | Low |
| Miniopteridae | *Miniopterus orianae oceanensis* | Large Bent-winged Bat | V,P | | 50 | Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings, and other man-made structures. Form discrete populations centred on a maternity cave that is used annually in spring and summer for the birth and rearing of young. Maternity caves have very specific temperature and humidity regimes. At other times of the year, populations disperse within about 300 km range of maternity caves. Cold caves are used for hibernation in southern Australia. Breeding or roosting colonies can number from 100 to 150,000 individuals. Hunt in forested areas, catching moths and other flying insects above the treetops. | Low |
| Otariidae | *Arctocephalus forsteri* | New Zealand Fur-seal | V,P | | 27 | Occurs in Australia and New Zealand. Reports of non-breeding animals along southern NSW coast particularly on Montague Island, but also at other isolated locations to north of Sydney. | Low |
| Otariidae | *Arctocephalus pusillus doriferus* | Australian Fur-seal | V,P | | 2 | Reported to have bred at Seal Rocks, near Port Stephens and Montague Island in southern NSW. Haul outs are observed at isolated places along the NSW coast. | Low |

| Family | Scientific Name | Common Name | NSW status | Comm. status | Records | Comment | Likelihood |
|---|---|---|---|---|---|---|---|
| Balaenidae | *Eubalaena australis* | Southern Right Whale | E1,P | E | 3 | Temperate and subpolar waters of the Southern Hemisphere, with a circumpolar distribution between about 20°S and 55°S with some records further south to 63°S. | Low |
| Petaluridae | *Petalura gigantea* | Giant Dragonfly | E1 | | 1 | The Giant Dragonfly is found along the east coast of NSW from the Victorian border to northern NSW. It is not found west of the Great Dividing Range. There are known occurrences in the Blue Mountains and Southern Highlands, in the Clarence River catchment, and on a few coastal swamps from north of Coffs Harbour to Nadgee in the south. | Low |
| Flora | | | | | | | |
| Casuarinaceae | *Allocasuarina portuensis* | Nielsen Park She-oak | E1,3 | E | 5 | The original known habitat of the Neilsen Park She-oak is at Nielsen Park, in Woollahra local government area. There are no plants left at the original site where it was discovered. However, propagation material has been planted successfully at a number of locations at Nielsen Park and other locations in the local area, e.g., Gap Bluff, Hermit Point and Vaucluse House. | Low |
| Ericaceae | *Epacris purpurascens var. purpurascens* | | V | | 17 | Recorded from Gosford in the north, to Narrabeen in the east, Silverdale in the west and Avon Dam vicinity in the South. Found in a range of habitat types, most of which have a strong shale soil influence. | Low |

| Family | Scientific Name | Common Name | NSW status | Comm. status | Records | Comment | Likelihood |
|---|---|---|---|---|---|---|---|
| Fabaceae (Mimosoideae) | *Acacia terminalis subsp. Eastern Sydney* | Sunshine wattle | E1 | E | 15 | Mainly in near-coastal areas from the northern shores of Sydney Harbour south to Botany Bay, with most records from the Port Jackson area and the eastern suburbs of Sydney. Recorded from North Head, Middle Head, Dover Heights, Parsely Bay, Nielsen Park, Cooper Park, Chifley, Watsons Bays, Wollstonecraft, and Waverley. Coastal scrub and dry sclerophyll woodland on sandy soils. | Low |
| Hygrophoraceae | *Hygrocybe aurantipes* | | V | | 1 | Known from type locality, Lane Cove Bushland Park, Lane Cove, and other locations in the Sydney region including Royal National Park, Chatswood, Northbridge, and the Blue Mountains (Mount Wilson, Hazelbrook, Springwood). Occurs in gallery warm temperate forests dominated by Lilly Pilly (*Acmena smithii*), Grey Myrtle (*Backhousia myrtifolia*), Cheese Tree (*Glochidion ferdinandi*) and Sweet Pittosporum (*Pittosporum undulatum*). | Low |
| Hygrophoraceae | *Hygrocybe reesiae* | | V | | 1 | Known from type locality, Lane Cove Bushland Park, Lane Cove, and other locations in the Sydney region including Royal National Park, Chatswood, Castle Hill, Northbridge, Marsfield, East Linfield, and the Blue Mountains (Mount Wilson, Hazelbrook). Occurs in gallery warm temperate forests dominated by Lilly Pilly (*Acmena smithii*), Grey Myrtle (*Backhousia myrtifolia*), Cheese Tree (*Glochidion ferdinandi*) and Sweet Pittosporum (*Pittosporum undulatum*). | Low |

| Family | Scientific Name | Common Name | NSW status | Comm. status | Records | Comment | Likelihood |
|---|---|---|---|---|---|---|---|
| Lamiaceae | *Prostanthera marifolia* | Seaforth Mintbush | E4A,3 | CE | 753 | *Prostanthera marifolia* is currently only known from the northern Sydney suburb of Seaforth and has a very highly restricted distribution within the Sydney Basin Bioregion. The single population is fragmented by urbanisation into three small sites. All known sites are within an area of 2x2 km. The sites are within the local government area of Northern Beaches Council. | Low |
| Myrtaceae | *Callistemon linearifolius* | Netted Bottle Brush | V,3 | | 6 | For the Sydney area, recent records are limited to the Hornsby Plateau area near the Hawkesbury River. The species was more widespread in the past, and there are currently only 5-6 populations remaining from the 22 populations historically recorded in the Sydney area. Three of the remaining populations are reserved in Ku-ring-gai Chase National Park, Lion Island Nature Reserve and Spectacle Island Nature Reserve. The species has also been recorded from Yengo National Park. Grows in dry sclerophyll forest on the coast and adjacent ranges. | Low |

| Family | Scientific Name | Common Name | NSW status | Comm. status | Records | Comment | Likelihood |
|---|---|---|---|---|---|---|---|
| Myrtaceae | *Eucalyptus camaldulensis* | *Eucalyptus camaldulensis* population in the Hunter catchment | E2 | | 1 | The Hunter population occurs from the west at Bylong, south of Merriwa, to the east at Hinton, on the bank of the Hunter River, in the Port Stephens local government area. It has been recorded in the local government areas of Lithgow, Maitland, Mid-Western Regional, Muswellbrook, Port Stephens, Singleton, and Upper Hunter. Prior to European settlement, between 10,000 and 20,000 ha of habitat suitable for the River Red Gum occurred in the Hunter catchment. Today only 19 stands are known, occupying at most c. 100 ha, the largest remnant being 15 - 20 ha in extent. Smaller remnants contain only one to several trees. The total number of individuals is estimated to be between 600 - 1000 mature or semi mature trees. | Low |
| Myrtaceae | *Eucalyptus glaucina* | Slaty Red Gum | V | V | 1 | Found in separate districts along the eastern seaboard of NSW, from near Casino, to Taree, south to Broke, and recently discovered on the eastern side of the Blue Mountains National Park near Warragamba Dam. Grows in grassy woodland and dry eucalypt forest | Low |
| Myrtaceae | *Rhodomyrtus psidioides* | Native Guava | E4A | CE | 1 | Occurs from Broken Bay, approximately 90 km north of Sydney, New South Wales, to Maryborough in Queensland. Populations are typically restricted to coastal and sub-coastal areas of low elevation however the species does occur up to c. 120 km inland in the Hunter and Clarence River catchments and along the Border Ranges in NSW. This species is characterised being extremely susceptible to infection by Myrtle Rust. Myrtle Rust affects all plant parts | Low |

| Family | Scientific Name | Common Name | NSW status | Comm. status | Records | Comment | Likelihood |
|---|---|---|---|---|---|---|---|
| Myrtaceae | *Darwinia biflora* | | V | V | 17 | Recorded in Ku-ring-gai, Hornsby, Baulkham Hills, and Ryde local government areas. The northern, southern, eastern, and western limits of the range are at Maroota, North Ryde, Cowan, and Kellyville, respectively. Occurs on the edges of weathered shale-capped ridges, where these intergrade with Hawkesbury Sandstone. | Low |
| Myrtaceae | *Melaleuca deanei* | Deane's Paperbark | V | V | 4 | Deane's Paperbark occurs in two distinct areas, in the Ku-ring-gai/Berowra and Holsworthy/Wedderburn areas respectively. There are also more isolated occurrences at Springwood (in the Blue Mountains), Wollemi National Park, Yalwal (west of Nowra) and Central Coast (Hawkesbury River) areas. The species occurs mostly in ridgetop woodland, with only 5% of sites in heath on sandstone. | Low |
| Myrtaceae | *Rhodamnia rubescens* | Scrub Turpentine | E4A | CE | 4 | Occurs in coastal districts north from Batemans Bay in New South Wales, approximately 280 km south of Sydney, to areas inland of Bundaberg in Queensland. Populations of *R. rubescens* typically occur in coastal regions and occasionally extend inland onto escarpments up to 600 m a.s.l. in areas with rainfall of 1,000-1,600 mm. Found in littoral, warm temperate and subtropical rainforest, and wet sclerophyll forest usually on volcanic and sedimentary soils. | Low |

| Family | Scientific Name | Common Name | NSW status | Comm. status | Records | Comment | Likelihood |
|---|---|---|---|---|---|---|---|
| Myrtaceae | *Syzygium paniculatum* | Magenta Lilly Pilly | E1 | V | 4 | The Magenta Lilly Pilly is found only in NSW, in a narrow, linear coastal strip from Upper Lansdowne to Conjola State Forest. On the south coast the Magenta Lilly Pilly occurs on grey soils over sandstone, restricted mainly to remnant stands of littoral (coastal) rainforest. On the central coast Magenta Lilly Pilly occurs on gravels, sands, silts and clays in riverside gallery rainforests and remnant littoral rainforest communities. | Low |
| Proteaceae | *Macadamia integrifolia* | Macadamia Nut | | V | 1 | Not known to occur naturally in the wild in NSW | Low |
| Rhamnaceae | *Pomaderris prunifolia* | P. prunifolia in the Parramatta, Auburn, Strathfield, and Bankstown Local Government Areas | E2 | | 5 | Known from only three sites within the listed local government areas, at Rydalmere, within Rookwood Cemetery and at The Crest of Bankstown. | Low |

| Family | Scientific Name | Common Name | NSW status | Comm. status | Records | Comment | Likelihood |
|---|---|---|---|---|---|---|---|
| Thymelaeaceae | *Pimelea curviflora var. curviflora* | | V | V | 2 | Confined to the coastal area of the Sydney and Illawarra regions. Populations are known between northern Sydney and Maroota in the north-west. New population discovered at Croom Reserve near Albion Park in Shellharbour LGA in August 2011. Formerly recorded around the Parramatta River and Port Jackson region including Five Dock, Bellevue Hill and Manly. Occurs on shaley/lateritic soils over sandstone and shale/sandstone transition soils on ridgetops and upper slopes amongst woodlands. | Low |
| Zannichelliaceae | *Zannichellia palustris* | Tadgell's Bluebell in the local government areas of Auburn, Bankstown, Baulkham Hills, Canterbury, Hornsby, Parramatta, and Strathfield | E1 | | 6 | In NSW, known from the lower Hunter and in Sydney Olympic Park. Grows in fresh or slightly saline stationary or slowly flowing water. | Low |

## Melbourne

15 Business Park Drive
Notting Hill VIC 3168
Telephone (03) 8526 0800

## Sydney

Suite 3, Level 1, 20 Wentworth Street
Parramatta NSW 2150
Telephone (02) 9354 0300

## Brisbane

Level 5, 43 Peel Street
South Brisbane QLD 4101
Telephone (07) 3105 1460

## Adelaide

1/198 Greenhill Road
Eastwood SA 5063
Telephone (08) 8378 8000

## Perth

Level 1, 21 Adelaide Street
Fremantle WA 6160
Telephone (08) 6555 0105

## New Zealand

7/3 Empire Street
Cambridge New Zealand 3434
Telephone +64 27 777 0989

## Wangaratta

First Floor, 40 Rowan Street
Wangaratta VIC 3677
Telephone (03) 5721 2650

## Geelong

51 Little Fyans Street
Geelong VIC 3220
Telephone (03) 8526 0800

## Wimmera

597 Joel South Road
Stawell VIC 3380
Telephone 0438 510 240

## Gold Coast

Suite 37, Level 4, 194 Varsity Parade
Varsity Lakes QLD 4227
Telephone (07) 5676 7602

watertech.com.au