Argyll Estate - Flora and Fauna Assessment

NSW Land and Housing Corporation

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Abbreviations

Abbreviation	Description
BC Act	NSW Biodiversity Conservation Act 2016
BDAR	Biodiversity Development Assessment Report
BOS	Biodiversity Offsets Scheme
CEEC	Critically Endangered Ecological Community
EEC	Endangered Ecological Community
ELA	Eco Logical Australia Pty Ltd
EP&A Act	NSW Environmental Planning and Assessment Act 1979
EPBC Act	Commonwealth Environment Protection and Biodiversity Conservation Act 1999
FFA	Flora and Fauna Assessment
GIS	Geographic Information System
GPS	Global Positioning System
LAHC	Land and Housing Corporation
LEP	Local Environment Plan
LGA	Local Government Area
NSW	New South Wales
OEH	NSW Office of Environment and Heritage
PCT	Plant Community Type
SEPP	State Environmental Planning Policy
TEC	Threatened Ecological Community

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1. Introduction

1.1. Purpose

Eco Logical Australia Pty Ltd (ELA) was engaged by NSW Land and Housing Corporation (LAHC) to prepare a Flora and Fauna Assessment (FFA) for the proposed land rezoning and uplift of the social housing estate known as the Argyll Estate ('the study area') situated within the Coffs Harbour Local Government Area (LGA). It is understood that the proposal will be assessed under Part 3 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This study provides an assessment of the proposed rezoning and amendment to the Local Environment Plan (LEP) with regard to the Department of Planning, Industry and Environment Local Plan Making Guidelines in relation to native flora and fauna. This is the first step in the planning pathway. Once rezoning is approved, it is anticipated that future development will be activated via the Development Application (DA) process for subsequent proposals on native flora and fauna.

This report describes the native vegetation, threatened species, populations and communities listed under the *NSW Biodiversity Conservation Act 2016* (BC Act) and *Commonwealth Environment Protection and Biodiversity Conservation Act* (EPBC Act). The assessment within this report is based on information gathered from database searches and field investigation. The report sets out the legislative context, methods used, indicative impacts on the environment and recommendations to mitigate or reduce these impacts in future DA/ DAs.

1.2. The study area

The 19-hectare social housing estate known as the "Argyll Estate" is situated in close proximity to the Coffs Harbour town centre (Figure 1). The lot and deposited plan numbers are listed in Appendix A.

The Estate is currently comprised of:

- 118 ageing social housing cottages and two vacant land lots owned by LAHC;
- 11 social homes owned by Aboriginal Housing Office (AHO); and
- Approximately 68 privately owned homes interspersed throughout the site.

The study area is currently zoned R2- low-density residential under the Coffs Harbour LEP, with some smaller areas zoned RE1 – public recreation (Figure 2).

The site is generally surrounded by residential and commercial development. Adjacent to the south of the study area is the Treefern Creek riparian corridor and remanent vegetation to the north.

1.3. Background and Planning Proposal

LAHC has identified the estate as a priority for renewal to better meet the needs of tenants and the local community, with renewal of this area supporting the NSW Government's 20-year Economic Vision for Regional NSW policy and Coffs Harbour City Council's Local Growth Management Strategy's Infill Program.

The planning proposal to support this renewal has identified areas within the estate suitable for rezoning to medium density residential (R3) zoning (Figure 3). Other areas have also been identified in the indicative growth scenario, to be achieved through duplex development, or amalgamation of individual

lots to facilitate redevelopment (Figure 4). Future development will be enabled by amendment to the Coffs Harbour LEP.

Under the Coffs Harbour Local Environment Plan (LEP) 2013, R3 land zoning presents a number of additional lands uses that may be permitted with consent, compared to the current permissibility under R2 zoning (Figure 2). This includes the potential for the following uses:

- Backpackers' accommodation,
- Information and education facilities,
- Multi dwelling housing and
- Residential accommodation.

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Figure 1: Location of study area

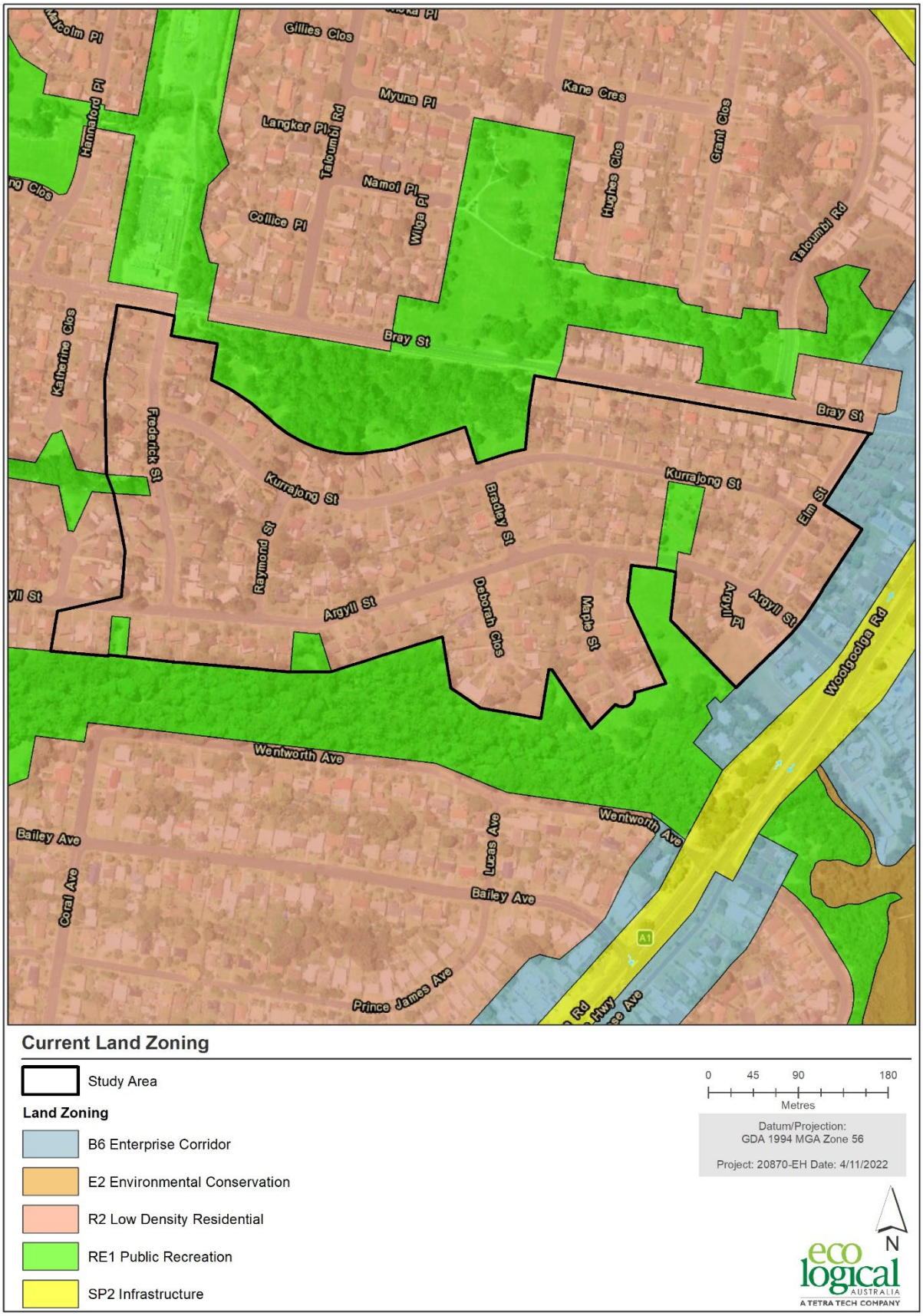

Figure 2: Current Land Zoning

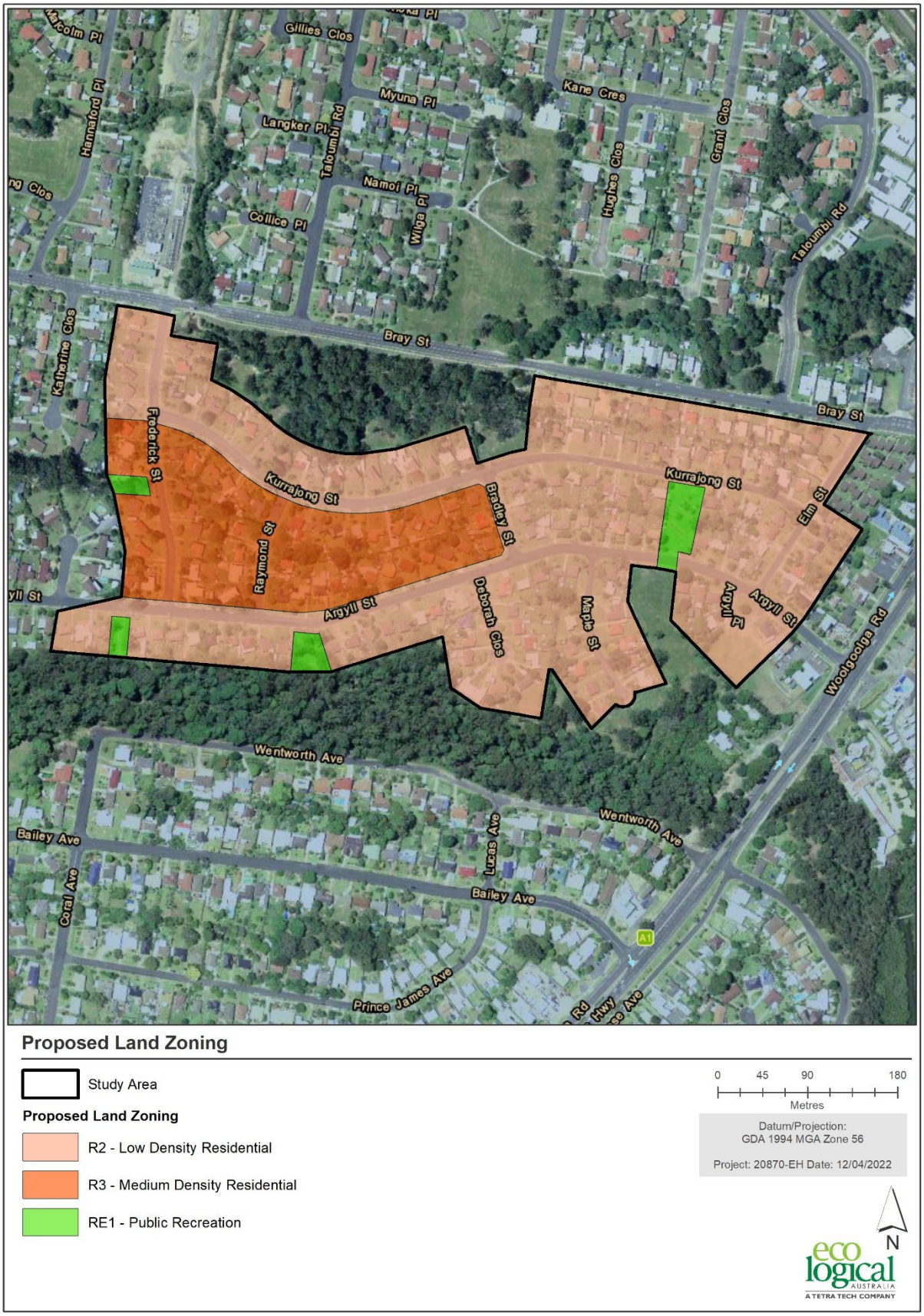

Figure 3: Proposed Land Zoning

Indicative growth scenario

197 Existing dwellings
129 LAHC + 68 privately owned

460 Total precinct dwellings

365 Dwellings on sites currently owned by LAHC

95 Dwellings on sites currently Private owned
*assuming 60% take up rate

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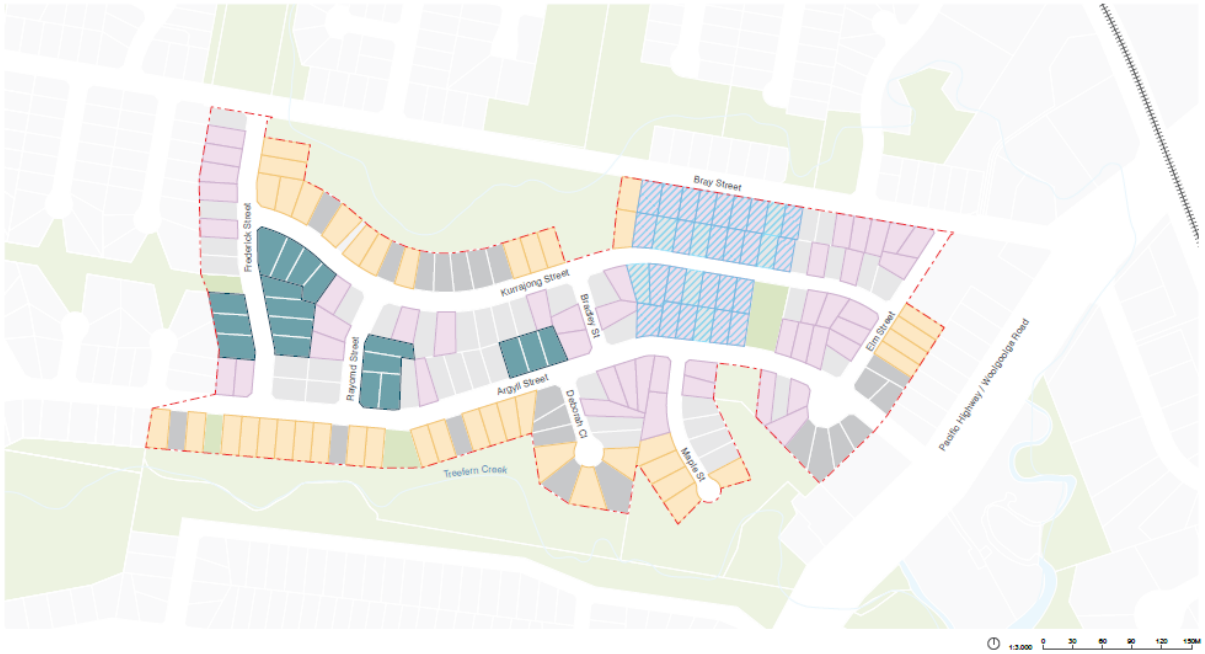
263 Additional precinct dwellings



Dwelling type / mix summary - LAHC sites

Type	Total number of dwellings
Single	42
Duplex	138
RFB (4-storey)	185*
Total	**365**

Assumptions
- Single dwelling – Private: 4 bedroom (220m² GFA)
- Duplex / Semi-detached – Private: 3 bedroom (115m² GFA)
- * RFB – LAHC: mix of 60% 1 bedroom + 40% 2 bedroom - (average 68m² GFA)
  RFB – Private: mix of 50% 1 bedroom + 40% 2 bedroom + 10% 3 bedroom - (average 73m² GFA)

Note
- Approximate existing lot size 630m² (18m x 35m)
- Upzoning to R3 for land north of Argyll Street and south of Kurrajong Street, approximately between Frederick Street and Bradley Street – potential for Residential Flat Buildings on minimum 3-lot amalgamation (sqm TBD).
- Combined flooding, bushfire and ecological constrained sites – potential for single dwelling.
- Duplex / semi-detached typology on all other sites (terrace typology possible on 2+ lot amalgamation).
- Duplex or terrace typology on privately owned lots with 60% take up rate.

Legend
- Argyll Estate Rezoning Investigation Area
- Single dwellings
- Duplex/semi-detached typology
- RFB - 4-storey (3+ lot amalgamation)
- Privately-owned - potential single dwellings
- Privately-owned - potential duplexes
- Sites requiring void at ground level to mitigate flooding impacts

Figure 4: Indicative growth scenario

2. Legislative Context

Name	Relevance to the project
	Commonwealth
Environment Protection and Biodiversity Conservation Act 1999	The EPBC Act aims to protect Matters of National Environmental Significance (MNES) including wetlands of international importance, threatened species and communities, and listed migratory species. An action that may or is likely to have a significant impact on MNES should be referred to the Commonwealth to determine whether it is a Controlled Action that requires approval from the Commonwealth. There are seven MNES that are triggers for Commonwealth assessment and approval. These are: 1. World Heritage properties 2. National Heritage places 3. Ramsar wetlands of international importance 4. Nationally threatened species and communities 5. Migratory species 6. Nuclear actions 7. Commonwealth marine environment. Threatened species and ecological communities are listed under Part 13, Division 1, Subdivision A of the EPBC Act. Migratory species are listed under Part 13, Division 2, Subdivision A of the Act. A Planning Proposal is not considered an 'action' under the EPBC Act 1999. However, consideration of MNES is prudent. An assessment of impact to MNES would be detailed in a future Flora and Fauna Assessment or Biodiversity Development Assessment Report prepared to accompany a DA/ DAs.
	State
Environmental Planning and Assessment Act 1979	The EP&A Act is the principal planning legislation for NSW. It provides a framework for the overall environmental planning and assessment of development proposals. The EP&A Act places a duty on the consent authority to adequately address a range of environmental matters including maintenance of biodiversity and the likely impact to threatened species, populations or ecological communities (under the BC Act – see below). Proposed rezoning within the study area would be assessed as under Part3 of the EP&A Act.
Biodiversity Conservation Act 2016	The overall purpose of the BC Act is to *"provide the legislative framework to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development"*. A proposal to rezone land does not trigger the Biodiversity Offsets Scheme (BOS). Future DA/ DAs will need to be assessed in accordance with the BC Act. Lot layout and footprints associated with future DAs can plan to avoid a significant impact on biodiversity and triggering of the BOS. There are three triggers for a significant impact: • Exceeding a native vegetation area clearance threshold relative to minimum lot size; note that the clearing threshold would be 0.25 ha or • Clearing of native vegetation identified on the NSW Government Biodiversity Values (BV) Map; The study area has areas to both the north and south that are on the BV Map and portions of this overlap with the study area. The majority of the area proposed for rezoning is outside of the BV mapped area (Figure 1111). • A significant impact on a threatened species or ecological community (as assessed by a qualified ecologist).
Fisheries Management Act 1994 (FM Act)	The FM Act governs the management of fish and their habitat in NSW. The Schedules of the Act list key threatening processes and threatened species. The FM Act regulates the provision of permits required in relation to harm of protected marine vegetation (seagrass, macroalgae, mangroves and

Name	Relevance to the project
	saltmarsh), dredging, reclamation or obstruction of fish passage on or adjacent to Key Fish Habitat (KFH). This includes direct and indirect impacts, whether temporary or permanent. The study area does not include KFH. Further, Planning Proposals do not require approvals under the FM Act.
Water Management Act 2000 (WM Act)	The WM Act provides for the sustainable and integrated management of the state's water for the benefit for both present and future generations. If a 'controlled activity' is proposed on 'waterfront land', an approval is required under the WM Act (s91). 'Controlled activities' include: • the construction of buildings or carrying out of works (except for land based private dwellings, a dual occupancy building or related ancillary facilities). • the removal of material or vegetation from land by excavation or any other means. • the deposition of material on land by landfill or otherwise; or • any activity that affects the quantity or flow of water in a water source. There are no mapped streams within the study area, however, Treefern Creek, a third order stream under the Strahler stream order borders the study area to the south, and an unnamed second order stream extends on the east and borders the study area to the north (Figure 9). Under Section 91E(1) of the WM Act, a controlled activity approval is necessary to carry out a controlled activity on or under waterfront land. Waterfront land is defined as the bed of any river, lake or estuary, and the land on each side within 40 metres of the river bank, lake shore or estuary's mean high water mark.
Biosecurity Act 2015	Under this Act, priority weeds have been identified for local government areas and assigned strategies to contain, remove or manage. Occupiers of land (this includes owners of land) have responsibility for taking appropriate action for priority weeds on the land they occupy. The field survey identified several weeds. Further mapping and identification of Priority Weeds would be required once a development footprint is established in line with the North Coast Regional Strategic Weed Management Plan 2017 – 2022 which was developed under this Act.
	Planning Instruments
State Environmental Planning Policy (Resilience and Hazards) 2021	Chapter 2 of the SEPP applies to land within the eastern part of the study area. The land is mapped as Coastal Environment Area and Coastal Use Area. Future DA/ DAs need to consider the controls for these Areas.
State Environmental Planning Policy (Biodiversity and Conservation) 2021	The SEPP commenced on 1 March 2022 and incorporates the previous SEPP (Koala Habitat Protection) 2021 within Chapter 4 Koala Habitat Protection 2021. The SEPP does not require assessment of koala habitat at rezoning stage. At the future DA stage, the SEPP will apply: *Development assessment process—approved koala plan of management for land* 1. This clause applies to land to which this Policy applies and to which an approved koala plan of management applies. 2. The council's determination of the development application must be consistent with the approved koala plan of management that applies to the land. Coffs Harbour LGA has a Koala Plan of Management (CHC, 1999) and therefore the future DA/DAs must be consistent with the Coffs Harbour Koala Plan of Management.
Coffs Harbour Local Environmental Plan (LEP) 2013	The study area is zoned R2 – Low Density Residential under the Coffs Harbour LEP. The objectives of this zoning are as follows: • *To provide for the housing needs of the community within a low density residential environment.* • *To enable other land uses that provide facilities or services to meet the day to day needs of residents.* • *To provide for housing diversity and choice and associated infrastructure that supports the changing housing needs of the population that is consistent with local character.*

Name	Relevance to the project
	• *To encourage active living through the provision of healthy, walkable, green and safe built environments and streets, greener connections and walking and cycling infrastructure.* • *To ensure that development reflects design excellence in its presentation to the public realm.* The proposed activity seeks to alter the land zoning within the study area to R3 – Medium Density Residential
Coffs Harbour Development Control Plan (DCP) 2015	The objectives of this plan in regards to the planning proposal and potential development is to: • *To ensure that development responds appropriately to the environmental characteristics of the land.* • *To protect and conserve high conservation value land.* • *To ensure that development incorporates best practice water sensitive urban design techniques.* • *To minimise adverse impacts on the water quality of receiving waterways.*

3. Methodology

3.1. Literature review and database search

A review of readily available databases pertaining to the ecology and environmental features of the study area and surrounding area, and existing vegetation mapping was conducted to identify records of threatened species, populations and communities and their potential habitat. Databases, literature and mapping that were reviewed included:

- Desktop assessment utilising aerial photographs, topographical maps and Graphical Information Systems (GIS) data systems
- Vegetation mapping (Fine-Scale Vegetation Mapping of the Coffs Harbour Local Government Area, 2012. VIS_ID 4189)
- BioNet (Atlas of NSW Wildlife) database search (5 km) for threatened species, endangered populations listed under the *NSW Biodiversity Conservation Act 2016* (BC Act) (12 January 2022)
- EPBC Act Protected Matters Search Tool (10km) for Matters of Environmental Significance (MNES) listed under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (12 January 2022)
- Collation of BioNet database results into a 'Likelihood of Occurrence Table'
- Water Management (General) Regulation 2018 spatial data 1.0 of riparian corridors
- DPI Fisheries Spatial Portal for threatened species listed under the Fisheries Management Act 1994 and Key Fish Habitat map
- NSW Government Biodiversity Values Mapping
- Review of applicable SEPP's including the State Environmental Planning Policy (Biodiversity and Conservation) 2021, State Environmental Planning Policy (Resilience and Hazards) 2021
- Coffs Harbour City Koala Plan of Management (CHC, 1999)

Riparian corridors are mapped based on the state-wide hydroline and Strahler stream order showing the required vegetated riparian zones. The 40 m waterfront land was mapped to show indicative areas that will trigger a control activity approval under the NSW *Water Management Act*. Riparian corridors area indicative and require adjustment following future 'top of bank' mapping.

3.2. Field survey

A field survey was conducted on the 1 February 2020 by ELA ecologists Phoebe Smith and Caitlin Orr. The field survey aimed to complete the following:

- Map and determine the Plant Community Types (PCTs) for vegetation communities present. PCT classification will be consistent with the NSW BioNet Vegetation Information System (BioNet VIS)
- Validate the extent, presence and condition of Threatened Ecological Communities listed under the NSW BC Act and/or Commonwealth EPBC Act
- Stratify the site into vegetation zones based on the broad condition states within the mapped PCT's

- Habitat assessment for potential threatened species. Important habitat features (such as hollow bearing trees, culverts, rocky outcrops etc.) and opportunistic sightings of threatened flora and fauna, recorded with ArcGIS FieldMaps.
- Rapid inspection of riparian areas to determine condition and validate Strahler order
- Any other potential ecological values such as regionally or locally significant flora and fauna.
- One (1) Biodiversity Assessment Method (BAM) plot was undertaken, to assist in determining PCTs present and, if required, would provide relevant information to become a component of a Biodiversity Development Assessment Report (BDAR).

3.2.1. Survey limitation

A targeted survey for threatened flora and fauna species considered likely to occur was not conducted during the field survey. Instead, a habitat assessment was undertaken to determine the suitability of the land proposed for rezoning to provide habitat. Noting the habitat features present was considered sufficient to assist in determining whether any threatened species are likely to be present and inform the potential requirements for impact assessments and pre-clearance surveys prior to works commencing.

4. Results

4.1. Literature review and database search

4.1.1. Vegetation

There are small areas of native vegetation within the study area. The native vegetation class is identified as North Coast Wet Sclerophyll Forest (DPIE 2017). Existing vegetation mapping (OEH 2012) indicated that the site contained three Plant Community Types (PCTs):

- **PCT 2257** - *Flooded Gum moist open forest of sheltered lower slopes and gullies in the Clarence and Bellinger River valleys; NSW North Coast Bioregion,*
- **PCT 2229** - *Turpentine - Brush Box - Flooded Gum - Blackbutt shrubby moist forest of sub-coastal lowlands; NSW North Coast Bioregion and South Eastern Queensland Bioregion* and
- **PCT 2160** - *Blackbutt - Red Mahogany - Bloodwood dry open forest on infertile sandy soils of low coastal rises and hills; NSW North Coast Bioregion and South Eastern Queensland Bioregion.*

The three plant community types identified above from the existing vegetation mapping (OEH 2012) do not conform to current PCT's, and have been updated with the field survey outlined in Section 4.2. The land proposed for rezoning also contains urban exotic/remnant native vegetation which dominates the study area. The distribution of the vegetation is shown in Figure 5, shows intact vegetation is predominantly external to the proposed development, including areas identified on the NSW Biodiversity Map, with small pockets of vegetation occurring in the study area.

4.1.2. Threatened Ecological Communities

No PCTs mapped (OEH 2012) within the study area have been associated with threatened ecological communities (TECs) as per the desktop search; the field survey validation confirms this finding.

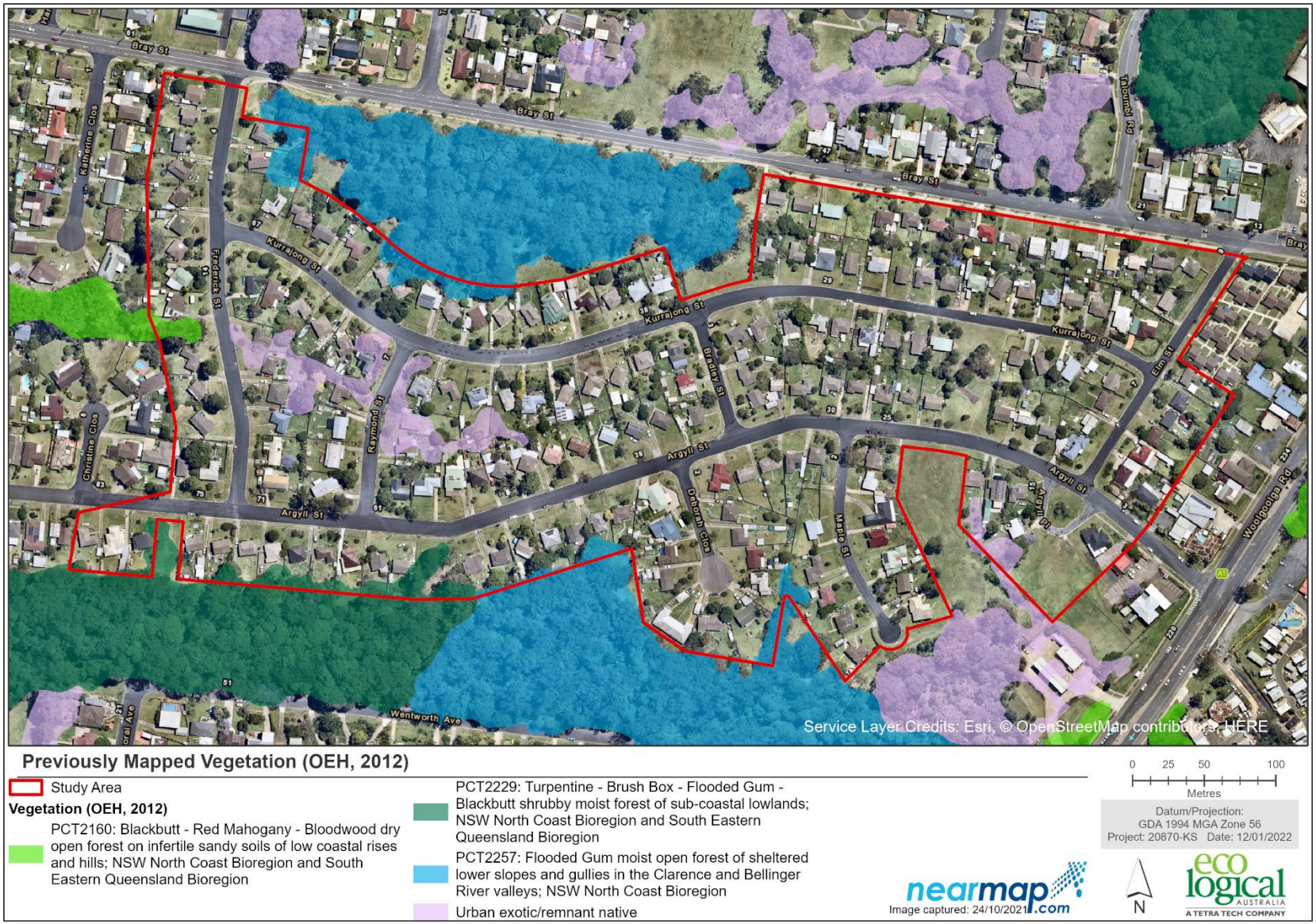


Figure 5: Previously mapped vegetation communities (OEH, 2012)

4.1.3. Threatened species

4.1.3.1. Flora

A review of BioNet and the protected matters search tool (PMST) identified potential threatened flora species (EPBC Act and BC Act) within a 5km radius of the study area. The Bionet records are presented in Figure 6. The BioNet and PMST records have been compiled into a likelihood of occurrence table in Appendix B. Three species have a high likelihood of occurrence in the study area (Table 1).

Table 1: Threatened flora with high likelihood to occur within the study area

Scientific Name	Common Name	BC Act	EPBC Act
Niemeyera whitei	Rusty Plum, Plum Boxwood	V	
Rhodamnia rubescens	Scrub Turpentine	CE	CE
Rhodomyrtus psidioides	Native Guava	CE	

4.1.3.2. Fauna

A review of BioNet and the protected matters search tool identified potential threatened fauna species within a 5km radius of the study area. The Bionet records are presented in Figure 7. The BioNet and PMST records have been compiled into a likelihood of occurrence table in Appendix B. Nine species have a high potential to occur within the study area (Table 2).

Table 2: Threatened fauna with high likelihood to occur within the study area

Scientific Name	Common Name	BC Act	EPBC Act
Calyptorhynchus lathami	Glossy Black-Cockatoo	V	
Ninox strenua	Powerful Owl	V	
Ptilinopus magnificus	Wompoo Fruit-Dove	V	
Ptilinopus regina	Rose-crowned Fruit-Dove	V	
Miniopterus australis	Little Bent-winged Bat	V	
Miniopterus orianae oceanensis	Large Bent-winged Bat	V	
Myotis macropus	Southern Myotis	V	
Phascolarctos cinereus	Koala	V	V
Pteropus poliocephalus	Grey-headed Flying-fox	V	V

A review of online spatial databases has confirmed the proximity and presence of potential habitat of the following three species with regards to the study area.

Grey-headed Flying-fox

The Coffs Creek camp, a temporary Flying Fox Camp is located at the southerly end of Oriana and Wills Streets in the suburb of Coffs Harbour. The confluence of the north-westerly and westerly tributaries of Coffs Creek bisect the camp. The study area is located approximately 1.5 kilometres southwest, as such any recommended buffers should not impede on the future development of the study area. This camp is recognised as an important maternity camp for Grey headed flying foxes (GHFF). The proposal should align with the *Coffs Harbour LGA Flying-fox Camps Strategic Camp Management Plan*, *Flying-fox Camp Management Policy 2015, Biodiversity Conservation Act 2016* and *Environment Protection and Biodiversity Conservation Act 1999* to reduce the impact of the development on the Coffs Creek Flying

Fox Camp. The National Flying-Fox Monitor indicates that it is not a nationally important camp and that numbers from 2012 to 2021 have fluctuated between category 1 (1-499) and category 3 (2,500 – 9,999). A 50m buffer is recommended within the *Coffs Harbour LGA Flying-fox Camps Strategic Camp Management Plan* between permanent roost camps and residential dwellings.

Swift Parrot

Important Area mapping for Swift Parrot *(Lathamus discolor*) occurs within the northern and southern vegetation adjacent the study area and small parts of the study area (Figure 8).

Koala

'Primary' koala habitat is mapped within the northern and southern vegetation adjacent to the study area and small parts of the study area in the Coffs Harbour Comprehensive Koala Plan of Management (CHCKPoM, 1999).

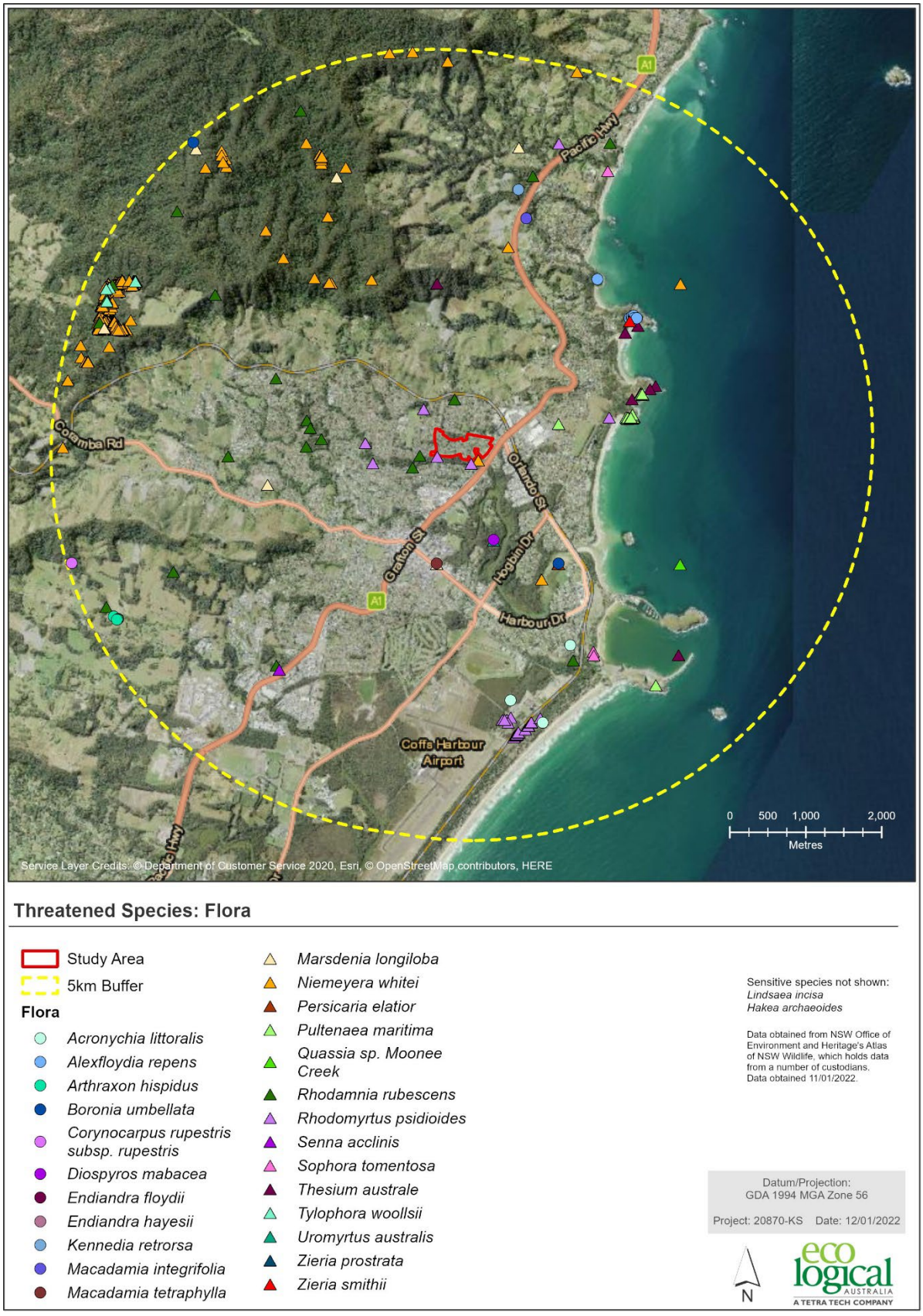


Figure 6: Bionet threatened flora records within 5km of study area (DPIE 2022)

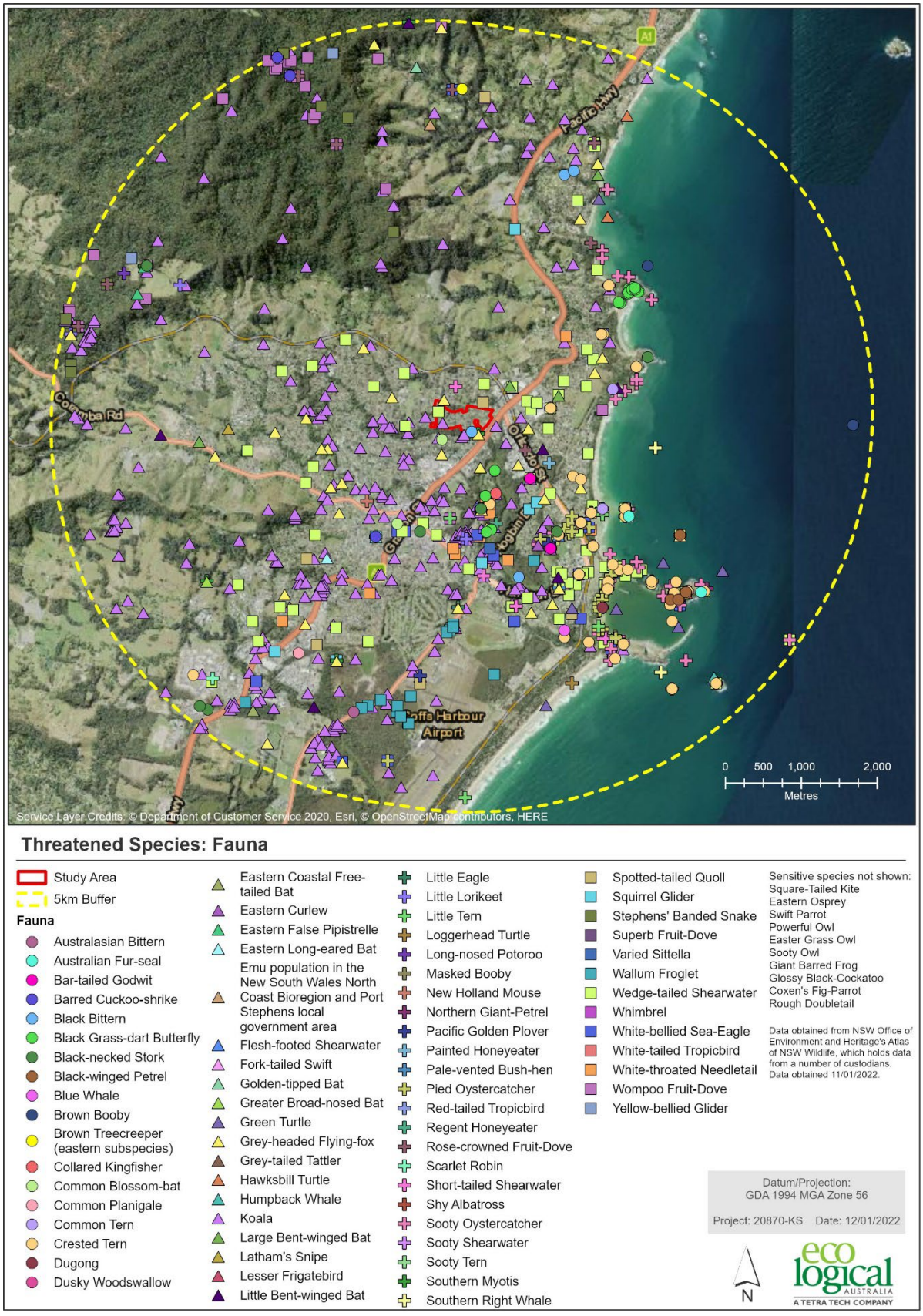


Figure 7: Bionet threatened fauna records within 5km of study area (DPIE 2022)

Figure 8: Important Swift Parrot habitat areas

4.1.4. Riparian

The aim of the *Water Management Act 2000* (WM Act) is to provide sustainable and integrated management of the state's water for the benefit for both present and future generations. If a development is proposed on 'waterfront land', it is considered a Controlled Activity and requires an approval under s91 of the WM Act. Waterfront land is defined as 40 m from the highest bank of any creek line. The indicative waterfront land buffer is based on the hydroline and overlaps some areas of the Study Area, however does not encroach on the proposed R3 Zone (Figure 9). It is recommended that the top of bank is surveyed at the DA stage, where relevant. If future development is not within waterfront land, it is not a controlled activity un the WM Act 2000. If future development is deemed to be a controlled activity, it should be undertaken in accordance with the Natural Resource Access Regulator's (NRAR) 'Guidelines for Controlled Activities on Waterfront Land – Riparian Land (2018)'.

The *Fisheries Management Act 1994* (FM Act) governs the management of fish and their habitat in NSW. The Schedules of the Act list key threatening processes and threatened species. The FM Act regulates the provision of permits required in relation to harm to protected marine vegetation (seagrass, macroalgae, mangroves and saltmarsh), dredging, reclamation or obstruction of fish passage on or adjacent to Key Fish Habitat (KFH). This includes direct and indirect impacts, whether temporary or permanent. The northern and southern boundary of the study area is within the riparian buffer. There is no KFH mapped within the study area.

The relevant riparian areas and Key Fish Habitat are mapped in Figure 10.

If future development is proposed within the riparian buffer and/or waterfront land buffer, requirements set out under the WM Act and FM Act will need to be considered.

4.1.5. Biodiversity Values Map

The Biodiversity Values (BV) Map identifies land with high biodiversity value that is particularly sensitive to impacts from development and clearing. The map forms part of the Biodiversity Offsets Scheme threshold, which is one of the triggers for determining whether the Biodiversity Offset Scheme (BOS) applies to a clearing or development proposal. The map is prepared by the Department of Planning and Environment under Part 7 of the *Biodiversity Conservation Act 2016* (BC Act). The Biodiversity Values Map and Threshold tool (BMAT) is used as a guide to determine if a study area exceeds the Biodiversity Offset Scheme Threshold. The study area that is located on 0.3 ha of area mapped as Biodiversity Values and therefore development that clears vegetation within the mapped land would trigger the BOS and a Biodiversity Assessment Report (BDAR) would be required to accompany future DA/ DAs (Figure 11). If future DA/ DAs were to avoid impacts on land mapped on the BV Map, a BDAR would not be triggered by clearing vegetation mapped on the BV Map.

4.1.6. BOS Triggers

A proposal to rezone land does not trigger the Biodiversity Offsets Scheme (BOS) however future DAs would need to consider other triggers for a significant impact:

- Exceeding a native vegetation area clearance threshold relative to minimum lot size; note that the clearing threshold would be 0.25 ha or
- A significant impact on a threatened species or ecological community (as assessed by a qualified ecologist).

Future DA/ DAs lot layout and footprints associated with the future DA/ DAs can plan to avoid a significant impact on biodiversity and triggering of the BOS by ensuring the clearing of vegetation is less than 0.25 ha.

4.1.7. Biodiversity corridor connectivity

Vegetation to the south of the study area has been identified as part of a broader biodiversity corridor and identified on the biodiversity values map (Figure 11). This vegetation connects to an identified regional vegetation corridor, which connects the vegetation north of Coffs Harbour and subsequently, with a very thin strip of vegetation buffering the creek all the way to the Ulidarra National Park area. Treefern Creek also flows to the south and connects with the ocean (Figure 10). The rezoning area does not affect the connectivity of vegetation, with only minor areas of native vegetation occurring within the proposed R3 zoned land.

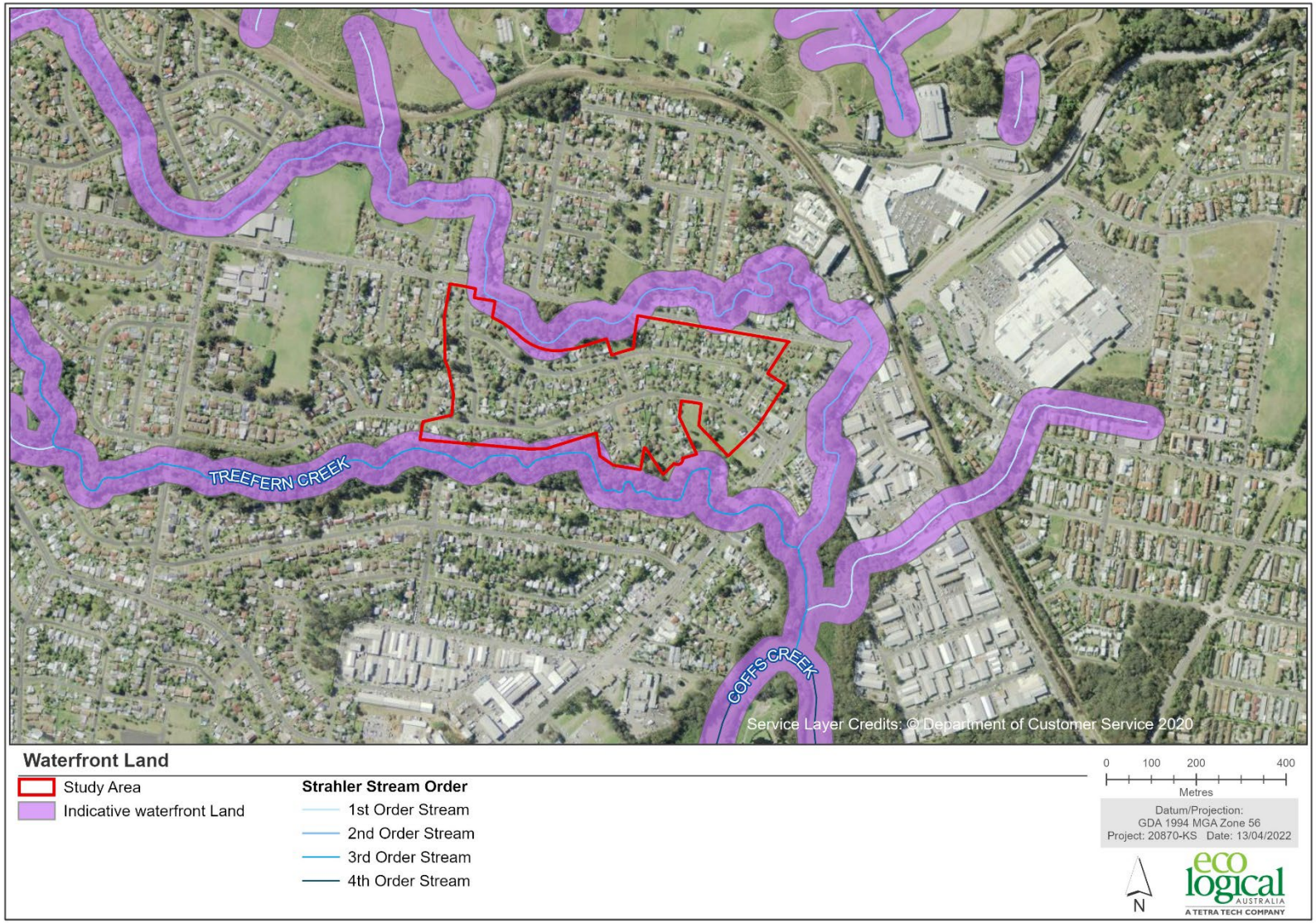


Figure 9: The study area and indicative waterfront land

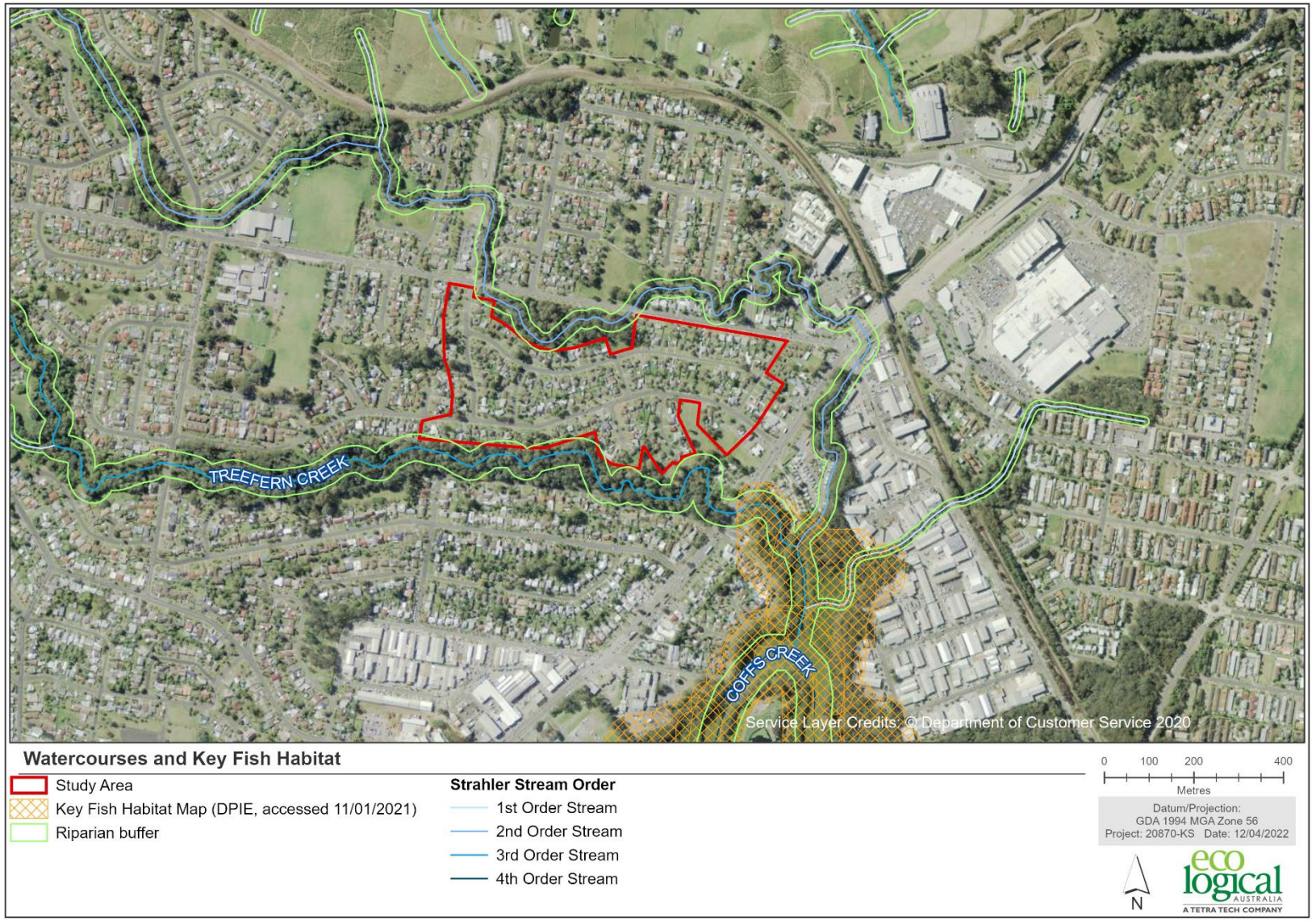


Figure 10: Riparian areas and Key Fish Habitat

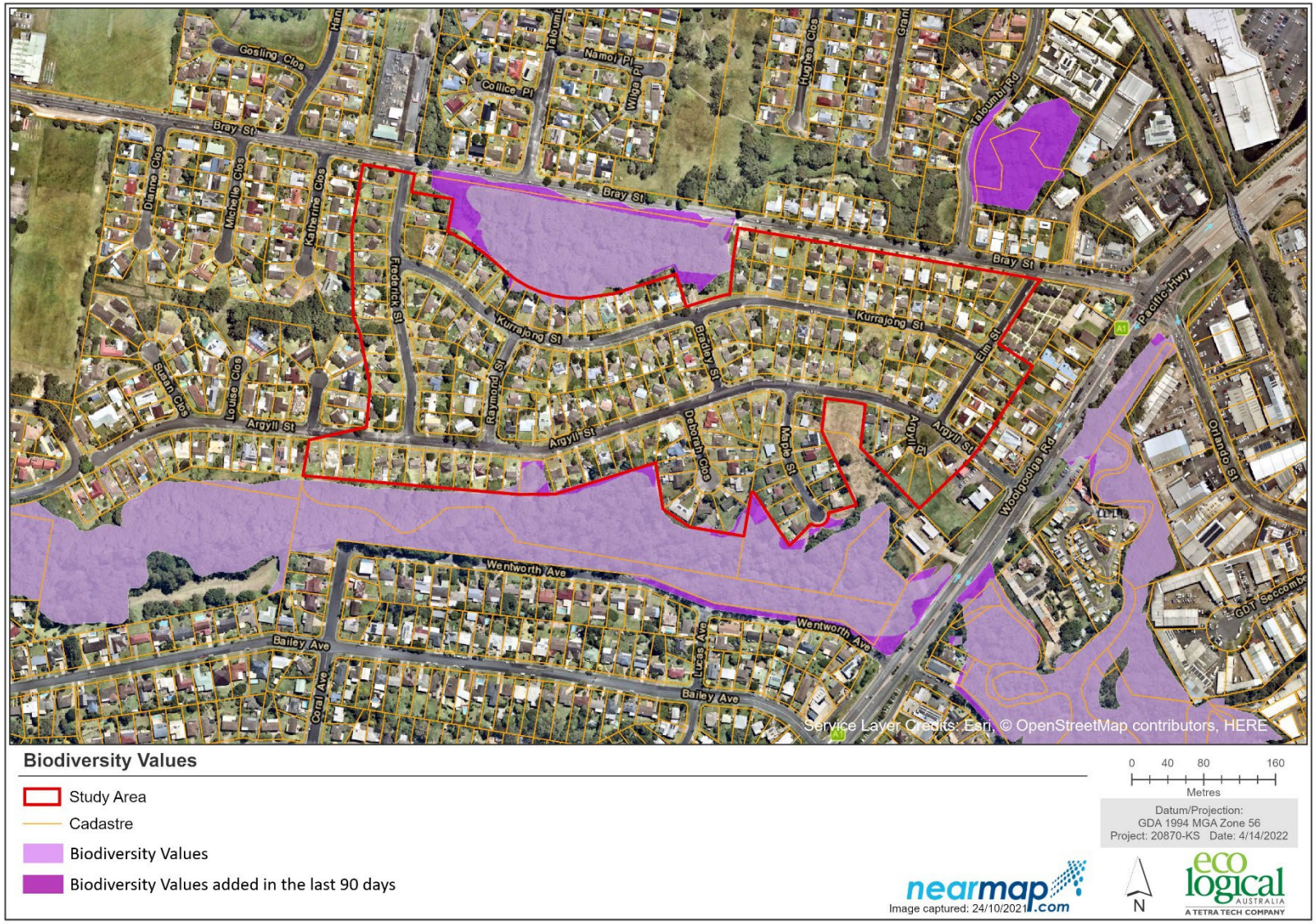


Figure 11: Biodiversity Values map (accessed 14 April 2022)

4.1.8. Relevant State Environment Planning Policies

4.1.8.1. State Environmental Planning Policy (Resilience and Hazards) 2021 – Chapter 2 Coastal Management

State Environmental Planning Policy (Resilience and Hazards) 2021 commenced on 1 March 2022 to guide land use planning within the coastal zone, in a manner consistent with the objects of the *Coastal Management Act 2016*, and has development controls for four management areas.

Coastal wetlands and littoral rainforests area have distinctive hydrological and ecological characteristics, as well as a surrounding proximity area to manage impacts of adjacent development on coastal wetlands and littoral rainforests.

Coastal vulnerability area is defined in the Act as land, which is subject to coastal hazards such as, beach erosion, shoreline recession, watercourse instability, coastal/tidal inundation, cliff instability and erosion or inundation caused by tidal waves.

Coastal environment area recognizes the environmental features of the coastal zone, such as state waters, estuaries, coastal lakes and coastal lagoons.

Coastal use area is land adjacent to coastal waters, estuaries, coastal lakes and lagoons, where development is or may be carried out and impacts of development on the scenic and cultural values and use and enjoyment of the beaches, foreshores, dunes, headlands, rock platforms, estuaries, lakes and the ocean need to be considered.

Within the eastern part of the study area (Figure 12) the Coastal Management SEPP maps land as Coastal Environment Area and Coastal Use Area. Controls for these Areas need to be met by future DA/ DAs which must address public interest and built form criteria to avoid, minimise or mitigate impacts within the coastal use area. In the Coastal Environment Area the proposal will need to avoid, minimise or manage impacts on these areas. For future DA/ DAs the requirements of *Section 2.10 Development on land within the coastal environment area* and *2.11 Development on land within the coastal use area* will need to be considered before Council can give consent.

Given that the area subject to current housing the rezoning is not expected to increase coastal zone hazard and resilience issues, however this will need to be demonstrated at DA/ DAs stage.

4.1.8.2. State Environmental Planning Policy (Biodiversity and Conservation) 2021 – Chapter 4 Koala Habitat Protection

This policy aims to encourage the conservation and management of natural vegetation that provide habitat for koalas to ensure a permanent free-living population and reverse the current trend of koala population decline. The study area is located within a Local Government Area (Coffs Harbour) listed in Schedule 2 of the SEPP. Determination of a future DA/ DAs must be consistent with the approved koala plan of management that applies to the land, the Coffs Harbour Koala Plan of Management (CHKPoM).

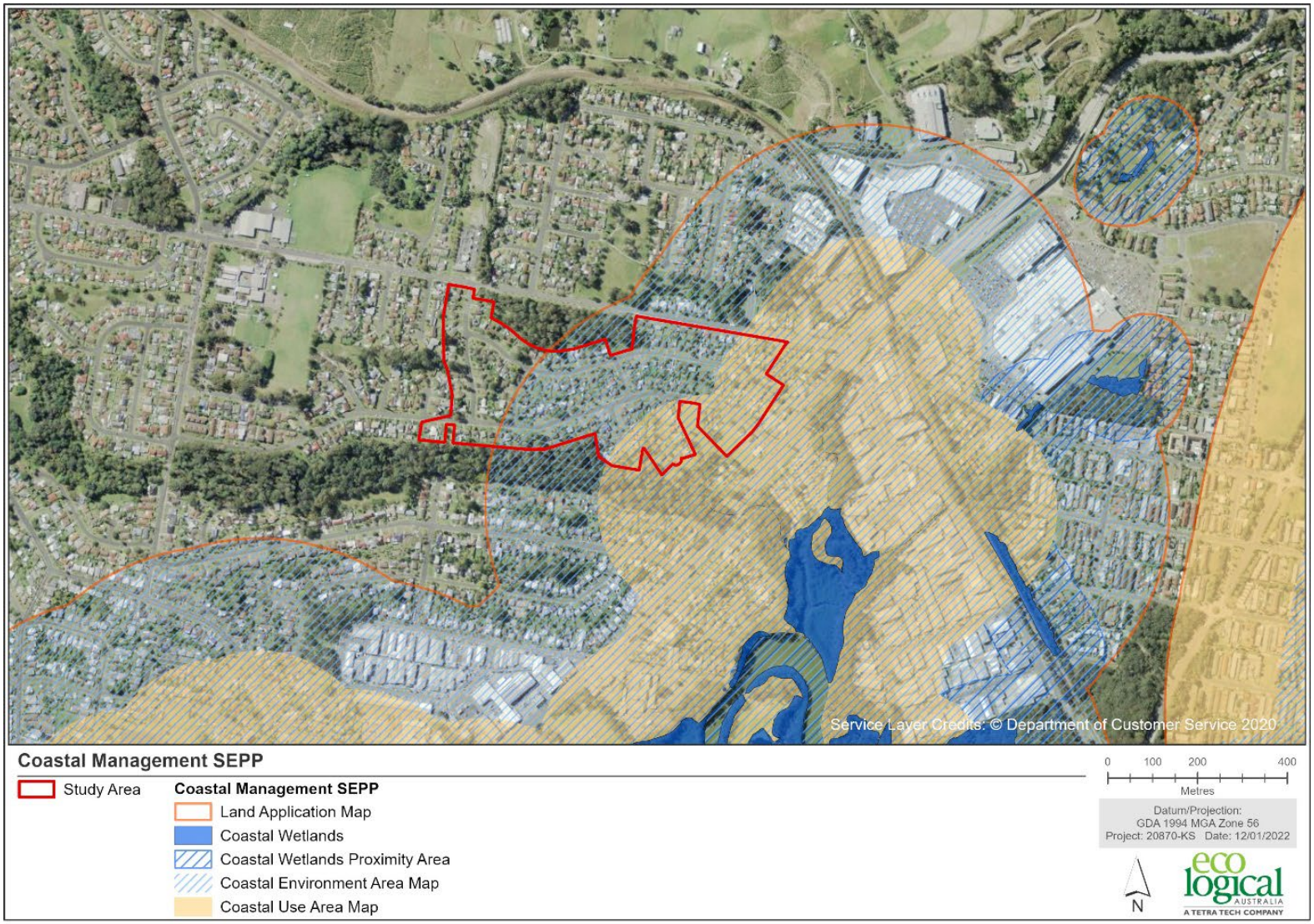


Figure 12: Coastal Management SEPP (2018) mapping has now been incorporated into the SEPP (Resilience and Hazards) 2021

4.1.9. Koala Plan of Management

The Coffs Harbour City Koala Plan of Management (CHCKPoM) (CHC, 1999) identifies koala habitat types, Primary, secondary and tertiary, it also identifies lands adjoining primary koala habitat.

The objective of the primary koala habitat is, "*To prevent further clearing, disturbance, fragmentation or isolation of existing primary koala habitat, and where appropriate, restore habitat and encourage sympathetic management to ensure the maintenance of koalas*". Considerations used in assessing consent by authorities include:

- Zero net loss of Primary Koala Habitat
- Threats to koala which may result from the development
- Likely impacts to adjacent or nearby Primary Koala habitat and Koala movement corridors
- all other options for preventing or ameliorating impacts from the development on koalas

The objective of the Lands adjoining Primary Koala Habitat is, "*To minimise impacts on Primary Koala Habitat from development proposed on adjoining lands, particularly where such areas may contain scattered preferred koala trees, and to maintain opportunities for free movement of koalas between areas of habitat*". Areas that contain scattered preferred Koala food trees contribute to the habitat and provide movement for Koalas in otherwise fragmented areas. Impacts of removing scattered koala feed trees can result in the fragmenting of habitat and create further barriers to movement to koalas between remnant habitats.

'Primary Koala habitat' mapping occurs within the northern and southern portion of the study area (Figure 13). Figure 13 identifies sightings with proximity to the study area. The study area also contains 'lands adjoining primary Koala habitat' (Mapping accessed 26-01-22). Therefore, future DA/ DAs will need to consider requirements of the Coffs Harbour KPoM (DHKPoM). The removal or impact of Primary Koala Habitat, or areas adjacent to Primary Koala Habitat will require an assessment under the CHCKPoM which may result in offsets including planting suitable koala feed trees listed within the CHCKPoM and restrictions regarding domestic pets, koala proof fencing, signage (standard koala warning sign), road design (wildlife crossings), swimming pools and speed limits.

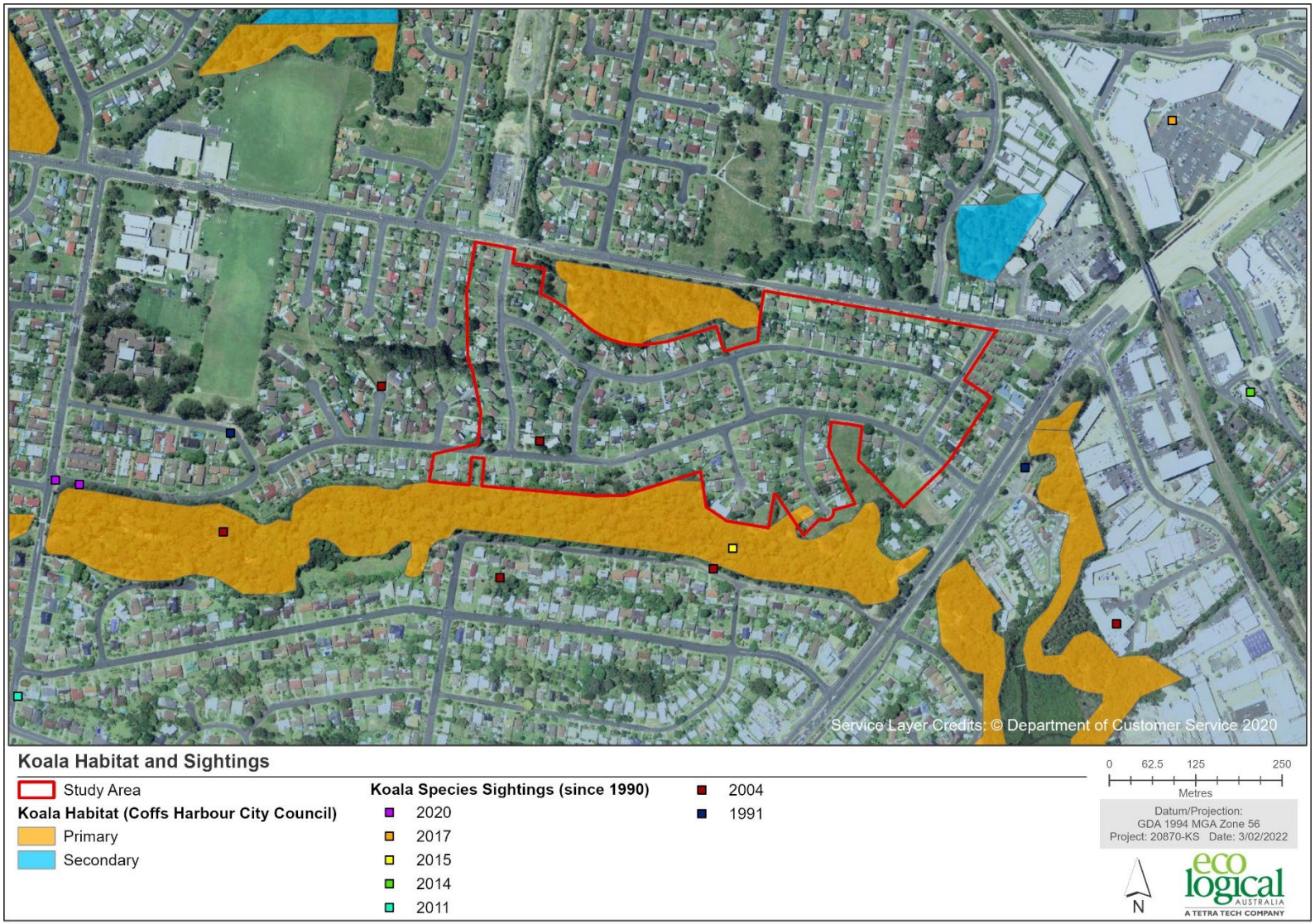


Figure 13: Koala habitat and sightings in the North Coast Koala Management Plan

4.2. Field survey

4.2.1. Vegetation validation

The majority of the study area is comprised of residential housing, lawns and the dominant vegetation type being 'planted native/exotic' – typical of residential gardens. The study area is bounded by a strip of vegetation to the south and the north, of which both small parts encroach within the study area boundary.

Two Plant Community Types (PCTs) were identified withing the study area. Neither of the PCTs identified are associated with any threatened ecological communities (TECs).

- **PCT 827** – *Flooded Gum - Tallowwood - Brush Box moist open forest of the coastal ranges of the North Coast*
- **PCT 697** – *Blackbutt - Turpentine open forest of the foothills of the NSW North Coast Bioregion*

These PCTs and other vegetation types recorded in the study area are profiled below in Table 3 to Table 7. Figure 14 presents a map of validated PCTs and other vegetation within the study area. Areas identified as 'Exotic grass/built' or Planted native/exotic' native did not meet the description of any native PCTs. Within the area to be rezoned, **PCT 827** in Low condition is a very small area and is the most dominant PCT, with PCT 697 (Low) occurring also as a very small area west of Frederick St.

Table 3: Plant Community Types within the study area

PCT	Condition	Area within Study Area	Area within Proposed R3 Zone
827: Flooded Gum - Tallowwood - Brush Box moist open forest of the coastal ranges of the North Coast	Low	0.54 ha	0.07
697: Blackbutt - Turpentine open forest of the foothills of the NSW North Coast Bioregion	Low	0.13 ha	0.06
Planted native/exotic	N/A	2.68 ha	0.83
Exotic grass/built	N/A	15.92 ha	3.43
Total		19.27 ha	4.39

Table 4: PCT 827 profile

PCT827: Flooded Gum - Tallowwood - Brush Box moist open forest of the coastal ranges of the North Coast	
Vegetation formation:	Wet Sclerophyll Forests (Shrubby sub-formation)
Vegetation class:	North Coast Wet Sclerophyll Forests
Vegetation structure	Forest
Conservation status:	Not listed
 	This PCT occurs within the southern part of the study area as disturbed scattered remnants, and as overhanging canopy of the intact PCT occurring along Treefern Creek, situated south of the study area. This PCT occurs as low condition and is predominantly characterised by scattered trees in urban backyards with an exotic groundcover. This area occurs adjacent to areas mapped as 'Exotic/Planted' and 'Exotic Grass/Built'. Canopy species present include *Eucalyptus grandis* (Flooded Gum), *Eucalyptus microcorys* (Tallowwood), *Syncarpia glomulifera* (Turpentine), *Corymbia intermedia* (Pink Bloodwood) and *Lophostemon confertus* (Brush Box) with subcanopy species *Archontophoenix cunninghamiana* (Bangalow Palm), *Cupaniopsis anacardioides* (Tuckeroo), *Glochidion ferdinandi* var. *ferdinandi* (Cheese Tree), Ficus spp. and *Melia azedarach* (White Cedar). Exotic species *Schefflera actinophylla* (Umbrella Tree), *Jacaranda mimosifolia* (Jacaranda), *Phoenix canariensis* (Canary Island Palm), *Callistemon* spp. and *Cinnamomum camphora* (Camphor laurel) are scattered throughout this area. Very few native shrub species were recorded within this area including *Wilkiea huegeliana, Cordyline stricta* and *Cryptocarya microneura*. The groundcover comprised mainly managed and unmanaged exotic grasses including *Paspalum mandiocanum* (Broad-leaved Paspalum), *Paspalum urvillei* (Vasey Grass), *Paspalum conjugatum* (Sour Grass), *Sporobolus fertilis* (Giant Parramatta Grass) and *Axonopus fissifolius* (Carpet Grass). Native vines species *Cissus antarctica* (Kangaroo Vine) and *Cayratia clematidea* (Native Grape) were also present.
Characteristic trees	Dominated by *Eucalyptus grandis Eucalyptus microcorys, Syncarpia glomulifera*, *Corymbia intermedia* and *Lophostemon confertus.*
Characteristic midstorey	*Archontophoenix cunninghamiana, Glochidion ferdinandi var. ferdinandi, Cordyline stricta*
Characteristic groundcovers	N/A
Weediness (all species)	Moderate
Exotic species	*Schefflera actinophylla, Cinnamomum camphora, Paspalum mandiocanum, Paspalum urvillei, Paspalum conjugatum* and *Sporobolus fertilis*
Condition	Low
Variation and disturbance	Disturbance from urban development, house backyards/gardens

PCT827: Flooded Gum - Tallowwood - Brush Box moist open forest of the coastal ranges of the North Coast	
Soil type	Brown Clay soils
% cleared in NSW	55 %
Threats	Weed invasion/land clearing and management
No. sites sampled	1 BAM Plot and 10 Vegetation Validation Points
Threatened flora species habitat	No potential habitat for threatened species.

Table 5: PCT 697 profile

PCT 697: Blackbutt – Turpentine open forest of the foothills of the NSW North Coast Bioregion	
Vegetation formation:	Wet Sclerophyll Forests (Grassy sub-formation)
Vegetation class:	North Hinterland Wet Sclerophyll Forests
Vegetation structure	Forest
Conservation status:	Not listed

This PCT occurs as a small, disturbed area within the western portion of the study area. This area occurs as scattered remnant trees in urban backyards with an exotic managed groundcover. This area contains semi-mature to mature *Eucalyptus microcorys and Syncarpia glomulifera* trees. No midstorey occurs within this area and groundcover occurs as exotic managed grass of *Paspalum mandiocanum*, *Axonopus fissifolius* and *Cynodon dactylon* (Couch Grass).

Characteristic trees	*Eucalyptus microcorys* and *Syncarpia glomulifera*
Characteristic midstorey	N/A
Characteristic groundcovers	N/A
Weediness (all species)	High
Exotic species	*Paspalum mandiocanum, Axonopus fissifolius, Cynodon dactylon*
Condition	Low
Variation and disturbance	Disturbance from urban development, house backyards/gardens
Soil type	Brown Clay soils
% cleared in NSW	30 %
Threats	Weed invasion/land clearing and management
No. of sites sampled	1
Threatened flora species habitat	No potential habitat for threatened species.

Table 6: Planted native/exotic profile

Planted native/exotic	
Vegetation formation:	N/A
Vegetation class:	N/A
Vegetation structure	Garden/Lawn
Conservation status:	Not listed

This area consists of common exotic planted shrubs including *Murraya paniculata* (Mock Orange), *Callistemon* spp., *Jacaranda mimosifolia*, *Schefflera actinophylla, Bamboo spp., Mangifera indica* (Mango Tree), *Eriobotrya japonica* (Loquat) and *Phoenix canariensis* as well as planted natives including *Melaleuca quinquenervia* (Broad-leaved Paperbark) and *Corymbia citriodora* (Lemon scented Gum). The groundcover consists of managed grass (lawn) and groundcover comprising predominantly *Paspalum conjugatum, Paspalum mandiocanum, Axonopus fissifolius* and *Cynodon dactylon.*

This area is not consistent with a PCT.

Characteristic trees	N/A	Variation and disturbance	N/A
Characteristic midstorey	N/A	Soil type	Brown Clay soils
Characteristic groundcovers	N/A	% cleared in NSW	N/A
Mean native richness	N/A	Threats	N/A
Weediness (all species)	100%	No. sites sampled	1
Exotic species	Exotic planted shrubs and lawn grasses	Threatened flora species	None
Condition	Exotic		

Table 7: Exotic grass/built profile

Exotic grass/built			
Vegetation formation:	N/A		
Vegetation class:	N/A		
Vegetation structure	Exotic		
Conservation status:	Not listed		
	This area is characterised by residential buildings within an urban environment with exotic managed grasses (lawn/backyards) including *Axonopus fissifolius, Paspalum mandiocanum* and *Cynodon dactylon.* This area is not consistent with a PCT.		
Characteristic trees	N/A	Variation and disturbance	N/A
Characteristic midstorey	N/A	Soil type	Brown Clay soils
Characteristic groundcovers	N/A	% cleared in NSW	N/A
Mean native richness	N/A	Threats	N/A
Weediness (all species)	50 %	No. sites sampled	2
Exotic species	Exotic lawn grasses	Threatened flora species	None
Condition	Low		

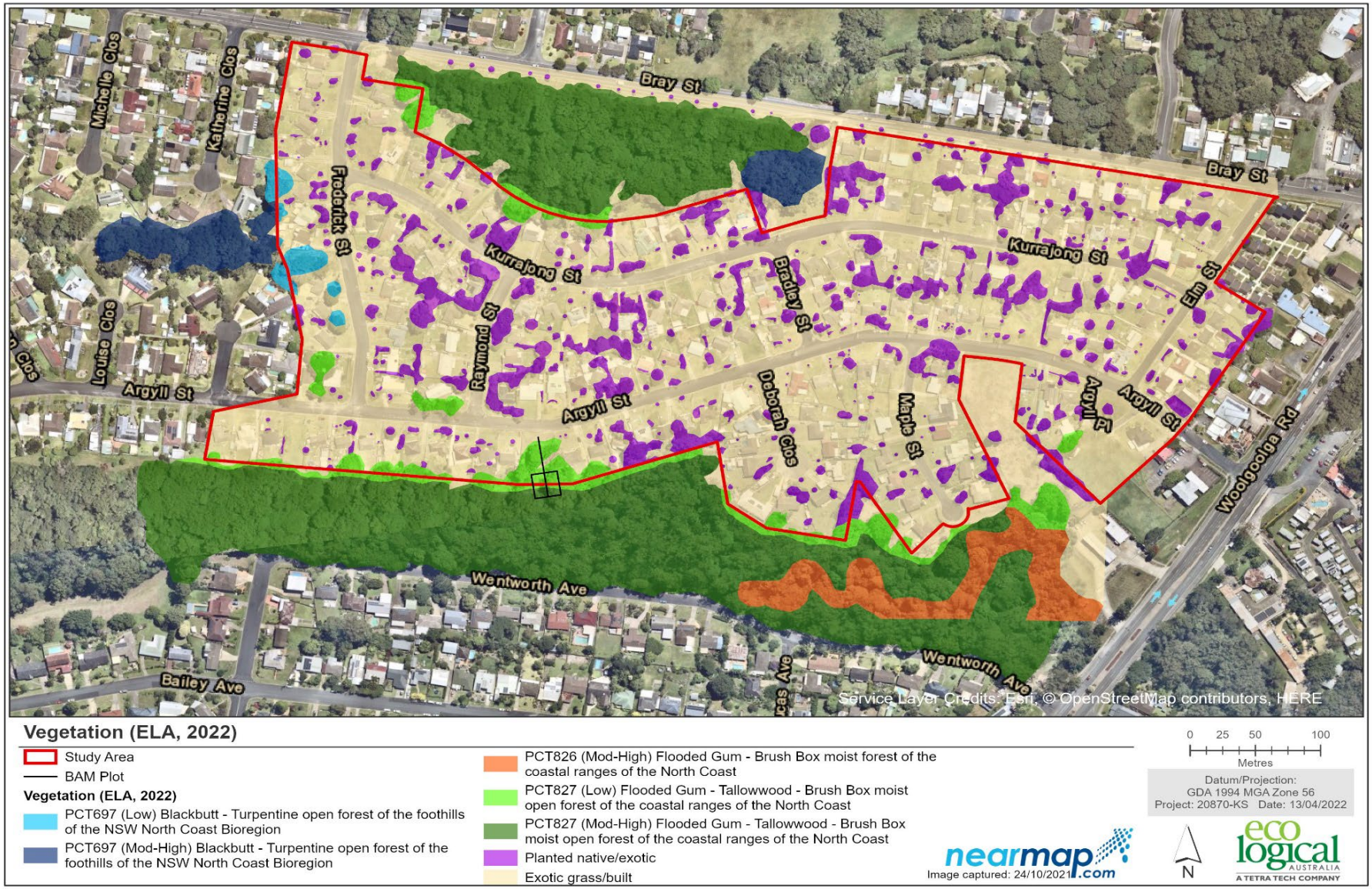


Figure 14: Vegetation validation and mapping (ELA 2022)

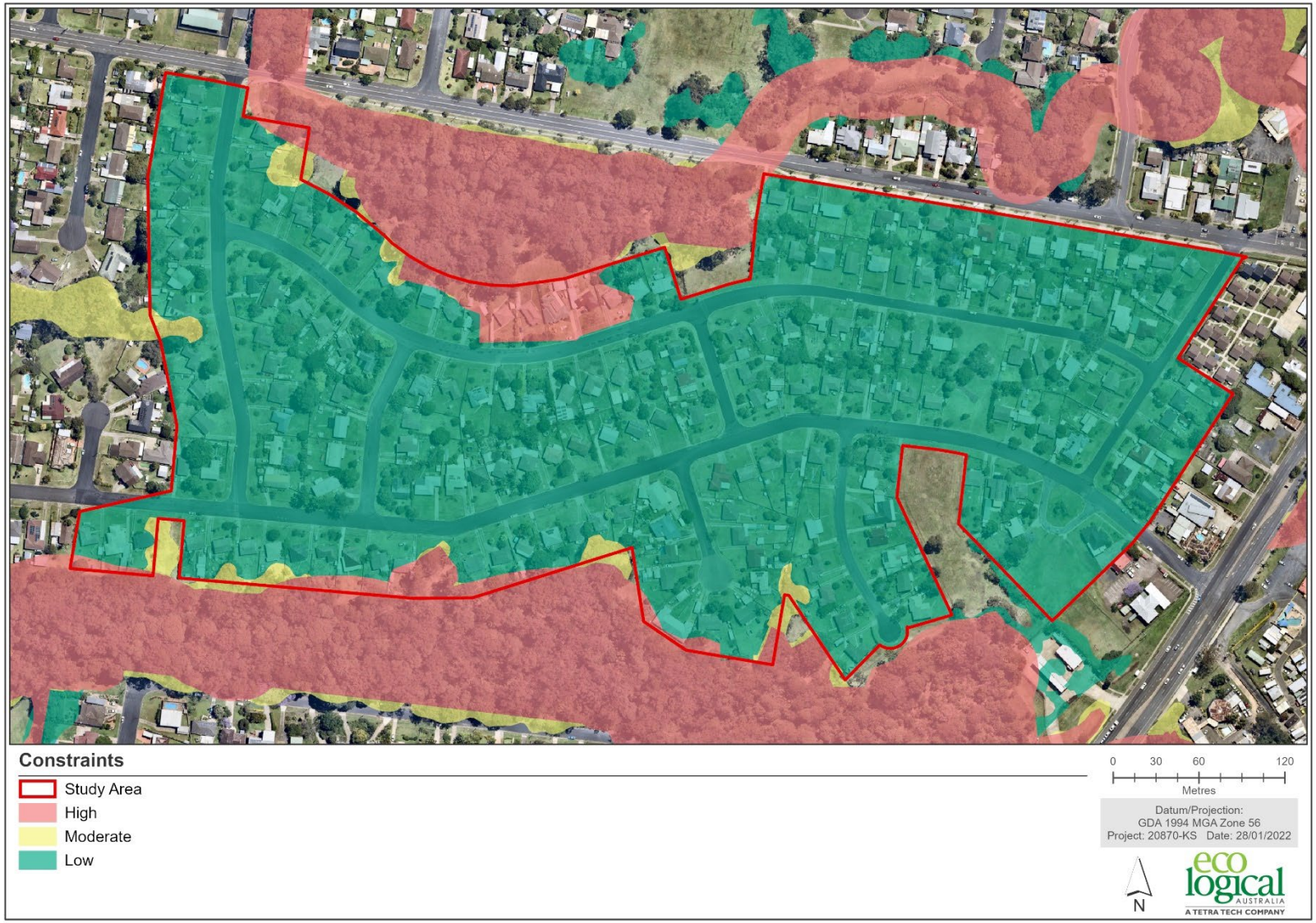


Figure 15: Constraints mapping

4.2.2. Habitat features

4.2.2.1. Terrestrial and arboreal habitat

The study area contains fringing wet sclerophyll forest, cleared exotic grass/built areas and planted native exotic gardens. Forest areas contain a variety of habitat features including nectar and fruit producing trees and shrubs, sheltering habitat such as fallen timber and dense vegetation. Forest habitats within the study area provide suitable habitat for a variety of birds, bats, terrestrial and arboreal mammals, amphibians, reptiles and insects. Intact forest areas provide generally high quality habitat, with smaller degraded patches presenting low or moderate quality habitat depending on connectivity and habitat features present. However, none of these forest areas, aside from one small fragmented patch, lie within the land proposed for rezoning.

The study area provides scattered foraging trees for the GHFF, however due to the distance between individual trees and very small areas connected to Treefern Creek and larger areas of intact vegetation no suitable roosting habitat occurs within the study area.

The cleared exotic grass and built areas provide limited habitat opportunities and are likely to be utilised by common species adapted to open or modified habitats and more tolerant of disturbance.

Planted native/exotic vegetation areas provide some foraging and sheltering opportunities for a variety of species however these areas lack Hollow Bearing Trees and generally contain more open and less structured habitat than native forests. A variety of species are likely to use these areas particularly mobile species such as birds and bats, however threatened species are unlikely to rely on these areas for a large proportion of their foraging or sheltering requirements.

4.2.2.2. Aquatic habitat

There is a 3rd order stream that lies outside the study area to the south and the north. Small portions of the riparian buffer encroach into parts of the study area, however this aquatic habitat still remains a distance from the land proposed for rezoning.

4.2.2.3. Koala habitat

Preferred Koala feed trees as defined under the CHKPoM were identified within the study area including the dominant favoured tree species within the Coffs Harbour region, *Eucalyptus microcorys* (Tallowwood). *Eucalyptus pilularis* (Blackbutt) and *Eucalyptus grandis* (Flooded Gum) which are also both key koala species were likewise found in the study area. The CHKPoM mapped forested habitat in the north and west of the study area as Primary Koala Habitat. An assessment under the CHKPoM for planning controls will need to be undertaken at DA stage for both 'Primary Koala Habitat' and 'Land Adjoining Primary Koala Habitat'.

4.2.2.4. Connectivity

The study area is primarily surrounded by existing residential and infrastructure, which form limited connectivity to larger areas of intact vegetation. However, the native vegetation that bounds the study area on the south which includes the riparian zone is connected to the conservation area that surrounds Coffs Creek as it runs towards the ocean. It also leads inland, connecting the vegetation beyond the boundaries of the city, with a very thin strip of vegetation buffering the creek all the way to the Ulidarra National Park area.

4.2.3. Riparian inspection

A riparian inspection was not undertaken to validate top of bank as the R3 zone is outside of the indicative 40 m waterfront land buffer.

5. Impact Assessment

The total area of native vegetation that is within the study area is 0.67 ha. As the proposed activity relevant to this FFA is the rezoning of land, no direct or indirect impacts will occur at this stage. Both direct and indirect impacts will occur with any future proposed DA/ DAs and the appropriate ecological assessment will need to be undertaken once a Masterplan is produced. However, the vegetation and habitat features surveyed and mapped in this assessment should guide the construction footprint of any future developments to minimise both direct and indirect impact.

The **key threatening process** that will be associated with development post the rezoning will be the clearing of native vegetation

5.1. Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* (BC Act) outlines the assessment requirements to determine whether proposed development is likely to significantly affect threatened species or ecological communities, or their habitats under section 7.3, and whether the Biodiversity Offsets Scheme (BOS) will be triggered requiring the preparation of a BDAR and the purchase and retirement of credits. There are three thresholds triggering entry to the BOS -

- Clearing threshold: impacts to native vegetation of 0.25 ha or more for a property with a minimum lot size of 400 sqm or more may trigger the BOS and therefore, the preparation of a BDAR may be required.
- Biodiversity Value Map (BV Map): The study area is shown to have portions within the BV map and therefore any impact to native vegetation in that area will trigger the BOS under clause 7.2 of the Act. A Biodiversity Development Assessment Report will be required to be submitted with any DA that clears vegetation within areas shown on the Biodiversity Values map. The area outlined to be upzoned is not affected by the BV map and therefore will not trigger the BOS under this threshold. However, the draft concept plan of the greater study area includes the possible future upgrades of lots that are mapped on the BV map; and as such, any clearing of vegetation within the BV mapped areas would trigger the BOS and the requirement for a BDAR. Alternatively if future DA/ DAs avoid clearing of native vegetation mapped on the BV map, a BDAR will not be required.
- Significant impact: the BOS is also triggered if there is likely to be a significant impact to threatened ecological communities or threatened species. Under the draft concept plan for the subdivision site, there is unlikely to be a significant impact to any threatened ecological communities or threatened species listed under the BC Act. This would be assessed at future DA/ DAs stage.

If the above three thresholds are not triggered, then the proposed activity is unlikely to trigger the Biodiversity Offset Scheme under the BC Act and preparation of a Biodiversity Development Assessment

Report (BDAR) is not required and a Flora and Fauna Assessment would be applicable. This assumes that:

- no more than 0.25ha of clearing would take place, and
- clearing of the areas mapped on the biodiversity values map can be avoided, and
- clearing of land mapped on the swift parrot important areas map can be avoided and there is no significant impact to threatened species or communities.

5.2. Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act establishes a process for assessing the environmental impact of activities and developments where MNES may be affected. Under the Act, any action which "has, will have, or is likely to have a significant impact on a MNES" is defined as a controlled action and requires approval from the Commonwealth Department of Agriculture, Water and the Environment (DAWE).

The process includes the application of Significant Impact Criteria for listed MNES that will be affected as a result of the proposed action. Impact assessment guidelines outline a number of criteria to provide assistance in conducting the assessment and help decide whether a referral to the Commonwealth is recommended. These guidelines were used in applying the Significant Impact Criteria.

6. Conclusion

Eco Logical Australia Pty Ltd (ELA) was engaged by NSW Land and Housing Corporation (LAHC) to prepare a Flora and Fauna Assessment (FFA) for the proposed land rezoning and uplift of the social housing estate known as the Argyll Estate ('the study area') situated within the Coffs Harbour Local Government Area (LGA) to rezone land from R2 to R3.

The majority of the land within the study area was exotic grass/ built (3.49 ha), planted native and exotic (0.83 ha) with small areas of native vegetation in low condition (0.13 ha). No threatened ecological communities were found in the study area, nor were any Hollow Bearing Trees located or threatened species observed within the field assessment.

Rezoning of land from R2 to R3 does not result in direct environmental impacts. While the rezoning would allow DA/ DAs to be prepared it does not represent an approval to undertake any works, such as clearing native vegetation. Should the land be rezoned, a subsequent DA/ DAs may result in some limited clearing of small areas of native vegetation on the edges of the study area. Such small areas contain only low condition vegetation which comprise mainly native canopy trees with a managed or disturbed understorey. The subsequent removal of these trees would reduce foraging resources for local fauna on a minor scale. The majority of the study area contains no native vegetation and would therefore be no impact on native flora and fauna associated with rezoning and subsequent DA/ DAs in this area.

It is recommended that the future DA/ DAs takes into account clearing of native vegetation by locating development footprints on the existing exotic vegetation where practically possible and avoid clearing of native vegetation on land mapped on the BV map, koala food trees/ habitat and Swift Parrot important areas (Refer to Figures Figure 11, Figure 13, Figure 8, Figure 14 and Figure 15).

7. References

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Appendix A – Properties within the land proposed for rezoning

Lot	DP	Lot	DP	Lot	DP	Lot	DP
56	DP237307	27	DP239231	38	DP237307	108	DP248371
57	DP237307	26	DP239231	33	DP237307	107	DP248371
58	DP237307	25	DP239231	45	DP237307	109	DP248371
59	DP237307	24	DP239231	29	DP237307	117	DP248371
60	DP237307	23	DP239231	49	DP237307	116	DP248371
61	DP237307	22	DP239231	30	DP237307	115	DP248371
50	DP237307	38	DP239231	48	DP237307	114	DP248371
51	DP237307	44	DP239231	31	DP237307	113	DP248371
52	DP237307	43	DP239231	47	DP237307	112	DP248371
54	DP237307	42	DP239231	32	DP237307	111	DP248371
55	DP237307	41	DP239231	46	DP237307	110	DP248371
62	DP237307	40	DP239231	40	DP237307	118	DP248371
63	DP237307	39	DP239231	39	DP237307	119	DP248371
64	DP237307	51	DP241934	35	DP237307	89	DP248371
65	DP237307	52	DP241934	44	DP237307	85	DP248371
66	DP237307	53	DP241934	42	DP237307	87	DP248371
67	DP237307	54	DP241934	37	DP237307	91	DP248371
68	DP237307	55	DP241934	36	DP237307	88	DP248371
14	DP237307	56	DP241934	43	DP237307	90	DP248371
16	DP237307	50	DP241934	15	DP238407	86	DP248371
17	DP237307	49	DP241934	17	DP238407	81	DP248371
15	DP237307	48	DP241934	16	DP238407	84	DP248371
13	DP237307	47	DP241934	3	DP238407	79	DP248371
12	DP237307	46	DP241934	4	DP238407	83	DP248371
1	DP237307	65	DP241934	5	DP238407	80	DP248371
3	DP237307	57	DP241934	2	DP238407	82	DP248371
2	DP237307	63	DP241934	6	DP238407	71	DP248371
26	DP237307	64	DP241934	1	DP238407	78	DP248371
25	DP237307	62	DP241934	7	DP238407	73	DP248371
4	DP237307	61	DP241934	11	DP238407	72	DP248371
5	DP237307	60	DP241934	13	DP238407	70	DP248371

Lot	DP	Lot	DP	Lot	DP	Lot	DP
28	DP237307	59	DP241934	14	DP238407	75	DP248371
27	DP237307	58	DP241934	8	DP238407	77	DP248371
6	DP237307	66	DP241934	10	DP238407	74	DP248371
23	DP237307	68	DP241934	12	DP238407	92	DP248371
24	DP237307	69	DP241934	9	DP238407	104	DP248371
7	DP237307	67	DP241934	20	DP238407	100	DP248371
22	DP237307	1	DP242705	18	DP238407	95	DP248371
8	DP237307	6	DP242705	19	DP238407	96	DP248371
21	DP237307	2	DP242705	33	DP239231	97	DP248371
9	DP237307	3	DP242705	34	DP239231	99	DP248371
20	DP237307	10	DP242705	35	DP239231	98	DP248371
10	DP237307	9	DP242705	36	DP239231	94	DP248371
19	DP237307	8	DP242705	37	DP239231	93	DP248371
18	DP237307	7	DP242705	28	DP239231	101	DP248371
11	DP237307	5	DP242705	32	DP239231	103	DP248371
34	DP237307	4	DP242705	21	DP239231	105	DP248371
41	DP237307	106	DP248371	30	DP239231	102	DP248371
29	DP239231	4	DP612302	31	DP239231	2	DP612302
1	DP612302	3	DP612302				

Appendix B – Likelihood of occurrence

LIKELIHOOD	CRITERIA
Known	The species was observed in the Study Area during the site visit.
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), and/or the species has been recorded recently in the locality (5 km). 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. This also includes cryptic flowering flora species that were not seasonally targeted by surveys and that have not been recorded within the study area however suitable habitat is present and there are recent records (<10 years) within the locality.
Low	It is unlikely that the species inhabits the study area. There are either no records or no recent records (<10 years) within the locality (5km). Habitat requirements are not met, or the species' normal distribution range does not coincide with the locality. Despite this, the species may be present in rare circumstances.
None	Suitable habitat is absent from the Study Area. Based on a field assessment of the habitat constraints or microhabitats on the study area, the habitat is identified as being substantially degraded such that the species is unlikely to utilise the study area (or specific vegetation zones), or an expert report that is prepared that states the species is unlikely to be present on the study area or specific vegetation zones.

FLORA AND FAUNA.

AMPHIBIANS

Scientific Name	Common Name	BC Act	EPBC Act	Distribution	Habitat	Ecology	Records post 1990	Last record	Likelihood
Crinia tinnula	Wallum Froglet	V		Along the coastal margin from Litabella National Park in south-east Qld to Kurnell in Sydney.	Acidic swamps on coastal sand plains (typically in sedgelands and wet heathlands), drainage lines, and swamp sclerophyll forests.	The species breeds in swamps with permanent water as well as shallow ephemeral pools and drainage ditches. Breeding is thought to peak in the colder months, but can occur throughout the year following rain. Wallum Froglets shelter under leaf litter, vegetation, other debris or in burrows of other species. Shelter sites are wet or very damp and often located near the water's edge. Males may call throughout the year and at any time of day, peaking following rain.	18	13-09-16	None
Mixophyes iteratus	Giant Barred Frog	E1	E	Coast and ranges from Eumundi in south-east Qld to Warrimoo in the Blue Mountains.	Freshwater permanent/semi-permanent streams, generally at lower elevation. Riparian rainforest or wet sclerophyll forest is favoured.	Breeding takes place from late spring to summer. Once eggs are laid and fertilised in the water, the female kicks them out of the water where they stick onto an overhanging or steeply sloped bank. Although generally found within about 20m of the stream, outside the breeding season, the Giant Barred Frog may disperse away from the stream (e.g. 50m or further). It is a generalist feeder, with large insects, snails, spiders and frogs included in its diet.	13	14-12-18	Moderate

AVES

Scientific Name	Common Name	BC Act	EPBC Act	Distribution	Habitat	Ecology	Records post 1990	Last record	Likelihood
Amaurornis moluccana	Pale-vented Bush-hen	V		In NSW, occurs from the Qld border south to the Clarence River, though the species appears to be expanding its range southwards with recent records as far south as the Nambucca River.	Tall dense vegetation on the margins of freshwater streams and natural or artificial wetlands, usually within or bordering rainforest, rainforest remnants or forests. Also rank grass or reeds, thickets of weeds and farmland.	The diet consists of seeds, plant matter, earthworms, insects and some frogs. The breeding season is from spring to early autumn, October to April. The nest is a shallow bowl or cup of grass stems, often partly hooded, built close to water in thick ground vegetation such as dense Imperata cylindrica (Blady Grass), Lomandra (mat rush) or reeds, often under or growing through shrubs or vine or beneath a tree.	1	10-08-13	Moderate
Anthochaera phrygia	Regent Honeyeater	E4A	CE	Inland slopes of south-east Australia, and less frequently in coastal areas. In NSW, most records are from the North-West Plains, North-West and South-West Slopes, Northern Tablelands, Central Tablelands and Southern Tablelands regions; also recorded in the Central Coast and Hunter Valley regions.	Eucalypt woodland and open forest, wooded farmland and urban areas with mature eucalypts, and riparian forests of *Casuarina cunninghamiana (*River Oak).	Two of three known key breeding areas are in NSW: the Capertee Valley and Bundarra-Barraba region. The species breeds between July and January and usually nests in horizontal branches or forks in tall mature eucalypts and Sheoaks.The Regent Honeyeater primarily feeds on nectar from box and ironbark eucalypts and occasionally from banksias and mistletoes.	3	29-09-91	Low
Apus pacificus	Fork-tailed Swift		M	Recorded in all regions of NSW.	Riparian woodland., swamps, low scrub, heathland, saltmarsh, grassland, Spinifex sandplains, open farmland and inland and coastal sand-dunes.	Non-breeding visitor to all states and territories of Australia, arriving from its breeding grounds in Siberia around October, and departing in April. The species is thought to be highly mobile within Australia, moving across the country in search of food. They probably roost aerially.	1	06-02-13	Low
Ardenna carneipes	Flesh-footed Shearwater	V	M	Recorded in NSW coastal waters. Breeds on Lord Howe Island.	Marine.	Nests on Lord Howe Island in forests on sandy soils. Eggs are laid at the end of a burrow 1 - 2 metres in length.	-	Pre 1990	None
Ardenna grisea	Sooty Shearwater		M	Breeds on islands off NSW from Montague Island to Broughton Island. Present off eastern NSW mainly October-February.	Islands, offshore.	During winter (non-breeding season) most birds move to the North Pacific Ocean, but some move into the North Atlantic Ocean, or remain in the southern hemisphere.	-	Pre 1991	None
Ardenna pacifica	Wedge-tailed Shearwater		M	It ranges throughout the tropical Pacific and Indian Oceans, roughly between latitudes 35°N and 35°S. Known to breed on Muttonbird Island, Coffs Harbour, to the east of the Study area	Coastal Habitat	Breeds on Mutton Bird Island, Coffs Harbour locally	23,831	08-05-19	Moderate
Ardenna tenuirostris	Short-tailed Shearwater		M	Breeds on islands north to Broughton Island off NSW. Commonly observed south of coastal northern NSW during summer.	Islands, offshore.	Migrates May-August to the north Pacific, returning late September.	44	07-04-19	None
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V		Dusky woodswallows are widespread in eastern, southern and south western Australia. The species occurs throughout most of New South Wales, but is sparsely scattered in, or largely absent from, much of the upper western region. Most breeding activity occurs on the western slopes of the Great Dividing Range.	Primarily inhabit dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and ground-cover of grasses or sedges and fallen woody debris. It has also been recorded in shrublands, heathlands and very occasionally in moist forest or rainforest. Also found in	Depending on location and local climatic conditions (primarily temperature and rainfall), the dusky woodswallow can be resident year round or migratory.	-	-	Low

Scientific Name	Common Name	BC Act	EPBC Act	Distribution	Habitat	Ecology	Records post 1990	Last record	Likelihood
					farmland, usually at the edges of forest or woodland.				
Botaurus poiciloptilus	Australasian Bittern	E1	E	Found over most of NSW except for the far north-west.	Permanent freshwater wetlands with tall, dense vegetation, particularly *Typha* spp. (bullrushes) and *Eleocharis* spp. (spikerushes).	Feed mainly at night on frogs, fish, yabbies, spiders, insects and snails. Feeding platforms may be constructed over deeper water from reeds trampled by the bird. Breeding occurs in summer from October to January; nests are built in secluded places in densely-vegetated wetlands on a platform of reeds.	1	19-04-01	None
Calyptorhynchus lathami	Glossy Black-Cockatoo	V		In NSW, widespread along coast and inland to the southern tablelands and central western plains, with a small population in the Riverina.	Open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur.	Feeds almost exclusively on the seeds of several species of she-oak *(Casuarina* and *Allocasuarina* species), shredding the cones with the massive bill. Dependent on large hollow-bearing eucalypts for nest sites. A single egg is laid between March and May.	54	29-04-21	High
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V		From eastern through central NSW, west to Corowa, Wagga Wagga, Temora, Forbes, Dubbo and Inverell.	Eucalypt woodlands and dry open forest.	Up to 80% of the diet is comprised of ants. Also feeds on other invertebrates (including spiders, insects larvae, moths, beetles, flies, hemipteran bugs, cockroaches, termites and lacewings), nectar from Mugga Ironbark (Eucalyptus sideroxylon) and paperbarks, and sap, along with lizards and food scraps. Hollows in standing dead or live trees and tree stumps are essential for nesting. The species breeds in pairs or co-operatively in territories which range in size from 1.1 to 10.7 ha.	1	11-05-17	Low
Coracina lineata	Barred Cuckoo-shrike	V		Rare in NSW but recorded along coast south to the Manning River.	Rainforest, eucalypt forests and woodlands, clearings in secondary growth, swamp woodlands and timber along watercourses.	They are usually seen in pairs or small flocks foraging among foliage of trees for insects and fruit.	4	10-04-13	Moderate
Cyclopsitta diophthalma coxeni	Coxen's Fig-Parrot	E4A	E	Limited to about five populations scattered between Bundaberg in Qld and the Hastings River in NSW.	Drier rainforests and adjacent wetter eucalypt forest, and wetter lowland rainforests.	The bird shows a decided preference for fig trees, but also feeds on other fruiting rainforest species.	3	15-04-92	Low
Daphoenositta chrysoptera	Varied Sittella	V		Distribution in NSW is nearly continuous from the coast to the far west.	Inhabits eucalypt forests and woodlands, mallee and *Acacia* woodland.	Feeds on arthropods gleaned from crevices in rough or decorticating bark, dead branches, standing dead trees and small branches and twigs in the tree canopy. Builds a cup-shaped nest of plant fibres and cobwebs in an upright tree fork high in the living tree canopy, and often re-uses the same fork or tree in successive years.	4	14-07-01	Low
Dromaius novaehollandiae	Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area	E2		In north-eastern NSW, now restricted to coastal and near-coastal areas between Evans Head and Red Rock and a small isolated population further west in the Bungawalbin area. It is not known whether it persists in the Port Stephens area.	On the NSW north coast, found in grasslands, heathland, shrubland, open and shrubby woodlands, forest, swamps, sedgeland, tea-tree plantations and open farmland, and littoral rainforest.	Last known population in northern coastal NSW. Emus are omnivorous, taking a wide range of seeds and fruits, invertebrates (mainly insects) and foliage and other plant material. Most breeding occurs in late autumn and winter. Eggs are laid on a platform of grass, twigs, leaves and bark on the ground.	1	28-05-19	Low
Ephippiorhynchus asiaticus	Black-necked Stork	E1		Coastal and subcoastal northern and eastern Australia, south to central-eastern NSW and with vagrants recorded further south and inland.	In NSW, floodplain wetlands of the major coastal rivers are key habitat. Also minor floodplains, coastal sandplain wetlands and estuaries.	Usually forage in water 5-30cm deep for vertebrate and invertebrate prey (eels, fish, frogs and invertebrates). Black-necked Storks build large nests high in tall trees close to water. In NSW, breeding activity occurs May - January; incubation May - October; nestlings July - January; fledging from September.	7	18-08-05	None
Esacus magnirostris	Beach Stone-curlew	CE		In Australia, the Beach Stone-curlew occupies coastlines from about Point Cloates in Western Australia, across northern and north-eastern Australia south to north-eastern NSW, with occasional vagrants to south-eastern NSW and Victoria.	Beach Stone-curlews are found exclusively along the coast, on a wide range of beaches, islands, reefs and in estuaries, and may often be seen at the edges of or near mangroves.	They forage in the intertidal zone of beaches and estuaries, on islands, flats, banks and spits of sand, mud, gravel or rock, and among mangroves. Beach Stone-curlews breed above the littoral zone, at the backs of beaches, or on sandbanks and islands, among low vegetation of grass, scattered shrubs or low trees; also among open mangroves.	-	-	None
Fregata ariel	Lesser Frigatebird		M	In NSW, irregularly observed after tropical cyclones south to central coast, sometimes observed south to Merimbula.	Marine.	Breeds on island and cays off tropical northern Australia.	1	12-02-90	None
Gallinago hardwickii	Latham's Snipe		M	Migrant to east coast of Australia, extending inland west of the Great Dividing Range in NSW.	Freshwater, saline or brackish wetlands up to 2000 m above sea-level; usually freshwater swamps, flooded grasslands or heathlands.	Non-breeding migrant to Australia, arriving between July-November from its breeding grounds in Japan and far-eastern Russia, and departing by late February. It feeds in mud or in very shallow water with low, dense vegetation. Roosting occurs on the ground near or in foraging areas beside or under clumps of vegetation, among dense tea-tree, in forests, in drainage ditches or plough marks, among boulders, or in shallow water if cover is unavailable.	2	26-03-14	None

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Glossopsitta pusilla	Little Lorikeet	V		In NSW, found from the coast westward as far as Dubbo and Albury.	Dry, open eucalypt forests and woodlands, including remnant woodland patches and roadside vegetation.	Nomadic movements are common, influenced by season and food availability. Feeds mostly on nectar and pollen, occasionally on native fruits such as mistletoe, and only rarely in orchards Roosts in treetops, often distant from feeding areas. Nests in proximity to feeding areas if possible, most typically selecting hollows in the limb or trunk of smooth-barked Eucalypts. Nesting season extends from May to September.	7	14-05-18	Moderate
Grantiella picta	Painted Honeyeater	V	V	Widely distributed in NSW, predominantly on the inland side of the Great Dividing Range but avoiding arid areas.	Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests.	A specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus Amyema. Insects and nectar from mistletoe or eucalypts are occasionally eaten. Nest from spring to autumn in a small, delicate nest hanging within the outer canopy of drooping eucalypts, she-oak, paperbark or mistletoe branches.	1	07-10-90	Low
Grus rubicunda	Brolga	V		The Brolga was formerly found across Australia, except for the south-east corner	Wetlands and grasslands	Though Brolgas often feed in dry grassland or ploughed paddocks or even desert claypans, they are dependent on wetlands too, especially shallow swamps, where they will forage with their head entirely submerged.	-	-	None
Haematopus fuliginosus	Sooty Oystercatcher	V		Distributed along the entire NSW coast.	Rocky headlands, rocky shelves, exposed reefs with rock pools, beaches and muddy estuaries.	Forages on exposed rock or coral at low tide for foods such as limpets and mussels. Breeds in spring and summer, almost exclusively on offshore islands, and occasionally on isolated promontories. The nest is a shallow scrape on the ground, or small mounds of pebbles, shells or seaweed when nesting among rocks.	63	15-09-20	None
Haematopus longirostris	Pied Oystercatcher	E1		Thinly scattered along the entire NSW coast.	Intertidal flats of inlets and bays, open beaches and sandbanks.	Forages on exposed sand, mud and rock at low tide, for molluscs, worms, crabs and small fish. Nests mostly on coastal or estuarine beaches although occasionally they use saltmarsh or grassy areas. Nests are shallow scrapes in sand above the high tide mark, often amongst seaweed, shells and small stones. Two to three eggs are laid between August and January.	42	15-09-20	None
Haliaeetus leucogaster	White-bellied Sea-Eagle	V		Distributed along the coastline of mainland Australia and Tasmania, extending inland along some of the larger waterways, especially in eastern Australia.	Freshwater swamps, rivers, lakes, reservoirs, billabongs, saltmarsh and sewage ponds and coastal waters. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, forest and urban areas.	The breeding season extends from June to January (or sometimes February) in southern Australia. Breeding habitat is usually close to water, but may occur up to a kilometre away. Nests are mainly located in tall open forest or woodland, but sometimes in other habitats such as dense forest, closed scrub or in remnant trees on cleared land. The White-bellied Sea-Eagle feeds opportunistically on a variety of fish, birds, reptiles, mammals and crustaceans, and on carrion and offal.	21	27-01-21	Moderate
Hieraaetus morphnoides	Little Eagle	V		Throughout the Australian mainland, with the exception of the most densely-forested parts of the Dividing Range escarpment.	Open eucalypt forest, woodland or open woodland, including sheoak or *Acacia* woodlands and riparian woodlands of interior NSW.	Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter. Lays two or three eggs during spring, and young fledge in early summer. Preys on birds, reptiles and mammals, occasionally adding large insects and carrion.	1	27-03-03	Low
Hirundapus caudacutus	White-throated Needletail		M	All coastal regions of NSW, inland to the western slopes and inland plains of the Great Divide.	Occur most often over open forest and rainforest, as well as heathland, and remnant vegetation in farmland.	Breeds in eastern Siberia, north-eastern China and Japan. The species arrives in Australia in September–October, and most depart by April. It almost always forages aerially. Recorded roosting in trees in forests and woodlands, both among dense foliage in the canopy or in hollows.	27	13-12-19	Moderate
Ixobrychus flavicollis	Black Bittern	V		In NSW, records are scattered along the east coast, with individuals rarely being recorded south of Sydney or inland.	Terrestrial and estuarine wetlands. Also flooded grassland, forest, woodland, rainforest and mangroves where permanent water is present.	Feeds on frogs, reptiles, fish and invertebrates, with most feeding done at dusk and at night. During the day, roosts in trees or on the ground amongst dense reeds. Breeding season is December to March. Nests, built in spring are located on a branch overhanging water and consist of a bed of sticks and reeds on a base of larger sticks.	5	13-04-02	Low
Lathamus discolor	Swift Parrot	E1	CE	Migrates from Tasmania to mainland in Autumn-Winter. In NSW, the species mostly occurs on the coast and south west slopes.	Box-ironbark forests and woodlands.	Favoured feed trees include winter flowering species such as Eucalyptus robusta (Swamp Mahogany), Corymbia maculata (Spotted Gum), C. gummifera (Red Bloodwood), E. sideroxylon (Mugga Ironbark), and E. albens (White Box). Commonly used lerp infested trees include E. microcarpa (Inland Grey Box), E. moluccana (Grey Box) and E. pilularis (Blackbutt). Following winter they return to Tasmania where they breed from September to January.	9	01-11-02	Low
Limosa lapponica	Bar-tailed Godwit		M	Summer migrant to Australia. Widespread along the coast of NSW, including the offshore islands. Also numerous scattered inland records.	Intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons, bays, seagrass beds, saltmarsh, sewage farms and saltworks, saltlakes and brackish wetlands near coasts, sandy ocean beaches, rock platforms, and coral reef-flats. Rarely inland wetlands, paddocks and airstrips.	Breeds in the north of Scandinavia, Russia and north-west Alaska. Summer migrant to Australia September to April. Often overwinters.	2	22-10-03	None

Scientific Name	Common Name	BC Act	EPBC Act	Distribution	Habitat	Ecology	Records post 1990	Last record	Likelihood
Lophoictinia isura	Square-tailed Kite	V		In NSW, it 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.	Timbered habitats including dry woodlands and open forests, particularly timbered watercourses.	It is a specialist hunter of passerines, especially honeyeaters, and most particularly nestlings, and insects in the tree canopy, picking most prey items from the outer foliage. Appears to occupy large hunting ranges of more than 100km2. Breeding is from July to February, with nest sites generally located along or near watercourses, in a fork or on large horizontal limbs.	13	15-09-20	Moderate
Macronectes halli	Northern Giant-Petrel	V	V, M	Common visitor in NSW waters, predominantly along the south-east coast during winter and autumn.	Marine.	Breeding in Australian territory is limited to Macquarie Island and occurs during spring and summer. Females obtain most of their prey live from the sea, while males also scavenge from the carcases of penguins and seals on land. At sea, they feed on fish, cephalopods, birds and crustaceans, including euphausiids or krill, and regularly scavenge on fishing vessels.	1	15-07-05	None
Ninox connivens	Barking Owl	V		The Barking Owl is found throughout continental Australia except for the central arid regions. Core populations exist on the western slopes and plains and in some northeast coastal and escarpment forests.	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.	-	-	Low
Ninox strenua	Powerful Owl	V		In NSW, it is widely distributed throughout the eastern forests from the coast inland to tablelands, with scattered records on the western slopes and plains.	Woodland, open sclerophyll forest, tall open wet forest and rainforest.	It roosts by day in dense vegetation comprising species such as Syncarpia glomulifera (Turpentine), Allocasuarina littoralis (Black She-oak), Acacia melanoxylon (Blackwood), Angophora floribunda (Rough-barked Apple), Exocarpus cupressiformis (Cherry Ballart) and eucalypt species. The main prey items are medium-sized arboreal marsupials. Powerful Owls nest in large tree hollows in large eucalypts that are at least 150 years old. Nesting occurs from late autumn to mid-winter.	15	05-04-21	High
Numenius madagascariensis	Eastern Curlew		CE, M	Summer migrant to Australia. Primarily coastal distribution in NSW, with some scattered inland records.	Estuaries, bays, harbours, inlets and coastal lagoons, intertidal mudflats or sandflats, ocean beaches, coral reefs, rock platforms, saltmarsh, mangroves, freshwater/brackish lakes, saltworks and sewage farms.	Breeds in Russia and north-eastern China, summer migrant to Australia August to May. Mainly forages on sheltered intertidal sandflats or mudflats, on saltflats and in saltmarsh, rockpools, coral reefs, and on ocean beaches. Roosts on sandy spits and islets, among saltmarsh or mangroves, on reef-flats, in the shallow water of near-coastal wetlands, and in trees.	3	22-10-03	None
Numenius phaeopus	Whimbrel		M	Summer migrant to Australia. Found along almost the entire coast of NSW; scattered inland records.	Estuaries, mangroves, tidal flats, coral cays, exposed reefs, flooded paddocks, sewage ponds, grasslands, sports fields, lawns.	Breeds Siberia, migrates to Australia August-April. Many overwinter. Forages on intertidal mudflats, estuaries, coastal lagoons, among mangroves, or on sandy beaches. Roosts in mangroves and tall coastal trees, on the ground, on muddy, sandy or rocky beaches, rocky islets and coral cays.	2	22-10-03	None
Onychoprion fuscata	Sooty Tern	V		In NSW only known to breed at Lord Howe Island. Occasionally seen along coastal NSW, especially after cyclones.	Marine.	Breeds in large colonies in sand or coral scrapes on offshore islands and cays including Lord Howe and Norfolk Islands.	-	Pre 1993	None
Pandion cristatus	Eastern Osprey	V		Common around the northern NSW coast, and uncommon to rare from coast further south. Some records from inland areas.	Rocky shorelines, islands, reefs, 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.	69	14-08-20	None
Petroica boodang	Scarlet Robin	V		In NSW, it occurs from the coast to the inland slopes.	Dry eucalypt forests and woodlands, and occasionally in mallee, wet forest, wetlands and tea-tree swamps.	Feed on small insects and other invertebrates which are taken from the ground, or off tree trunks and logs; they sometimes forage in the shrub or canopy layer. Mainly breed between July and January. This species' nest is an open cup made of plant fibres and cobwebs and is built in the fork of tree usually more than 2 metres above the ground; nests are often found in a dead branch in a live tree, or in a dead tree or shrub.	1	14-07-15	Moderate
Phaethon lepturus	White-tailed Tropicbird		M	Uncommon south to Ballina January-April; casual visitor south to Batemans Bay, some well inland.	Marine.	Breeds on islands to the north-east and north-west of Australia.	-	Pre 1994	None
Phaethon rubricauda	Red-tailed Tropicbird	V	M	Vagrant birds occur in coastal NSW waters, and occasionally even inland, particularly after storm events. Breeds on Lord Howe Island.	Marine.	Nests on cliffs of the northern hills and southern mountains on the main island at Lord Howe Island. Nest consists of a mere scrape on the ground on an inaccessible cliff ledge.	-	Pre 1995	None
Pluvialis fulva	Pacific Golden Plover		M	Regular widespread summer migrant to Australia, including coastal NSW, Lord Howe and Norfolk Island.	Estuaries, mudflats, saltmarshes, mangroves, rocky reefs, inland swamps, ocean shores, paddocks, sewage ponds, ploughed land, airfields, playing fields.	Breeds north-east Siberia and west Alaska, regular summer migrant to Australia (August-April).	2	27-04-18	None
Pterodroma leucoptera leucoptera	Gould's petrel	V	E	Breeds on both Cabbage Tree Island, 1.4 km offshore from Port Stephens and on nearby Boondelbah island. The range and	Marine.	Nest in a burrow, up to a metre long in sandy soil but shorter in stony volcanic soil. The burrow is located on higher ground, and the entrance is usually hidden amongst bushes.	-	-	None

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				feeding areas of non-breeding petrels are unknown					
Pterodroma nigripennis	Black-winged Petrel	V		Recorded off NSW coast. Breeds on Lord Howe Island.	Marine.	Nest in a burrow, up to a metre long in sandy soil but shorter in stony volcanic soil. The burrow is located on higher ground, and the entrance is usually hidden amongst bushes.	-	Pre 1996	None
Ptilinopus magnificus	Wompoo Fruit-Dove	V		In NSW, occurs south along coast and coastal ranges to the Hunter River.	Rainforest, low-elevation moist eucalypt forest and brush box forests.	Feeds on a diverse range of tree and vine fruits and is locally nomadic - following ripening fruit. The nest is a flimsy platform of sticks on a thin branch or a palm frond, often over water, usually 3 - 10 m above the ground. Breeds in spring and early summer.	61	15-01-20	High
Ptilinopus regina	Rose-crowned Fruit-Dove	V		In NSW, found on coast and ranges north from Newcastle. Vagrants are occasionally found further south to Victoria.	Sub-tropical and dry rainforest, moist eucalypt forest and swamp forest, where fruit is plentiful.	They feed entirely on fruit from vines, shrubs, large trees and palms, and are thought to be locally nomadic as they follow the ripening of fruits. Some populations are migratory in response to food availability - numbers in north-east NSW increase during spring and summer then decline in April or May.	19	27-01-21	High
Ptilinopus superbus	Superb Fruit-Dove	V		Principally from north-eastern Qld to north-eastern NSW. Further south, it is confined to pockets of suitable habitat, and occurs as far south as Moruya.	Rainforest and closed forests. May also forage in eucalypt or acacia woodland where there are fruit-bearing trees.	Forages high in the canopy, eating the fruits of many tree species such as figs and palms. Part of the population is migratory or nomadic. At least some of the population, particularly young birds, moves south through Sydney, especially in autumn. Breeding takes place from September to January. The nest is a structure of fine interlocked forked twigs, and is usually 5-30 metres up in rainforest and rainforest edge tree and shrub species.	1	20-11-18	Low
Sterna hirundo	Common Tern		M	Regular summer migrant to northern and eastern coastal Australia, including coastal NSW. Also scattered inland records.	Offshore waters, ocean beaches, estuaries, large lakes. Less commonly freshwater swamps, floodwaters, sewage farms and brackish and saline lakes.	Breeds across the northern hemisphere. Regular non-breeding migrant to Australia (September to April).	2	29-10-20	Low
Sternula albifrons	Little Tern	E1	M	In NSW, it arrives from September to November, occurring mainly north of Sydney, with smaller numbers found south to Victoria.	Sheltered coastal environments, harbours, inlets and rivers.	Migrates from eastern Asia. It breeds in spring and summer along the entire east coast from Tasmania to northern Qld, and is seen until May. Nests in small, scattered colonies in low dunes or on sandy beaches. The nest is a scrape in the sand, which may be lined with shell grit, seaweed or small pebbles. Forages for small fish, crustaceans, insects, worms and molluscs.	8	28-02-16	None
Sula dactylatra	Masked Booby	V	M	Recorded off the NSW coast. Breeds on Lord Howe Island.	Marine.	Remain at Lord Howe Island year round but range widely for food. Breed on high open areas where they can take off directly into the wind. The nest is a rough platform of trodden grass.	1	13-01-05	None
Sula leucogaster	Brown Booby		M	Reported south to Tweed Heads in NSW, and occasionally further south to Victoria.	Coastal waters, harbours and estuaries and near offshore islands.	Breeds on tropical islands, continental islands, sand cays and atolls; does not breed in NSW. Generally feeds in inshore waters.	1	08-08-03	None
Thalassarche cauta	Shy Albatross	V	V	Occurs along the east coast south from Stradbroke Island and across the south coast to Carnarvon in WA. It is commonly recorded off southeast NSW, though rarely north of Sydney.	Marine.	This pelagic or ocean-going species inhabits subantarctic and subtropical marine waters, spending the majority of its time at sea. Occasionally the species occurs in continental shelf waters, in bays and harbours. The species feeds on fish, crustaceans, offal and squid. Known breeding locations include Albatross Island off Tasmania, Auckland Island, Bounty Island and The Snares, off New Zealand. Breeding occurs September-December.	1	15-07-05	None
Thalasseus bergii	Crested Tern		M	Australian coastline	Intertidal sandflats near estuaries and mangroves	Breed in colonies on small offshore islands where their nests are so densely packed together that adjacent owners can touch each other's bills.	45	15-09-20	Low
Todiramphus chloris	Collared Kingfisher	V		In NSW, occurs along north coast south to the estuary of the Tweed River, with rare scattered records south to the Clarence River.	Mainly restricted to mangrove associations of estuaries, inlets, sheltered bays and islands, and the tidal flats and littoral zone bordering mangroves.	Nests are usually in holes in trunks of large, live or dead mangrove trees. The diet consists mostly of crustaceans, especially crabs, but they also take insects, small fish, and lizards. They have also been reported to occasionally take young birds. Breeding is usually in spring and summer.	8	02-12-92	None
Tringa brevipes	Grey-tailed Tattler		M	Summer migrant to Australia. In NSW, distributed along most of the coast from the Qld border, south to Tilba Lake. More heavily distributed along coastal regions north of Sydney.	Sheltered coasts with reefs and rock platforms or intertidal mudflats; intertidal rocky, coral or stony reefs; shores of rock, shingle, gravel or shells; embayments, estuaries and coastal lagoons; lagoons and lakes; and ponds in sewage farms and saltworks.	Breeds Siberia, migrates to Australia from September to April. Forages in shallow water, on reefs and rock platforms, in rock pools, on exposed intertidal mudflats and intertidal sandflats. Roosts in the branches of mangroves, on snags or driftwood, on rocks, beaches and reefs.	1	22-05-15	None
Tyto longimembris	Eastern Grass Owl	V		Recorded occasionally in all mainland states. In NSW they are more likely to be resident in the north-east.	Areas of tall grass, including grass tussocks, swampy areas, grassy plains, swampy	They rest by day in a 'form' - a trampled platform in a large tussock or other heavy vegetative growth. Always breeds on the ground. Nests are found in trodden grass, and often accessed	2	21-06-18	Low

Scientific Name	Common Name	BC Act	EPBC Act	Distribution	Habitat	Ecology	Records post 1990	Last record	Likelihood
					heath, and in cane grass or sedges on flood plains.	by tunnels through vegetation. Breeding season is highly variable and dependent on environmental conditions, but in NSW nesting most typically occurs in autumn or winter.			
Tyto novaehollandiae	Masked Owl	V		Extends from the coast where it is most abundant to the western plains. Overall records for this species fall within approximately 90% of NSW, excluding the most arid north-western corner. There is no seasonal variation in its distribution.	Lives in dry eucalypt forests and woodlands from sea level to 1100 m. A forest owl, but often hunts along the edges of forests, including roadsides.	Pairs have a large home-range of 500 to 1000 hectares. Roosts and breeds in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting.	-	-	Moderate
Tyto tenebricosa	Sooty Owl	V		Occupies the easternmost one-eighth of NSW, occurring on the coast, coastal escarpment and eastern tablelands.	Dry rainforest, subtropical and warm temperate rainforest, as well as moist eucalypt forests.	Roosts by day in the hollow of a tall forest tree or in heavy vegetation; hunts by night for small ground mammals or tree-dwelling mammals such as the *Pseudocheirus peregrinus* (Common Ringtail Possum) or *Petaurus breviceps* (Sugar Glider). Nests in very large tree-hollows.	11	10-02-16	Moderate

INSECTA

Scientific Name	Common Name	BC Act	EPBC Act	Distribution	Habitat	Ecology	Records post 1990	Last record	Likelihood
Ocybadistes knightorum	Black Grass-dart Butterfly	E1		Occurs only on the NSW mid north coast from Coffs Harbour to Scotts Head. It is currently known from two disjunct areas: a northern population centred around Sawtell and a southern population along Warrell Creek.	Restricted to areas supporting its larval food plant *Alexfloydia repens* (Floyd's Grass). Habitat is predominantly located in swamp sclerophyll forest.	Eggs are laid on the underside near the tip of the leaf of Floyd's Grass. 16 days estimated to be near their maximum adult lifespan in the wild. The flight period extends from very late August to early May, although the butterflies are most abundant from September to March.	38	12-01-17	None
Petalura litorea	Coastal Petaltail	E		The Coastal Petaltail is known from Byfield (near Yeppoon in Queensland) to Bonville (south of Coffs Harbour). In NSW it is known from a very small number of locations, including Brooms Head, Tucabia, Diggers Camp and Bonville.	The Coastal Petaltail occupies a variety of permanent to semi-permanent coastal freshwater wetlands.	Adults emerge from late October to late January and probably live for no more than three months. Adults spend most of their time settled on low vegetation on or adjacent to the swamp. They hunt flying insects on the wing over the swamp and around its margins.	-	-	Low

MAMMALIA

Scientific Name	Common Name	BC Act	EPBC Act	Distribution	Habitat	Ecology	Records post 1990	Last record	Likelihood
Arctocephalus pusillus doriferus	Australian Fur-seal	V		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.	Rocky parts of islands with flat, open terrain.	The species utilises rocky sites that are open with flat or sloping rocks for breeding and as haul-out sites	1	07-07-07	None
Balaenoptera musculus	Blue Whale	E1	E, M	Between 20 degrees to 70 degrees South including NSW waters.	Marine.	Breeds in warm water at low latitudes, preferring open seas rather than coastal waters. Often feeds during spring and summer on krill close to the ice edge.	-	Pre 1992	None
Cercartetus nanus	Eastern Pygmy-possum	V		The Eastern Pygmy-possum is found in south-eastern Australia, from southern Queensland to eastern South Australia and in Tasmania. In NSW it extents from the coast inland as far as the Pilliga, Dubbo, Parkes and Wagga Wagga on the western slopes.	Found in a broad range of habitats from rainforest through sclerophyll (including Box-Ironbark) forest and woodland to heath, but in most areas woodlands and heath appear to be preferred, except in north-eastern NSW where they are most frequently encountered in rainforest.	Shelters in tree hollows, rotten stumps, holes in the ground, abandoned bird-nests, Ringtail Possum dreys or thickets of vegetation.	-	-	Low
Dasyurus maculatus	Spotted-tailed Quoll	V	E	Found on the east coast of NSW, Tasmania, eastern Victoria and north-eastern Qld.	Rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline.	Mostly nocturnal, although will hunt during the day; spends most of the time on the ground, although also an excellent climber. Consumes gliders, possums, small wallabies, rats, birds, bandicoots, rabbits and insects; also eats carrion and takes domestic fowl. Females occupy home ranges up to about 750 hectares and males up to 3500 hectares; usually traverse their ranges along densely vegetated creeklines.	9	12-11-16	Moderate
Dugong dugon	Dugong	E1	M	Extends south to northern NSW, where its known from incidental records only.	Wide shallow protected bays, wide shallow mangrove channels and in the lee of large inshore islands. Will also occupy deeper waters.	They have a low reproductive rate. Shallow waters such as tidal sandbanks and estuaries have been reported as sites for calving	1	04-05-93	None

Scientific Name	Common Name	BC Act	EPBC Act	Distribution	Habitat	Ecology	Records post 1990	Last record	Likelihood
Eubalaena australis	Southern Right Whale	E1	E, M	Migrate between summer feeding grounds in Antarctica and winter breeding grounds around the coasts of southern Australia.	Marine.	They feed in the open ocean in summer, and move inshore in winter for calving and mating. Calving females and females with young usually remain very close to the coast. They feed on krill and copepods by filtering water through their baleen; however, it appears they may not feed at all in Australian waters.	2	26-07-09	None
Falsistrellus tasmaniensis	Eastern False Pipistrelle	V		South-east coast and ranges of Australia, from southern Qld to Victoria and Tasmania. In NSW, records extend to the western slopes of the Great Dividing Range.	Tall (greater than 20m) moist habitats.	Predominately roosts in Eucalypt tree hollows. It has also been found to roost under loose bark on trees and in man-made structures. It hunts beetles, moths, weevils and other flying insects above or just below the tree canopy, in open forests. Hibernates in winter. Females are pregnant in late spring to early summer.	2	14-08-19	Moderate
Megaptera novaeangliae	Humpback Whale	V	V, M	Regularly observed in NSW waters in June and July, on northward migration from Subantarctic waters, and in October and November, on southward migration.	Marine.	The population of Australia's east coast migrates from summer cold-water feeding grounds in Subantarctic waters to warm-water winter breeding grounds in the central Great Barrier Reef.	7	04-08-09	None
Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	V		The Eastern Freetail-bat is found along the east coast from south Queensland to southern NSW.	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.	Usually solitary but also recorded roosting communally, probably insectivorous.	1	01-05-98	Low
Miniopterus australis	Little Bentwing-bat	V		East coast and ranges south to Wollongong in NSW.	Moist eucalypt forest, rainforest, vine thicket, wet and dry sclerophyll forest, Melaleuca swamps, dense coastal forests and banksia scrub.	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. They often share roosting sites with the Common Bentwing-bat. Maternity colonies form in spring. Males and juveniles disperse in summer.	20	14-08-19	High
Miniopterus orianae oceanensis	Large Bent-winged Bat	V		Large Bent-winged Bats occur along the east and north-west coasts of Australia.	Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures	Breeding or roosting colonies can number from 100 to 150,000 individuals. Hunt in forested areas, catching moths and other flying insects above the tree tops.	9	14-08-19	High
Myotis macropus	Southern Myotis	V		In NSW, found in the coastal band. It is rarely found more than 100 km inland, except along major rivers.	Foraging habitat is waterbodies (including streams, or lakes or reservoirs) and fringing areas of vegetation up to 20m.	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. Forage over streams and pools catching insects and small fish by raking their feet across the water surface. In NSW females have one young each year usually in November or December.	6	14-08-19	High
Nyctophilus bifax	Eastern Long-eared Bat	V		In NSW, appears to be confined to the coastal plain and nearby coastal ranges, extending south to the Clarence River area, with a few records further south around Coffs Harbour.	Lowland subtropical rainforest, wet and swamp eucalypt forest, moist eucalypt forest, coastal scrub.	Roosts in tree hollows, the hanging foliage of palms, in dense clumps of foliage of rainforest trees, under bark and in shallow depressions on trunks and branches, among epiphytes, in the roots of strangler figs, among dead fronds of tree ferns and less often in buildings.	4	20-01-19	Moderate
Petauroides volans	Greater Glider		V	The greater glider is restricted to eastern Australia, occurring from the Windsor Tableland in north Queensland through to central Victoria (Wombat State Forest), with an elevational range from sea level to 1200 m above sea level.	Forests and more open woodlands	During the day it shelters in tree hollows, with a particular selection for large hollows in large, old trees	-	-	Low
Petaurus australis	Yellow-bellied Glider	V		Along the eastern coast to the western slopes of the Great Dividing Range, from southern Qld to Victoria.	Tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils.	Den, often in family groups, in hollows of large trees. Feed primarily on plant and insect exudates, including nectar, sap, honeydew and manna with pollen and insects providing protein. Very mobile and occupy large home ranges between 20 to 85 ha to encompass dispersed and seasonally variable food resources.	3	14-09-03	Low
Petaurus norfolcensis	Squirrel Glider	V		Widely though sparsely distributed on both sides of the Great Dividing Range in eastern Australia, from northern Qld to western Victoria.	Mature or old growth Box, Box-Ironbark woodlands and River Red Gum forest west of the Great Dividing Range and Blackbutt-Bloodwood forest with heath understorey in coastal areas.	Live in family groups of a single adult male one or more adult females and offspring. Require abundant tree hollows for refuge and nest sites. Diet varies seasonally and consists of Acacia gum, eucalypt sap, nectar, honeydew and manna, with invertebrates and pollen providing protein.	13	01-10-17	Moderate
Phascogale tapoatafa	Brush-tailed phascogale	V		The Brush-tailed Phascogale has a patchy distribution around the coast of Australia. In NSW it is mainly found east of the Great Dividing Range although there are occasional records west of the divide.	Prefer dry sclerophyll open forest with sparse groundcover of herbs, grasses, shrubs or leaf litter. Also inhabit heath, swamps, rainforest and wet sclerophyll forest.	Nest and shelter in tree hollows with entrances 2.5 - 4 cm wide and use many different hollows over a short time span. Agile climber foraging preferentially in rough barked trees of 25 cm DBH or greater	-	-	Low
Phascolarctos cinereus	Koala	V	V	In NSW it mainly occurs on the central and north coasts with some populations in the	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.	489	22-02-21	High

Scientific Name	Common Name	BC Act	EPBC Act	Distribution	Habitat	Ecology	Records post 1990	Last record	Likelihood
				west of the Great Dividing Range. There are sparse and possibly disjunct populations in the Bega District, and at several sites on the southern tablelands.		Inactive for most of the day, feeding and moving mostly at night. Spend most of their time in trees, but will descend and traverse open ground to move between trees. Home range size varies with quality of habitat, ranging from less than two ha to several hundred hectares in size. Females breed at two years of age, with mating occurring between September and February.			
Phoniscus papuensis	Golden-tipped Bat	V		The Golden-tipped Bat is distributed along the east coast of Australia in scattered locations from Cape York Peninsula in Queensland to south of Eden in southern NSW. It also occurs in New Guinea. Priority Management Area more than 2km to the west of the study area.	Found in rainforest and adjacent wet and dry sclerophyll forest up to 1000m. Also recorded in tall open forest, *Casuarina*-dominated riparian forest and coastal *Melaleuca* forests. Bats will fly up to two kilometres from roosts to forage in rainforest and sclerophyll forest on mid and upper slopes.	Bats will use multiple roost and change roosts regularly.	1	25-01-03	Low
Planigale maculata	Common Planigale	V		Occurs in coastal north-eastern NSW, and reported from as far south as the central NSW coast west of Sydney.	Rainforest, eucalypt forest, heathland, marshland, grassland and rocky areas.	They are active at night and during the day shelter in saucer-shaped nests built in crevices, hollow logs, beneath bark or under rocks. They are fierce carnivorous hunters and agile climbers, preying on insects and small vertebrates, some nearly their own size. They breed from October to January. The female builds a nest lined with grass, eucalypt leaves or shredded bark.	1	12-11-99	Low
Potorous tridactylus	Long-nosed Potoroo	V	V	In NSW it is generally restricted to coastal heaths and forests east of the Great Dividing Range, with an annual rainfall exceeding 760 mm.	Coastal heaths and dry and wet sclerophyll forests.	Breeding occurs throughout the year, although there is a peak from late winter to early summer. The fruit-bodies of hypogeous (underground-fruiting) fungi are a large component of the diet. They also eat roots, tubers, insects and their larvae. Individuals are thought to be non-territorial and have home ranges of about 2-5ha. Potoroos are nocturnal and crepuscular and rarely seen. They spend the day in "squats" in dense vegetation and their regular movement through the vegetation creates characteristic runways.	1	20-02-03	None
Pseudomys novaehollandiae	New Holland Mouse		V	Fragmented distribution across eastern NSW.	Open heathlands, woodlands and forests with a heathland understorey, vegetated sand dunes.	It is a social animal, living predominantly in burrows shared with other individuals. Distribution is patchy in time and space, with peaks in abundance during early to mid stages of vegetation succession typically induced by fire.	1	19-01-99	None
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	Along the eastern coast of Australia, from Bundaberg in Qld to Melbourne in Victoria.	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. Annual mating commences in January and a single young is born in October or November. Can travel up to 50 km from the camp to forage. Feed on the nectar and pollen of Eucalyptus, Melaleuca and Banksia species, and fruits of rainforest trees and vines. Also forage in cultivated gardens and fruit crops.	98	09-06-19	High
Scoteanax rueppellii	Greater Broad-nosed Bat	V		Both sides of the great divide, from the Atherton Tableland in Qld to north-eastern Victoria, mainly along river systems and gullies. In NSW it is widespread on the New England Tablelands.	Woodland, moist and dry eucalypt forest and rainforest.	Usually roosts in tree hollows, but has also been found in buildings. Forages after sunset along creek and river corridors for beetles and other large, slow-flying insects; this species has been known to eat other bat species. Little is known of its reproductive cycle, however a single young is born in January; prior to birth, females congregate at maternity sites located in suitable trees.	1	27-03-14	Moderate
Syconycteris australis	Common Blossom-bat	V		Found north from Hawks Nest in NSW in coastal areas of eastern Australia.	Often roost in littoral rainforest and feed in adjacent heathland and paperbark swamps. Also recorded in subtropical rainforest, wet sclerophyll forest and other coastal forests.	They generally roost individually in dense foliage and vine thickets of the sub-canopy. They require a year round supply of nectar and pollen which is gathered from a mosaic of coastal complex vegetation types. When these vegetation types are in short supply of nectar and pollen known to utilise riverine areas containing Black Bean, Silky Oak and Weeping Bottlebrush.	2	19-01-12	Moderate

REPTILIA

Scientific Name	Common Name	BC Act	EPBC Act	Distribution	Habitat	Ecology	Records post 1990	Last record	Likelihood
Caretta caretta	Loggerhead Turtle	E1	E, M	In NSW, seen in coastal waters as far south as Jervis Bay and have been recorded nesting on the NSW north coast and feeding around Sydney.	Marine. Nesting occurs on beaches.	Loggerhead Turtles are ocean-dwellers, foraging in deeper water for fish, jellyfish and bottom-dwelling animals. The female comes ashore to lay her eggs in a hole dug on the	1	10-11-93	None

Scientific Name	Common Name	BC Act	EPBC Act	Distribution	Habitat	Ecology	Records post 1990	Last record	Likelihood
						beach in tropical regions during the warmer months.			
Chelonia mydas	Green Turtle	V	V, M	Occurs in coastal waters of NSW, generally on the north or central coast, with occasional records from the south coast. Scattered nesting records along the NSW coast.	Marine. Nesting occurs on beaches.	Ocean-dwelling species spending most of its life at sea. Carnivorous when young but as adults they feed only on marine plant material. Eggs laid in holes dug in beaches throughout their range.	26	15-04-18	None
Eretmochelys imbricata	Hawksbill Turtle		V	East coast of Australia and ranges south to Northern NSW.	Hawksbill turtles typically occur in tidal and sub-tidal coral and rocky reef habitats throughout tropical waters	Although hawksbill turtles breed throughout the year, the peak nesting period in the Torres Strait and Great Barrier Reef region occurs between January and February.	3	04-06-18	None
Hoplocephalus stephensii	Stephens' Banded Snake	V		Coast and ranges from Southern Qld to Gosford in NSW.	Rainforest and eucalypt forests and rocky areas up to 950 m in altitude.	Nocturnal, shelters between loose bark and tree trunks, amongst vines, or in hollow trunks limbs, rock crevices or under slabs during the day. At night it hunts frogs, lizards, birds and small mammals.	11	14-04-19	Moderate

Appendix C – Protected Matters Species

Australian Government
Department of Agriculture, Water and the Environment

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: 12-Jan-2022

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:	5
Listed Threatened Species:	93
Listed Migratory Species:	61

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	5
Commonwealth Heritage Places:	None
Listed Marine Species:	94
Whales and Other Cetaceans:	12
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:	6
Regional Forest Agreements:	1
Nationally Important Wetlands:	None
EPBC Act Referrals:	10
Key Ecological Features (Marine):	None
Biologically Important Areas:	3
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community likely to occur within area	In feature area
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Community likely to occur within area	In feature area
Littoral Rainforest and Coastal Vine Thickets of Eastern Australia	Critically Endangered	Community likely to occur within area	In buffer area only
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community likely to occur within area	In feature area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area	In buffer area only

Listed Threatened Species [Resource Information]

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

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Atrichornis rufescens Rufous Scrub-bird [655]	Endangered	Species or species habitat may occur within area	In buffer area only
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Endangered	Species or species habitat may occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature area
Fregetta grallaria grallaria White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pterodroma leucoptera leucoptera Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area	In buffer area only
Pterodroma neglecta neglecta Kermadec Petrel (western) [64450]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In buffer area only
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche bulleri platei Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In buffer area only
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area	In buffer area only
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche salvini			
Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche steadi			
White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thinornis cucullatus cucullatus			
Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat known to occur within area	In feature area
Turnix melanogaster			
Black-breasted Button-quail [923]	Vulnerable	Species or species habitat may occur within area	In buffer area only
FISH			
Epinephelus daemelii			
Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Hippocampus whitei			
White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Seriolella brama			
Blue Warehou [69374]	Conservation Dependent	Species or species habitat known to occur within area	In buffer area only
Thunnus maccoyii			
Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only
FROG			
Litoria aurea			
Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Mixophyes balbus			
Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Mixophyes iteratus			
Giant Barred Frog, Southern Barred Frog [1944]	Vulnerable	Species or species habitat known to occur within area	In feature area
INSECT			
Argynnis hyperbius inconstans			
Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area	In feature area
Phyllodes imperialis smithersi			
Pink Underwing Moth [86084]	Endangered	Species or species habitat may occur within area	In buffer area only
MAMMAL			
Balaenoptera musculus			
Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
Chalinolobus dwyeri			
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population)			
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area	In feature area
Eubalaena australis			
Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Megaptera novaeangliae			
Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Petauroides volans			
Greater Glider [254]	Vulnerable	Species or species habitat known to occur within area	In feature area
Petrogale penicillata			
Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Potorous tridactylus tridactylus Long-nosed Potoroo (SE Mainland) [66645]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area	In feature area
PLANT			
Acronychia littoralis Scented Acronychia [8582]	Endangered	Species or species habitat known to occur within area	In feature area
Allocasuarina thalassoscopica [21927]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Boronia umbellata Orara Boronia [56301]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Corynocarpus rupestris subsp. rupestris Glenugie Karaka [19303]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area	In feature area
Cynanchum elegans White-flowered Wax Plant [12533]	Endangered	Species or species habitat likely to occur within area	In feature area
Endiandra hayesii Rusty Rose Walnut, Velvet Laurel [13866]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Haloragis exalata subsp. velutina Tall Velvet Sea-berry [16839]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat known to occur within area	In feature area
Macadamia tetraphylla Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat known to occur within area	In feature area
Marsdenia longiloba Clear Milkvine [2794]	Vulnerable	Species or species habitat known to occur within area	In feature area
Parsonsia dorrigoensis Milky Silkpod [64684]	Endangered	Species or species habitat likely to occur within area	In feature area
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat may occur within area	In feature area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat known to occur within area	In feature area
Plectranthus nitidus Nightcap Plectranthus, Silver Plectranthus [55742]	Endangered	Species or species habitat may occur within area	In buffer area only
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Samadera sp. Moonee Creek (J.King s.n. Nov. 1949) [86885]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Sarcochilus fitzgeraldii Ravine Orchid [19131]	Vulnerable	Species or species habitat may occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat known to occur within area	In feature area
Tylophora woollsii [20503]	Endangered	Species or species habitat known to occur within area	In feature area
Zieria prostrata Headland Zieria [56782]	Endangered	Species or species habitat may occur within area	In feature area
REPTILE			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Coeranoscincus reticulatus Three-toed Snake-tooth Skink [59628]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In buffer area only
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area	In buffer area only
SHARK			
Carcharias taurus (east coast population) Grey Nurse Shark (east coast population) [68751]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Galeorhinus galeus School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area	In buffer area only
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only

Listed Migratory Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area	In buffer area only
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Ardenna grisea Sooty Shearwater [82651]		Breeding known to occur within area	In buffer area only
Ardenna pacifica Wedge-tailed Shearwater [84292]		Breeding known to occur within area	In buffer area only
Ardenna tenuirostris Short-tailed Shearwater [82652]		Breeding known to occur within area	In buffer area only
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In feature area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Sternula albifrons Little Tern [82849]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche bulleri			
Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche carteri			
Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta			
Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In buffer area only
Thalassarche eremita			
Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area	In buffer area only
Thalassarche impavida			
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris			
Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche salvini			
Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thalassarche steadi			
White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Migratory Marine Species			
Balaenoptera edeni			
Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Balaenoptera musculus			
Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
Carcharhinus longimanus			
Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In buffer area only
Dugong dugon Dugong [28]		Species or species habitat may occur within area	In buffer area only
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat known to occur within area	In buffer area only
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat may occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Orcinus orca](#) Killer Whale, Orca [46]		Species or species habitat may occur within area	In buffer area only
[Rhincodon typus](#) Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Sousa sahulensis as Sousa chinensis](#) Australian Humpback Dolphin [87942]		Species or species habitat likely to occur within area	In buffer area only
Migratory Terrestrial Species			
[Cuculus optatus](#) Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area
[Hirundapus caudacutus](#) White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Monarcha melanopsis](#) Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
[Myiagra cyanoleuca](#) Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
[Rhipidura rufifrons](#) Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
[Symposiachrus trivirgatus as Monarcha trivirgatus](#) Spectacled Monarch [83946]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
[Actitis hypoleucos](#) Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pandion haliaetus Osprey [952]		Breeding known to occur within area	In feature area
Thalasseus bergii Greater Crested Tern [83000]		Breeding known to occur within area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [11374]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Corporation [11373]	NSW	In buffer area only
Defence		
Defence - Training Depot [10074]	NSW	In buffer area only
Defence - Training Depot [10075]	NSW	In buffer area only
Unknown		
Commonwealth Land - [11375]	NSW	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Anous stolidus			
Common Noddy [825]		Species or species habitat likely to occur within area	In buffer area only
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna carneipes as Puffinus carneipes			
Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Ardenna grisea as Puffinus griseus			
Sooty Shearwater [82651]		Breeding known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Ardenna pacifica as Puffinus pacificus Wedge-tailed Shearwater [84292]		Breeding known to occur within area	In buffer area only
Ardenna tenuirostris as Puffinus tenuirostris Short-tailed Shearwater [82652]		Breeding known to occur within area	In buffer area only
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat may occur within area	In buffer area only
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Chroicocephalus novaehollandiae as Larus novaehollandiae Silver Gull [82326]		Breeding known to occur within area	In buffer area only
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea antipodensis gibsoni as Diomedea gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In feature area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area	In buffer area only
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]		Species or species habitat may occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat known to occur within area	In buffer area only
Pandion haliaetus Osprey [952]		Breeding known to occur within area	In feature area
Pelagodroma marina White-faced Storm-Petrel [1016]		Breeding known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Pterodroma nigripennis Black-winged Petrel [1038]		Breeding known to occur within area	In buffer area only
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Stercorarius skua as Catharacta skua Great Skua [823]		Species or species habitat may occur within area	In buffer area only
Sternula albifrons as Sterna albifrons Little Tern [82849]		Species or species habitat may occur within area	In buffer area only
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to occur within area overfly marine area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche bulleri platei as Thalassarche sp. nov. Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Thalassarche eremita](#) Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area	In buffer area only
[Thalassarche impavida](#) Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Thalassarche melanophris](#) Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Thalassarche salvini](#) Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
[Thalassarche steadi](#) White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
[Thalasseus bergii as Sterna bergii](#) Greater Crested Tern [83000]		Breeding known to occur within area	In buffer area only
[Thinornis cucullatus cucullatus as Thinornis rubricollis rubricollis](#) Eastern Hooded Plover, Eastern Hooded Plover [90381]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
[Tringa nebularia](#) Common Greenshank, Greenshank [832]		Species or species habitat may occur within area overfly marine area	In feature area
Fish			
[Acentronura tentaculata](#) Shortpouch Pygmy Pipehorse [66187]		Species or species habitat may occur within area	In buffer area only
[Campichthys tryoni](#) Tryon's Pipefish [66193]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Corythoichthys amplexus Fijian Banded Pipefish, Brown-banded Pipefish [66199]		Species or species habitat may occur within area	In buffer area only
Corythoichthys ocellatus Orange-spotted Pipefish, Ocellated Pipefish [66203]		Species or species habitat may occur within area	In buffer area only
Festucalex cinctus Girdled Pipefish [66214]		Species or species habitat may occur within area	In buffer area only
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area	In buffer area only
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area	In buffer area only
Hippichthys cyanospilos Blue-speckled Pipefish, Blue-spotted Pipefish [66228]		Species or species habitat may occur within area	In buffer area only
Hippichthys heptagonus Madura Pipefish, Reticulated Freshwater Pipefish [66229]		Species or species habitat may occur within area	In buffer area only
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area	In buffer area only
Hippocampus kelloggi Kellogg's Seahorse, Great Seahorse [66723]		Species or species habitat may occur within area	In buffer area only
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area	In buffer area only
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hippocampus trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area	In buffer area only
Hippocampus whitei White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area	In buffer area only
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In buffer area only
Micrognathus andersonii Anderson's Pipefish, Shortnose Pipefish [66253]		Species or species habitat may occur within area	In buffer area only
Micrognathus brevirostris thorntail Pipefish, Thorn-tailed Pipefish [66254]		Species or species habitat may occur within area	In buffer area only
Microphis manadensis Manado Pipefish, Manado River Pipefish [66258]		Species or species habitat may occur within area	In buffer area only
Solegnathus dunckeri Duncker's Pipehorse [66271]		Species or species habitat may occur within area	In buffer area only
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area	In buffer area only
Solegnathus spinosissimus Spiny Pipehorse, Australian Spiny Pipehorse [66275]		Species or species habitat may occur within area	In buffer area only
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Solenostomus paradoxus Ornate Ghostpipefish, Harlequin Ghost Pipefish, Ornate Ghost Pipefish [66184]		Species or species habitat may occur within area	In buffer area only
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In buffer area only
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area	In buffer area only
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area	In buffer area only
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area	In buffer area only
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In buffer area only
Mammal			
Dugong dugon Dugong [28]		Species or species habitat may occur within area	In buffer area only
Reptile			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Breeding likely to occur within area	In buffer area only
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hydrophis elegans Elegant Seasnake [1104]		Species or species habitat may occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding likely to occur within area	In buffer area only
Pelamis platurus Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area	In buffer area only

Whales and Other Cetaceans [Resource Information]

Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area	In buffer area only
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In buffer area only
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area	In buffer area only
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area	In buffer area only

Current Scientific Name	Status	Type of Presence	Buffer Status
Sousa sahulensis as Sousa chinensis Australian Humpback Dolphin [87942]		Species or species habitat likely to occur within area	In buffer area only
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area	In buffer area only
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In buffer area only
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In buffer area only

Extra Information

State and Territory Reserves [Resource Information]

Protected Area Name	Reserve Type	State	Buffer Status
Bruxner Park	Flora Reserve	NSW	In buffer area only
Coffs Coast	Regional Park	NSW	In buffer area only
Kororo	Nature Reserve	NSW	In buffer area only
Muttonbird Island	Nature Reserve	NSW	In buffer area only
Solitary Islands	Marine Park	NSW	In feature area
Ulidarra	National Park	NSW	In buffer area only

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included.

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

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Clarence Valley and Coffs Harbour Regional Water Supply Project	2005/2191	Controlled Action	Post-Approval	In feature area
Pacific Highway Upgrade - Coffs Harbour Bypass, NSW	2017/8005	Controlled Action	Post-Approval	In buffer area only
Not controlled action				

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
25km upgrade of the Pacific Highway	2007/3910	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Rehabilitation and Re-sculpting of Coffs Creek Flying Fox Camp and Adjacent Rese	2007/3771	Not Controlled Action	Completed	In buffer area only
Safe management of vegetation within Obstacle Limitation Surfaces, Coffs Harbour Regional Aerodrome, NSW	2016/7794	Not Controlled Action	Completed	In buffer area only
Undertake vegetation removal as per CASA safety requirements	2011/6007	Not Controlled Action	Completed	In buffer area only
Vegetation removal over sewer infrastructure easement	2013/6725	Not Controlled Action	Completed	In buffer area only
Referral decision				
Breeding program for Grey Nurse Sharks	2007/3245	Referral Decision	Completed	In buffer area only
World Rally Championship 'Super Special Stage'	2013/6731	Referral Decision	Completed	In buffer area only

Biologically Important Areas			
Scientific Name	Behaviour	Presence	Buffer Status
Dolphins			
Tursiops aduncus			
Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Breeding	Likely to occur	In buffer area only
Sharks			
Carcharias taurus			
Grey Nurse Shark [64469]	Foraging	Known to occur	In buffer area only
Whales			
Megaptera novaeangliae			
Humpback Whale [38]	Foraging	Known to occur	In buffer area only

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

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