

Biodiversity Assessment (Desktop)

Sportsmans Creek new bridge:
Recommended Option Report



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Sportsmans Creek new bridge: Recommended Option Report

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Executive Summary

Roads and Maritime Services (Roads and Maritime) propose to demolish and replace the existing bridge over Sportsmans Creek, located on the southern approach to the village of Lawrence within the Clarence Valley Council (CVC) Local Government Area (LGA). The existing bridge is to be replaced under the Roads and Maritime Timber Truss Heritage Conservation Strategy which has been endorsed by the NSW Heritage Office. Kellogg Brown and Root (KBR) has been engaged to develop and assess design options for a new bridge over Sportsmans Creek. GeoLINK has been engaged by KBR to conduct a biodiversity assessment of the area encompassing possible new bridge options (the study area) to determine biodiversity constraints and opportunities. The purpose of this report is to provide information on the known biodiversity constraints associated with the study area based on desktop studies. The findings of this report are to be incorporated into the broader Recommended Option Report being prepared by KBR.

The study involved a comprehensive review of biodiversity information available on the study area and surrounds, including the search results from a number of biodiversity database searches and registers as well as a literature review of ecological studies previously undertaken in the area and liaison with local ecologists.

This study found that one threatened flora species is known to occur within the study area namely, a planted Durobby (*Syzygium moorei*) within Flo Clark Park which is of low conservation significance due to it occurring well outside its natural range. Two threatened flora species, Hairy Jointgrass (*Arthraxon hispidus*) and Maudia (*Maundia triglochinooides*) have potential to occur within the study area associated with ephemeral wetlands to the west of the study area. A number of listed Endangered Ecological Communities (EECs) were identified as potential occurrences at the site with Freshwater Wetlands EEC likely to be associated with areas of ephemeral wetland.

The site provides potential habitat for 15 threatened fauna species and 8 listed migratory species. Three threatened microbat species have been previously recorded at the site including a roosting colony of Southern Myotis (*Myotis macropus*) on the existing Sportsmans Creek bridge which are likely to still be present. The existing bridge would also provide potential roosting habitat for the Eastern Osprey (*Pandion cristatus*) which is known to utilise timber truss bridges. A number of threatened wetland bird species have been regularly sighted around Sportsmans Creek and its surrounds including the Black-necked Stork (*Ephippiorhynchus asiaticus*) and Brolga (*Grus rubicund*). Both of these species have potential to utilise the ephemeral wetlands to the west of the study area for foraging.

Sportsmans Creek is included as part of the area of mapped Key Fish habitat within the CVC LGA. As mentioned, previous studies for the existing Sportsmans Creek bridge identified that the creek would be likely to provide habitat for the Estuary Rock Cod which is listed as protected under the Fisheries Management Act (1994). Additionally Sportsmans Creek would provide habitat for a number of other species, including the Australian Bass which would be likely spawn within this estuary. The creek is a known breeding ground for crustaceans.

A number of listed Important Wetlands occur in proximity to the study area including the Everlasting Swamp, the Broadwater and the Clarence River Estuary. However, no listed Important Wetlands occur within the study area. A review of aerial photographs indicates that a number of wetland areas occur in the western portion of the study area. These wetlands occur on the periphery of the Little Broadwater system of wetlands and are considered to most likely be ephemeral. Although not formally listed wetlands, these areas are likely to have habitat value to locally occurring wetland bird species including some listed threatened and migratory wetland birds species. As mentioned these areas are likely to contain flora assemblages that are indicative of the listed Freshwater Wetlands EEC. Further investigations of these areas will be undertaken during the field surveys.

Upcoming field surveys will confirm the presence/ absence of potential ecological constraints outlined within this report.

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Introduction

1.1 Background

Roads and Maritime Services (Roads and Maritime) propose to demolish and replace the existing bridge over Sportsmans Creek, located on the southern approach to the village of Lawrence within the Clarence Valley Council (CVC) Local Government Area (LGA). Lawrence is located 25 km north of Grafton on the Lawrence Road (MR152) which is managed and maintained by CVC. The location of the existing bridge is shown on Illustration 1.1.

The existing bridge is to be replaced under the Roads and Maritime Timber Truss Heritage Conservation Strategy which has been endorsed by the NSW Heritage Office. Replacement of this bridge relates to issues of poor sight distance, poor alignment and no pedestrian access. Additionally, the bridge presents significant transport limitations at the present and in the future due to its geometry and design limitations.

Kellogg Brown and Root (KBR) have been engaged to develop and assess design options for a new bridge over Sportsmans Creek and have engaged GeoLINK to conduct a biodiversity assessment of the area encompassing possible new bridge options (the study area) to determine biodiversity constraints and opportunities. The study area is shown in Illustration 1.2.

1.2 Purpose of Report

To facilitate the development and assessment of options, a Recommended Option Report is to be prepared by KBR which will detail new bridge options and describe any known constraints associated with these options.

The purpose of this report is to provide information on the known biodiversity constraints associated with the study area based on desktop studies. The findings of this report are to be incorporated into a broader Recommended Option Report being prepared by KBR.

A subsequent Biodiversity Assessment report will be prepared providing a more comprehensive discussion of constraints based on these desktop studies and additional field surveys to be undertaken within the study area.

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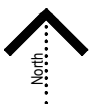


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 Study area



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Desktop Study Methodology

2.1 Database Searches

The following database searches were undertaken to identify potential biodiversity constraints associated with the site:

- A 10 km radius search of the Atlas of NSW Wildlife (OEH) to identify threatened flora/ fauna species and EECs known to occur within the search area;
- A 10 km radius search of the EPBC Protected Matters Search Tool for federally listed threatened flora/ fauna species and ecological communities predicted to occur within the search area; and
- Searches of the NSW Department of Primary Industries (DPI) (Fisheries) Records Viewer for threatened/ endangered aquatic fauna occurring within the CVC LGA.

2.2 Literature Review

A comprehensive literature review of information pertaining to the study area was undertaken. Key sources of information reviewed include:

- OEH Critical Habitat register;
- Areas listed on the Register of National Estate (RNE);
- Directory of Important Wetlands in NSW (DIWA) Spatial Database;
- Key Fish Habitat mapping for Clarence Valley LGA (NSW DPI);
- Mapped bird routes of the Clarence Valley (Clarence Valley Birdos, 2006);
- Department of Planning (DoP) *State Environmental Planning Policy (SEPP 14) Coastal Wetland and SEPP 26 – Littoral Rainforest mapping*;
- Clarence Valley Estuary Management Plan (Umwelt, 2003);
- Terrestrial and Aquatic Flora and Fauna Assessment: Proposed Replacement of the Sportsmans Creek Bridge, Lawrence (D&D Consultants, 2002);
- EIS for Demolition of Existing Bridge and Construction of New Bridge over Sportsmans Creek, Lawrence (McLean Shire Council, 2002);
- Bat Survey and Impact Assessment: Sportsmans Creek Bridge, Lawrence NSW (Ecotone, 2007); and
- Technical paper - A review of the Status of Breeding Osprey in 2006 (Ekert & Brady, 2007).

2.3 Liaison

In order to collect anecdotal information on biodiversity associated with the study area the following individuals/ agencies were contacted:

- Clarence Valley Council's Ecologist (Marty Swain); and
- Greg Clancy (local ecologist and avifauna researcher).

2.4 Review of Aerial Photography

In addition to the above up to date aerial photographs of the study area were reviewed to identify vegetation extent, wetland areas and other ecological features of the site.

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Desktop Study Results

3.1 Flora

3.1.1 Threatened/ Protected Flora

The OEH Atlas of NSW Wildlife search and Protected Matters Search Tool identified records of 14 flora species listed under the *Threatened Species Conservation Act 1995* (TSC Act) and/ or *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) previously recorded or having habitat within the search area (10 km radius around the site) (refer to Appendix A). An assessment of the likely occurrence of these species within the study area is provided in Appendix B.

Of the threatened flora species identified in the database searches, based on habitat requirements the following two species are considered to have potential to occur at the site:

- Hairy Jointgrass (*Arthraxon hispidus*) – considered to have a moderate potential to occur in cleared paddocks to the west of Lawrence; and
- Maundia (*Maundia triglochoides*) – considered to have a moderate potential to occur within areas of ephemeral wetland to the west of the study area.

Both of these species will be targeted during comprehensive flora surveys to be undertaken within the study area. One threatened flora species is known from the study area namely, a planted Durobby (*Syzygium moorei*) within Flo Clark Park (refer to Illustration 3.3). The study area is outside of the known distribution for this species and as such any proposed removal of this individual is unlikely to have legislative significance.

No other threatened flora species or plants listed under the CSIRO's Rare or Threatened Australian Plant list (RoTAP listing) were previously recorded during flora and fauna studies undertaken for the existing Sportsmans Creek bridge (D&D Consultants, 2002).

3.1.2 Endangered/ Threatened Ecological Communities

The OEH Atlas of NSW Wildlife search indicated the following nine EECs listed under the TSC Act, previously recorded within the search area (10 km radius around the site). Based on the location of the study area those EECs listed in bold are considered potential occurrences at the site:

- Coastal Cypress Pine Forest in the NSW North Coast Bioregion;
- **Coastal Saltmarsh in the NSW North Coast, Sydney Basin and South East Corner Bioregions;**
- **Freshwater Wetlands on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions;**
- Littoral Rainforest in the NSW North Coast, Sydney Basin and South East Corner Bioregions;
- Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions;
- **Lowland Rainforest on Floodplain in the NSW North Coast Bioregion;**
- **Subtropical Coastal Floodplain Forest of the NSW North Coast Bioregion;**
- **Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions;** and
- Themeda Grassland on Seacliffs and Coastal Headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions.

The Protected Matters Search Tool indicated the following Threatened Ecological Community (TEC) listed under the Federal EPBC Act which may occur at the site:

- *Lowland Rainforest of Subtropical Australia.*

Based on a review of aerial photographs covering the site and previous vegetation mapping, the following TECs/ EECs are considered likely to occur at the site (refer to **Illustration 3.3**):

- Coastal Saltmarsh to the east of the existing Sportsmans Creek bridge as previously mapped (Umwelt, 2003);
- Freshwater Wetlands associated with the ephemeral wetlands to the west of the study area; and
- Subtropical Coastal Floodplain Forest associated with upstream riparian areas of Sportsmans Creek (mostly outside the study area).

3.2 Fauna

3.2.1 Threatened Fauna

The OEH Atlas of NSW Wildlife search and Protected Matters Search Tool identified records of 43 threatened fauna species listed under the TSC Act and/ or EPBC Act previously recorded or having habitat within the search area (10 km radius around the site) (refer to **Appendix A**). An assessment of the likely occurrence of these species within the study area is provided in **Appendix B**.

Of the threatened fauna species identified by the database searches, the following 14 species are considered to have a moderate or high potential to occur at the site (based on habitat requirements):

- Magpie Goose (*Anseranas semipalmata*);
- Australasian Bittern (*Botaurus poiciloptilus*);
- Black-necked Stork (*Ephippiorhynchus asiaticus*)
- Brolga (*Grus rubicund*);
- Pied Oyster Catcher (*Haematopus longirostris*);
- Comb-crested Jacana (*Irediparra gallinacean*);
- Black-tailed Godwit (*Limosa limosa*);
- Eastern Osprey (*Pandion cristata*);
- Grey-crowned Babbler (*Pomatostomus temporalis*);
- Australian Painted Snipe (*Rostrallula benghalensis australis*);
- Estuary Rock Cod (*Epinephelus coioides*);
- Little Bentwing-bat (*Miniopterus australis*);
- Southern Myotis (*Myotis adversus*);
- Large-eared Pied Bat (*Chalinolobus dwyeri*); and
- Grey-headed Flying-fox (*Pteropus poliocephalus*).

These species will be targeted during fauna surveys to be undertaken within the study area.

The previous ecological assessment conducted for the replacement of the Sportsmans Creek bridge (D&D Consultants, 2002) identified three threatened microbat species utilising the site, including a colony of Southern Myotis roosting on the existing bridge. The status of this colony will be investigated during upcoming field surveys however given the quality of habitat that the existing timber bridge represents Myotis are considered highly likely to still be present.

The existing bridge also represents potential roosting habitat for the Eastern Osprey which has been recorded nesting on a number of timber truss bridges on the north coast of NSW. There are no known records of Osprey utilising the Sportsmans Creek bridge as a nesting site. However, a known Osprey nest is located adjacent to the Lawrence Road a few kilometres to the south of the site (G. Clancy, pers. comm 2013).

A number of threatened wetland bird species are regular sightings around Sportsmans Creek and its surrounds including the Black-necked Stork and Brolga. Both of these species have potential to utilise the ephemeral wetlands to the west of the study area for foraging. It is considered that nesting areas for both of these species are likely to be associated with the nearby Everlasting Swamps (G. Clancy, pers. comm 2013).

3.2.2 Migratory Species

A total of 31 migratory species listed under the EPBC Act were identified in the EPBC Protected Matters Search Tool for the search area. Eight are listed as 'migratory terrestrial species', 12 are listed as 'migratory wetland species' and 11 are listed as 'migratory marine species'. An assessment of the likely occurrence of these species within the study area is provided in **Appendix B**.

The following eight species are considered to have some potential to occur within the study area:

- Fork-tailed Swift (*Apus pacificus*);
- White-bellied Sea Eagle (*Haliaeetus leucogaster*);
- White-throated Needletail (*Hirundapus caudacutus*);
- Rainbow Bee-eater (*Merops ornatus*);
- Satin Flycatcher (*Myiagra cyanoleuca*);
- Great Egret (*Ardea alba*);
- Cattle Egret (*Ardea ibis*); and
- Latham's Snipe (*Gallinago hardwickii*).

The above species will be targeted during field surveys of the study area. Based on a preliminary assessment of the site it is considered unlikely that the study area represents a significant area of habitat for any of these species.

3.2.3 Wildlife Corridors and Key Habitat Mapping

A review of NPWS wildlife corridor and key habitat mapping indicated no mapped wildlife corridors or areas of nominated key habitats associated with the study area. Sportsmans Creek would however act as a regional corridor for bird species moving between habitats associated with the upstream reaches of Sportsmans Creek and the Everlasting Swamps and habitats associated with the lower Clarence River.

Lawrence and environs is described by Clarence Valley Birdos (2006) as being one of the Bird Routes of the Clarence Valley. The following species are listed as being potential occurrences in this area:

- Pied Oystercatcher;
- Brolga;
- Egrets;
- Waterbirds; and
- Raptors.

3.2.4 Critical Habitat

A review of the OEH Critical habitat register (24/07/2013) found no areas of critical habitat relevant to the study area.

3.2.5 Endangered Populations

The following two endangered populations listed under the TSC Act were identified as occurring within 10 km of the study area:

- Emu Population in the NSW North Coast Bioregion and Port Stephens local government area; and
- *Allocasuarina inophloia* (F.Muell. & F.M. Bailey) L.A.S. Johnson Population in the Clarence Valley Local Government Area.

Based on available habitats, both of these endangered populations are highly unlikely to occur within the study area.

3.2.6 Fisheries

A search of the NSW DPI (Fisheries) Records Viewer for threatened/ endangered aquatic fauna did not find any records of threatened aquatic fauna in the vicinity of the study area. Previous studies for the existing Sportsmans Creek bridge identified that the bridge would be likely to provide habitat for the Estuary Rock Cod (*Epinephelus coioides*) which is listed as protected under the *Fisheries Management Act 1994* (FM Act). Additionally, Sportsmans Creek would provide habitat for a number of other fish species, including the Australian Bass (*Macquaria novemaculeata*) which would be likely spawn within this estuary. The creek is a known breeding ground for crustaceans.

Sportsmans Creek is also included as part of an area of mapped Key Fish habitat within the CVC LGA.

3.3 Wetlands

3.3.1 Directory of Important Wetlands in NSW (DIWA) Spatial Database

Four Important Wetlands listed in the NSW DIWA Spatial Database were identified in the EPBC Act Protected Matters Search as occurring within a 10 km radius of the site. These are:

- Clarence River Estuary;
- Everlasting Swamp;
- The Broadwater; and
- Upper Coldstream.

Two of these wetlands occur in proximity to the study area namely, the Everlasting Swamp which occurs approximately 500 m to the west of the study area and the Clarence River Estuary wetland which occurs within the Clarence River immediately to the east of the existing Sportsmans Creek bridge. The location of nearby listed wetlands in relation to the study area is shown in *Illustration 3.1*.

3.3.2 SEPP 14 Coastal Wetlands

No occurrences of SEPP 14 Coastal Wetlands occur within the study area. The nearest SEPP 14 mapped areas are shown on *Illustration 3.2*.

3.3.3 Places on the Register of the National Estate (RNE)

The following natural areas are listed on the RNE and occur in the broader locality of the study area:

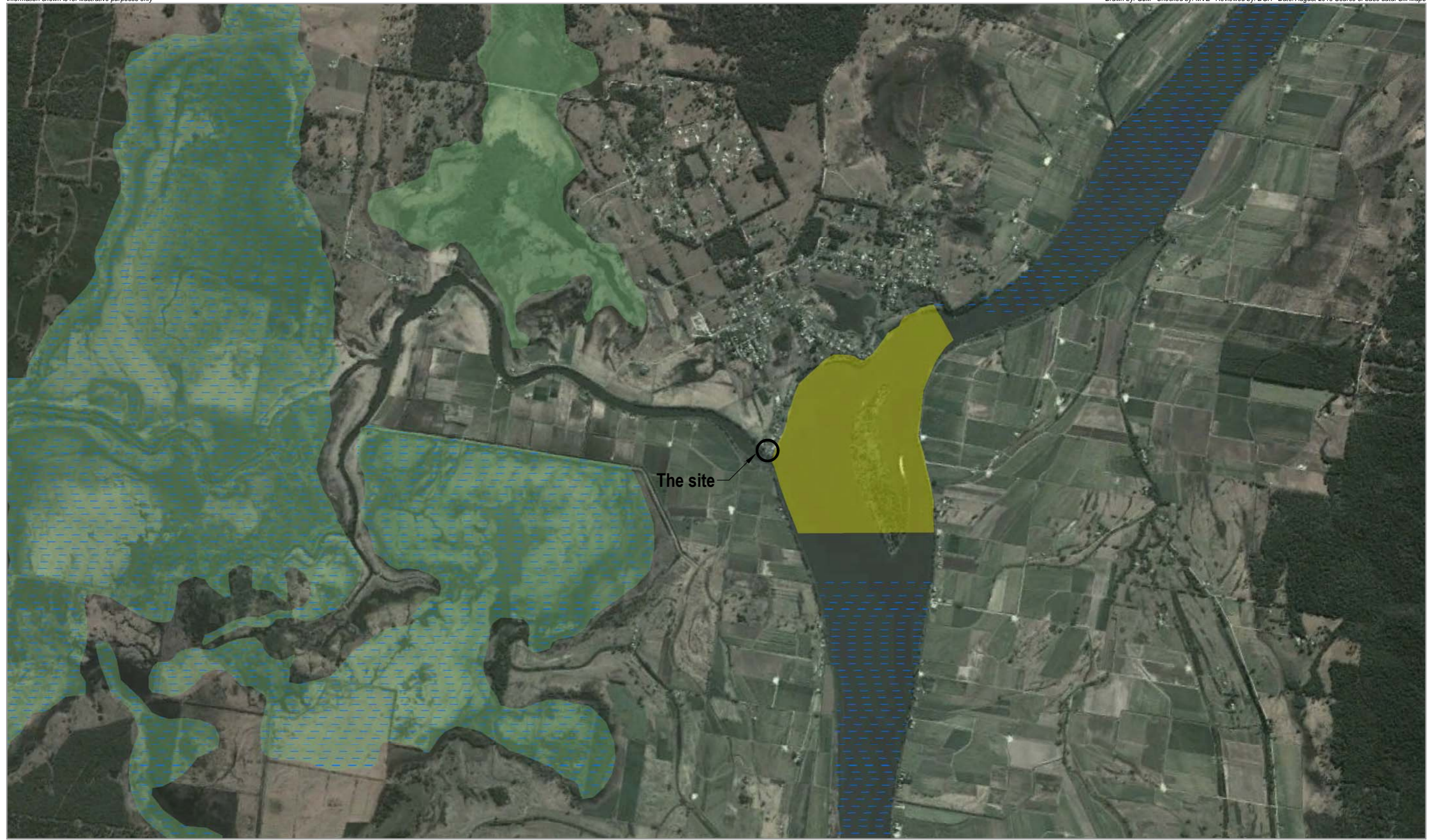
- Lower Clarence River Area; and
- Sportsman Creek Proposed Nature Reserve.

Neither of these areas is located in proximity to the study area.

3.3.4 Wetlands Occurring within the Study Area

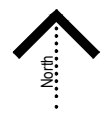
A review of aerial photographs indicates that a number of wetland areas occur in the western portion of the study area (refer to *Illustration 3.3*). These areas are considered most likely to consist of ephemeral wetlands occurring on the periphery of the Little Broadwater system of wetlands. Although not formally listed as Important Wetlands, these areas are likely to have habitat value to locally occurring wetland bird species including the threatened/ migratory wetland birds listed in *Section 3.2*.

As mentioned these areas are likely to contain flora assemblages that are indicative of the listed Freshwater Wetlands EEC. Further investigations of these areas will be undertaken during the field surveys.



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
- Saltmarsh
- Swamp / land subject to inundation
- Wetlands of national importance



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 SEPP 14 Coastal Wetland



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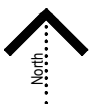


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- Study area
- Existing bridge - Represents known site of roosting colony of Large footed Myotis (TSC Act)
 Represents potential nesting habitat for the Eastern Osprey (TSC Act)
- Ephemeral Wetland - *Likely Freshwater Wetland Endangered Ecological Community* (TSC Act). To be confirmed during field surveys. Habitat value for listed threatened / migratory wetland bird species.
- Likely Subtropical Coastal Floodplain Forest Endangered Ecological Community* (TSC Act)
 To be confirmed during field surveys
- Saltmarsh, Wetland of National Importance and Seagrass beds
- Planted threatened tree (Durobby)



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Potential Ecological Constraints within the Study Area

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References

D & D Consultants (2002). Terrestrial and Aquatic Flora and Fauna Assessment. Proposed Replacement of the Sportsmans Creek Bridge, Lawrence. Report prepared for McLean Shire Council.

Ecotone Consulting (2007). Bat Survey and Impact Assessment: Sportsmans Creek Bridge, Lawrence NSW. Report prepared for NSW Roads and Traffic Authority.

Umwelt (2003). Clarence Valley Estuary Management Plan. Report prepared for Clarence Valley Council.

SEWPAC (2011). Protected Matters Search Tool [Online]. Department of Sustainability, Environment, Water, Population and Communities: Available from: <http://www.environment.gov.au/erin/ert/epbc/index.html>

DECCW (undated). Threatened Species – Species, Populations and Ecological Communities of NSW. [Online]. Department of Environment, Climate Change and Water. Available from: <http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/index.aspx>
Accessed 2013.

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Topographic information presented on the drawings is suitable only for the purpose of the document as stated above. No reliance should be placed upon topographic information contained in this report for any purpose other than that stated above.

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Appendix A

EPBC Act Protected Matters Search Tool and OEH BioNet Database Search Results

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EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

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[Summary](#)

[Details](#)

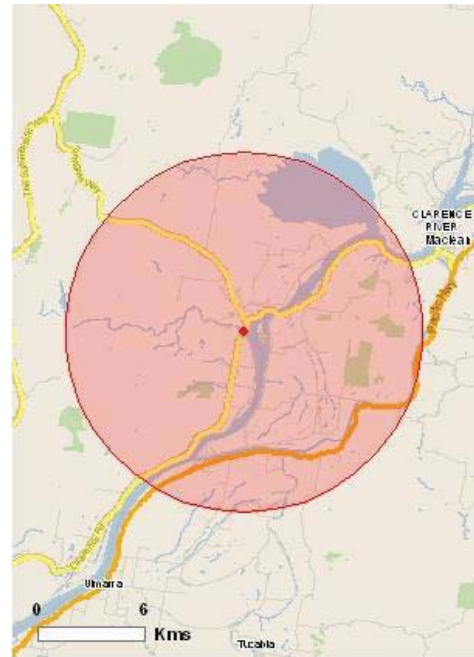
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

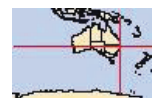
[Acknowledgements](#)



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

Buffer: 10.0Km



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Areas:	None
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	39
Listed Migratory Species:	31

Other Matters Protected by the EPBC Act

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

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As [heritage values](#) of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate.

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

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

Commonwealth Land:	2
Commonwealth Heritage Places:	None
Listed Marine Species:	36
Whales and Other Cetaceans:	1
Critical Habitats:	None
Commonwealth Reserves:	None

Extra Information

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

Place on the RNE:	3
State and Territory Reserves:	4
Regional Forest Agreements:	1
Invasive Species:	41
Nationally Important Wetlands:	4
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [\[Resource Information \]](#)

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

Name	Status	Type of Presence
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area

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

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat likely to occur within area
Diomedea exulans antipodensis Antipodean Albatross [82269]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans exulans Tristan Albatross [82337]	Endangered	Species or species habitat may occur within area
Diomedea exulans gibsoni Gibson's Albatross [82271]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans (sensu lato) Wandering Albatross [1073]	Vulnerable	Species or species habitat may occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species

Name	Status	Type of Presence
Lathamus discolor Swift Parrot [744]	Endangered	habitat likely to occur within area Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area
Fish		
Epinephelus daemeli Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area
Frogs		
Mixophyes balbus Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat likely to occur within area
Mixophyes iteratus Giant Barred Frog, Southern Barred Frog [1944]	Endangered	Species or species habitat may occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE mainland) [66645]	Vulnerable	Species or species habitat may occur within area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area
Xeromys myoides Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat likely to occur within area
Plants		
Allocasuarina defungens Dwarf Heath Casuarina [21924]	Endangered	Species or species habitat may occur within area
Angophora robur Sandstone Rough-barked Apple [56088]	Vulnerable	Species or species habitat likely to occur within area
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat may occur within area

Name	Status	Type of Presence
Cryptocarya foetida Stinking Cryptocarya, Stinking Laurel [11976]	Vulnerable	Species or species habitat may occur within area
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area
Eucalyptus tetrapleura Square-fruited Ironbark [7490]	Vulnerable	Species or species habitat may occur within area
Grevillea masonii [64523]	Endangered	Species or species habitat likely to occur within area
Marsdenia longiloba Clear Milkvine [2794]	Vulnerable	Species or species habitat likely to occur within area
Melichrus sp. Newfoundland State Forest (P.Gilmour 7852) Hairy Melichrus [82048]	Endangered	Species or species habitat likely to occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat likely to occur within area
Streblus pendulinus Siah's Backbone, Sia's Backbone, Isaac Wood [21618]	Endangered	Species or species habitat likely to occur within area

Reptiles

Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Coeranoscincus reticulatus Three-toed Snake-tooth Skink [59628]	Vulnerable	Species or species habitat may occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Listed Migratory Species

[[Resource Information](#)]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable*	Species or species habitat may occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered*	Species or species habitat may occur within

Name	Threatened	Type of Presence area
Diomedea exulans (sensu lato) Wandering Albatross [1073]	Vulnerable	Species or species habitat may occur within area
Diomedea gibsoni Gibson's Albatross [64466]	Vulnerable*	Species or species habitat may occur within area
Migratory Marine Species		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Sousa chinensis Indo-Pacific Humpback Dolphin [50]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Xanthomyza phrygia Regent Honeyeater [430]	Endangered*	Foraging, feeding or related behaviour likely to occur within area
Migratory Wetlands Species		
Ardea alba Great Egret, White Egret [59541]		Breeding known to occur within area

Name	Threatened	Type of Presence
Ardea ibis Cattle Egret [59542]		Breeding likely to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Foraging, feeding or related behaviour known to occur within area
Calidris ruficollis Red-necked Stint [860]		Foraging, feeding or related behaviour known to occur within area
Charadrius bicinctus Double-banded Plover [895]		Foraging, feeding or related behaviour known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]		Foraging, feeding or related behaviour likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Foraging, feeding or related behaviour known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Foraging, feeding or related behaviour known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Foraging, feeding or related behaviour likely to occur within area
Numenius phaeopus Whimbrel [849]		Foraging, feeding or related behaviour likely to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Foraging, feeding or related behaviour known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [[Resource Information](#)]

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

Name
Commonwealth Land - Australian Telecommunications Corporation
Commonwealth Land - Commonwealth Trading Bank of Australia

Listed Marine Species [[Resource Information](#)]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Breeding known to occur

Name	Threatened	Type of Presence within area
Ardea ibis Cattle Egret [59542]		Breeding likely to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Foraging, feeding or related behaviour known to occur within area
Calidris ruficollis Red-necked Stint [860]		Foraging, feeding or related behaviour known to occur within area
Charadrius bicinctus Double-banded Plover [895]		Foraging, feeding or related behaviour known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]		Foraging, feeding or related behaviour likely to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Foraging, feeding or related behaviour known to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable*	Species or species habitat may occur within area
Diomedea dabbenena Tristan Albatross [66471]	Endangered*	Species or species habitat may occur within area
Diomedea exulans (sensu lato) Wandering Albatross [1073]	Vulnerable	Species or species habitat may occur within area
Diomedea gibsoni Gibson's Albatross [64466]	Vulnerable*	Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Foraging, feeding or related behaviour known to occur within area
Gallinago megala Swinhoe's Snipe [864]		Foraging, feeding or related behaviour likely to occur within area
Gallinago stenura Pin-tailed Snipe [841]		Foraging, feeding or related behaviour likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Himantopus himantopus Black-winged Stilt [870]		Foraging, feeding or related behaviour known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Endangered	Species or species habitat likely to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Foraging, feeding or related behaviour known to occur within area

Name	Threatened	Type of Presence
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Foraging, feeding or related behaviour likely to occur within area
Numenius phaeopus Whimbrel [849]		Foraging, feeding or related behaviour likely to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Foraging, feeding or related behaviour known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Whales and other Cetaceans		
[Resource Information]		
Name	Status	Type of Presence
Mammals		
Sousa chinensis Indo-Pacific Humpback Dolphin [50]		Species or species habitat likely to occur within area

Extra Information

Places on the RNE

[\[Resource Information \]](#)

Note that not all Indigenous sites may be listed.

Name	State	Status
Natural		
Lower Clarence River Area	NSW	Indicative Place
Sportsmans Creek Proposed Nature Reserve	NSW	Registered
Historic		
Sportsmans Creek Road Bridge	NSW	Registered

State and Territory Reserves

[\[Resource Information \]](#)

Name	State
Everlasting Swamp	NSW
Munro Island	NSW
Warragai Creek	NSW
Woodford Island	NSW

Regional Forest Agreements

[\[Resource Information \]](#)

Note that all areas with completed RFAs have been included.

Name	State
North East NSW RFA	New South Wales

Invasive Species

[\[Resource Information \]](#)

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Pycnonotus jocosus Red-whiskered Bulbul [631]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area

Name	Status	Type of Presence within area
Frogs		
Bufo marinus Cane Toad [1772]		Species or species habitat likely to occur within area
Rhinella marina Cane Toad [83218]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Equus caballus Horse [5]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Alternanthera philoxeroides Alligator Weed [11620]		Species or species habitat likely to occur within area
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus plumosus Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera subsp. rotundata Bitou Bush [16332]		Species or species habitat likely to occur within area
Dolichandra unguis-cati Cat's Claw Vine, Yellow Trumpet Vine, Cat's Claw Creeper, Funnel Creeper [85119]		Species or species habitat likely to occur within area
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Protasparagus plumosus Climbing Asparagus-fern, Ferny Asparagus [11747]		Species or species habitat likely to occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area

Reptiles

Hemidactylus frenatus Asian House Gecko [1708]	Species or species habitat likely to occur within area
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Nationally Important Wetlands

[[Resource Information](#)]

Name	State
Clarence River Estuary	NSW
Everlasting Swamp	NSW
The Broadwater	NSW
Upper Coldstream	NSW

Coordinates

-29.50392 153.0992

Caveat

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

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

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

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

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

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

- migratory and
- marine

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

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

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

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

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

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:

- [Department of Environment, Climate Change and Water, New South Wales](#)
- [Department of Sustainability and Environment, Victoria](#)
- [Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [Department of Environment and Natural Resources, South Australia](#)
- [Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts](#)
- [Environmental and Resource Management, Queensland](#)
- [Department of Environment and Conservation, Western Australia](#)
- [Department of the Environment, Climate Change, Energy and Water](#)
- [Birds Australia](#)
- [Australian Bird and Bat Banding Scheme](#)
- [Australian National Wildlife Collection](#)
- [Natural history museums of Australia](#)
- [Museum Victoria](#)
- [Australian Museum](#)
- [SA 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, Atherton and Canberra](#)
- [University of New England](#)
- [Ocean Biogeographic Information System](#)
- [Australian Government, Department of Defence](#)
- [State Forests of NSW](#)
- [Geoscience Australia](#)
- [CSIRO](#)
- 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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Data from the BioNet Atlas of NSW Wildlife website, which holds records from a number of custodians. The data are only indicative and cannot be considered a Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°; ^^ rounded to 0.01°).

Copyright the State of NSW through the Office of Environment and Heritage.

Search criteria : Licensed Report of all Valid Records of Threatened (listed on TSC Act 1995) Animals in selected area [North: -29.45 West: 153.04 East: 153.14 South: -29.55] returned a total of 466 records of 101 species.

Report generated on 4/07/2013 12:04 PM

Class	Scientific Name	Common Name	NSW status	Comm. status	Records
Amphibia	<i>Crinia tinnula</i>	Wallum Froglet	V,P		1
Aves	<i>Anseranas semipalmata</i>	Magpie Goose	V,P		4
Aves	<i>Burhinus grallarius</i>	Bush Stone-curlew	E1,P		1
Aves	<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	V,P,2		2
Aves	<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	E1,P		308
Aves	<i>Grus rubicunda</i>	Brolga	V,P		52
Aves	<i>Haematopus longirostris</i>	Pied Oystercatcher	E1,P		19
Aves	<i>Irediparra gallinacea</i>	Comb-crested Jacana	V,P		6
Aves	<i>Limosa limosa</i>	Black-tailed Godwit	V,P	C,J,K	1
Aves	<i>Pandion cristatus</i>	Eastern Osprey	V,P,3		43
Aves	<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	V,P		11
Mammalia	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V,P	E	3
Mammalia	<i>Miniopterus australis</i>	Little Bentwing-bat	V,P		1
Mammalia	<i>Myotis macropus</i>	Southern Myotis	V,P		1
Mammalia	<i>Petaurus norfolcensis</i>	Squirrel Glider	V,P		1
Mammalia	<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	V,P		4
Mammalia	<i>Phascolarctos cinereus</i>	Koala	V,P	V	6
Mammalia	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V,P	V	2

Data from the BioNet Atlas of NSW Wildlife website, which holds records from a number of custodians. The data are only indicative and cannot be considered a Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°; ^^ rounded to 0.01°).

Copyright the State of NSW through the Office of Environment and Heritage.

Search criteria : Licensed Report of all Valid Records of Threatened (listed on TSC Act 1995) Plants in selected area [North: -29.45 West: 153.04 East: 153.14 South: -29.55] returned a total of 34 records of 77 species.

Report generated on 4/07/2013 12:07 PM

Class	Scientific Name	Common Name	NSW status	Comm. status	Records
Flora	<i>Eucalyptus glaucina</i>	Slaty Red Gum	V,P	V	2
Flora	<i>Grevillea masonii</i>	Mason's Grevillea	E1,P,3	E	27
Flora	<i>Maundia triglochinooides</i>		V,P		1
Flora	<i>Melaleuca irbyana</i>	Weeping Paperbark	E1,P		4



Appendix B

Threatened Species Potential Occurrence Assessment

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Table A1 Threatened Fauna Search Results - Potential Occurrence Assessment

Scientific Name	Common Name	Status		Habitat Requirement (Source: OEH 2013; SEWPaC 2013)	Suitability of Site Habitat	Potential Occurrence
		TSC Act	EPBC Act			
Amphibia						
<i>Crinia tinnula</i>	Wallum Froglet	V	-	Acid paperbark and sedge swamps known as 'wallum', this is a banksia-dominated lowland heath ecosystem characterised by acidic waterbodies.	No wallum habitat associated with the site.	Very Low
<i>Mixophyes balbus</i>	Stuttering Frog	V	V	Cool rainforest, moist eucalypt forest and occasionally along creeks in dry eucalypt forest.	No suitable habitat associated with the site.	Very Low
<i>Mixophyes iteratus</i>	Giant Barred Frog	E	E	Deep, damp leaf litter in rainforests, moist eucalypt forest and near dry eucalypt forest.	No suitable habitat associated with the site.	Very Low
Avifauna						
<i>Anseranas semipalmata</i>	Magpie Goose	V	-	Shallow wetlands (<1 m deep), large swamps and dams with dense growth of rushes or sedge.	Potential habitat in ephemeral swamp to the west of the study area	Moderate
<i>Anthochaera phrygia</i> (formerly <i>Xanthomyza phrygia</i>)	Regent Honeyeater	CE	E	Dry open forest and woodland with an abundance of nectar-producing eucalypts, particularly box-ironbark woodland, swamp mahogany forests, and riverine sheoak woodlands.	Minimal suitable foraging habitat associated with the site.	Low
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	E	Permanent freshwater wetlands with tall dense vegetation, particularly bullrushes and spikerushes.	Marginal habitat associated with ephemeral wetlands to the west of the study area.	Moderate
<i>Burhinus grallarius</i>	Bush Stone-curlew	E	-	Lightly timbered open forest and woodland, and partly cleared farmland with woodland remnants, preferring areas with dry leaf-litter, fallen timber and sparse ground cover.	No suitable habitat present.	Very Low
<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	V	-	Sheoaks in coastal forests and woodlands, timbered watercourses, and moist and dry eucalypt forests of the coast and the Great Divide up to 1,000 m.	No suitable habitat present.	Very Low

Scientific Name	Common Name	Status		Habitat Requirement (Source: OEH 2013; SEWPaC 2013)	Suitability of Site Habitat	Potential Occurrence
		TSC Act	EPBC Act			
<i>Dasyornis brachypterus</i>	Eastern Bristlebird	E	E	High elevation open forest, woodland with dense tussock or sedge understorey adjacent to rainforest or wet eucalypt forest.	No suitable habitat present and site is out of known range.	Very Low
<i>Diomedea exulans (sensu lato)</i>	Wandering Albatross	E	V	In the Australasian region, it occurs inshore, offshore and in pelagic waters. On breeding islands, the Wandering Albatross nests on coastal or inland ridges, slopes, plateaus and plains, often on marshy ground (Falla 1937; Warham & Bell 1979). Nests of the Wandering Albatross are sited on moss terraces, in dense tussocks, and often in loose aggregations on the west (windward) side of islands. It prefers open or patchy vegetation (tussocks, ferns or shrubs), and it requires nesting areas that are near exposed ridges or hillocks so that it can take off (Warham & Bell 1979).	No suitable habitat within the study area.	Very Low
<i>Diomedea exulans antipodensis</i>	Antipodean Albatross	V	V	Nests in open patchy vegetation, such as among tussock grassland or shrubs on ridges, slopes and plateaus	No suitable habitat within the study area.	Very Low
<i>Diomedea exulans exulans</i>	Tristan Albatross	-	E	It forages in open water in the Atlantic Ocean near the Cape of Good Hope, South Africa. It sleeps and rests on ocean waters when not breeding. Breeding occurs on Inaccessible Island and Gough Island in the Atlantic Ocean.	No suitable habitat within the study area.	Very Low
<i>Diomedea exulans gibsoni</i>	Gibson's Albatross	V	V	On breeding islands, the Gibson's Albatross nests on coastal or inland ridges, slopes, plateaus and plains, often on marshy ground (Falla 1937a; Warham & Bell 1979). Nests of the Gibson's Albatross are sited on moss terraces, in dense tussocks, and often in loose aggregations on the west (windward) side of islands. It prefers open or patchy vegetation (tussocks, ferns or shrubs), and it requires nesting areas that are near exposed ridges or hillocks so that it can take off (Warham & Bell 1979).	No suitable habitat within the study area.	Very Low

Scientific Name	Common Name	Status		Habitat Requirement (Source: OEH 2013; SEWPaC 2013)	Suitability of Site Habitat	Potential Occurrence
		TSC Act	EPBC Act			
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	E	-	Swamps, mangroves, mudflats, dry floodplains.	Suitable habitat within ephemeral swamp to the west of the study area. Many records from near the site.	High
<i>Erythrotriorchis radiatus</i>	Red Goshawk	CE	V	Along or near watercourses, swamp forest and woodlands on the coastal plain.	Potential foraging habitat associated with Sportsmans Creek riparian zone.	Moderate
<i>Grus rubicunda</i>	Brolga	V	-	Shallow swamps, floodplains, grasslands and pastoral lands, usually in pairs or parties.	Suitable habitat within ephemeral swamp to the west of the study area. Records known from near the site.	High
<i>Haematopus longirostris</i>	Pied Oystercatcher	E	-	Open beaches, intertidal flats, sandbanks and occasionally rocky headlands.	Habitat present associated with Sportsmans Creek and the Clarence River. Marginal habitat associated with the study area itself.	Moderate
<i>Irediparra gallinacea</i>	Comb-crested Jacana	V	-	Among vegetation floating on slow-moving rivers and permanent lagoons, swamps, lakes and dams.	Marginal habitat within Sportsmans Creek itself.	Moderate
<i>Lathamus discolor</i>	Swift Parrot	E	E	Forests, woodlands, plantations, and banksias.	Minimal suitable foraging habitat associated with the site.	Low
<i>Limosa limosa</i>	Black-tailed Godwit	V	-	Tidal mudflats, sandspits, swamps, shallow river-margins and reservoirs.	Suitable broad habitat types associated with the site.	Moderate

Scientific Name	Common Name	Status		Habitat Requirement (Source: OEH 2013; SEWPaC 2013)	Suitability of Site Habitat	Potential Occurrence
		TSC Act	EPBC Act			
<i>Pandion cristatus</i> (formerly <i>Pandion haliaetus</i>)	Eastern Osprey	V	-	Forage for fish in fresh, brackish or saline waters of rivers, lakes, estuaries with suitable nesting sites nearby.	Suitable habitats occurring at the site including potential nesting habitat on the existing Sportsmans Creek bridge.	High
<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler	V	-	Box-Gum Woodlands on the slopes, and Box-Cypress-pine and open Box Woodlands on alluvial plains.	The study area would have previously represented habitat for this species before being largely cleared.	Moderate
<i>Rostratula benghalensis australis</i>	Australian Painted Snipe	E	V	Well-vegetated shallows and margins of wetlands, dams, sewage ponds, wet pastures, marshy areas, irrigation systems, lignum, tea-tree scrub, and open timber.	Broad habitat types associated with the site but poor quality habitat within the study area.	Low
<i>Turnix melanogaster</i>	Black-breasted Button-quail	E	V	Drier rainforests and viney scrubs, often in association with Hoop Pine and a deep moist leaf litter layer. During drought it may move to adjacent wetter rainforests.	No suitable habitat within the study area.	Very Low
Mammalia						
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V	V	Near cave entrances and crevices in cliffs.	Suitable foraging habitat in area and has been recorded previously at the site.	Moderate
<i>Dasyurus maculatus maculatus</i>	Spotted-tailed Quoll	V	E	Dry and moist eucalypt forests and rainforests, fallen hollow logs, large rocky outcrops.	No suitable habitat within the study area.	Very Low
<i>Miniopterus australis</i>	Little Bentwing-bat	V	-	Moist eucalypt forest, rainforest and dense coastal scrub.	Suitable foraging habitat in area and has been recorded at the site.	High

Scientific Name	Common Name	Status		Habitat Requirement (Source: OEH 2013; SEWPaC 2013)	Suitability of Site Habitat	Potential Occurrence
		TSC Act	EPBC Act			
<i>Myotis macropus</i>	Large-footed Myotis	V	-	Bodies of water, rainforest streams, large lakes, reservoirs.	Known roosting habitat on existing bridge and foraging habitat along Sportsmans Creek/ Clarence River.	High
<i>Petaurus norfolcensis</i>	Squirrel Glider	V	-	Blackbutt, bloodwood and ironbark eucalypt forest with heath understorey in coastal areas, and box-ironbark woodlands and River Red Gum forest inland.	No suitable habitat within the study area.	Very Low
<i>Petrogale penicillata</i>	Brush-tailed Rock Wallaby	V	V	North-facing cliffs and dry eucalypt forest and woodland, inhabiting rock crevices, caves, overhangs during the day, and foraging in grassy areas nearby at night.	No suitable habitat within the study area.	Very Low
<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	V	-	Drier forests and woodlands with hollow-bearing trees and sparse ground cover.	No suitable habitat within the study area.	Very Low
<i>Phascolarctos cinereus</i>	Koala	V	-	Appropriate food trees in forests and woodlands, and treed urban areas.	Scattered food trees in broader area and some historic records.	Low
<i>Potorous tridactylus tridactylus</i>	Long-nosed Potoroo	V	V	Cool temperate rainforest, moist and dry forests, and wet heathland, inhabiting dense layers of grass, ferns, vines and shrubs.	No suitable habitat associated with the study area.	Low
<i>Pseudomys novaehollandiae</i>	New Holland Mouse	-	V	Occurs in open heathlands, open woodlands with a heathland understorey, and vegetated sand dunes.	No suitable habitat associated with the study area.	Low
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V	Subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.	Suitable foraging habitat associated with the broader area.	High
<i>Xeromys myoides</i>	False Water-rat	-	V	Primarily in habitats mangrove forests but has been recorded in a variety of well-watered habitats including, freshwater lagoons, sedged lakes close to foredunes, and swamps.	Very marginal habitat associated with the site.	Low

Scientific Name	Common Name	Status		Habitat Requirement (Source: OEH 2013; SEWPaC 2013)	Suitability of Site Habitat	Potential Occurrence
		TSC Act	EPBC Act			
<i>Caretta Caretta</i>	Loggerhead Turtle	E	E	Ocean dwellers, females come ashore to lay eggs during warmer months.	No suitable habitat associated with the study area.	Low
<i>Chelonia mydas</i>	Green Turtle	V	V	Ocean-dwelling species spending most of its life at sea with scattered nesting records along the NSW coast.	No suitable habitat associated with the study area.	Low
<i>Coeranoscincus reticulatus</i>	Three-toed Snake-tooth Skink	V	V	Rainforest and occasionally moist eucalypt forest, on loamy or sandy soils.	No suitable habitat associated with the study area.	Low
<i>Dermochelys coriacea</i>	Leathery Turtle	V	V	Occurs in inshore and offshore marine waters, occasional breeding records from NSW coast, including between Ballina and Lennox Head in northern NSW.	No suitable habitat associated with the study area.	Low
<i>Eretmochelys imbricata</i>	Hawksbill Turtle	–	V	This species settles and forages in tropical tidal and sub-tidal coral and rocky reef habitat. They have also been found (less frequently) within seagrass habitats of coastal waters. Have been observed in temperate regions as far south as northern NSW.	Marginal habitats present mainly in the Clarence River.	Low
<i>Natator depressus</i>	Flatback Turtle	–	V	Known to inhabit soft bottom habitat, feed in turbid, shallow inshore waters, nesting habitat includes sandy beaches in the tropics and sub-tropics with sand temperatures between 25 and 33 degrees celcius at nest depth.	No suitable habitat associated with the study area.	Low

Table A2 Migratory Species Results - Potential Occurrence Assessment

Scientific Name	Common Name	Status	Suitability of Site Habitat	Potential Occurrence
Migratory Marine Birds				
<i>Apus pacificus</i>	Fork-tailed Swift		Suitable habitat associated with the existing Sportsmans Creek bridge and surrounds.	High
<i>Diomedea antipodensis</i>	Antipodean Albatross	Vulnerable	No suitable habitat within the study area.	Very Low
<i>Diomedea dabbenena</i>	Tristan Albatross	Endangered	No suitable habitat within the study area.	Very Low
<i>Diomedea exulans</i>	Wandering Albatross	Vulnerable	No suitable habitat within the study area.	Very Low
<i>Diomedea gibsoni</i>	Gibson's Albatross	Vulnerable	No suitable habitat within the study area.	Very Low
Migratory Marine Species				
<i>Caretta caretta</i>	Loggerhead Turtle	Endangered	No suitable habitat associated with the study area.	Low
<i>Chelonia mydas</i>	Green Turtle	Vulnerable	No suitable habitat associated with the study area.	Low
<i>Dermochelys coriacea</i>	Leatherback Turtle	Endangered	No suitable habitat associated with the study area.	Low
<i>Eretmochelys imbricata</i>	Hawksbill Turtle	V	Marginal habitats present mainly in the Clarence River.	Low
<i>Natator depressus</i>	Flatback Turtle	V	No suitable habitat associated with the study area.	Low
<i>Sousa chinensis</i>	Indo-Pacific Humpback Dolphin		No suitable habitat associated with the study area.	Low
Migratory Terrestrial Species				
<i>Haliaeetus leucogaster</i>	White-bellied Sea Eagle		Suitable foraging habitat associated with Sportsmans Creek and the Clarence River.	High
<i>Hirundapus caudacutus</i>	White-throated Needletail		Potential foraging habitat throughout the broader area.	Moderate
<i>Merops ornatus</i>	Rainbow Bee-eater		Potential foraging habitat throughout the broader area.	Moderate
<i>Monarcha melanopsis</i>	Black-faced Monarch		Very marginal habitat associated with the study area.	Low
<i>Monarcha trivirgatus</i>	Spectacled Monarch		Very marginal habitat associated with the study area.	Low
<i>Myiagra cyanoleuca</i>	Satin Flycatcher		Potential foraging habitat throughout the broader area.	Moderate
<i>Rhipidura rufifrons</i>	Rufous Fantail		Very marginal habitat associated with the study area.	Low
<i>Xanthomyza phrygia</i>	Regent Honeyeater	Endangered	Minimal suitable foraging habitat associated with the site.	Low
<i>Ardea alba</i>	Great Egret		Suitable habitat associated with Greenfield parts of the study area.	High
<i>Ardea ibis</i>	Cattle Egret		Suitable habitat associated with Greenfield parts of the study area.	High
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper		Very marginal habitat associated with the study area.	Low

Scientific Name	Common Name	Status	Suitability of Site Habitat	Potential Occurrence
<i>Calidris ruficollis</i>	Red-necked Stint		Very marginal habitat associated with the study area.	Low
<i>Charadrius bicinctus</i>	Double-banded Plover		Very marginal habitat associated with the study area.	Low
<i>Charadrius mongolus</i>	Lesser Sand Plover		Very marginal habitat associated with the study area.	Low
<i>Gallinago harwickii</i>	Latham's Snipe		Very marginal habitat associated with wetland areas to the west of the study area	Moderate
<i>Limosa lapponica</i>	Bar-tailed Godwit		Very marginal habitat associated with the study area.	Low
<i>Numenius minutus</i>	Little Curlew		Very marginal habitat associated with the study area.	Low
<i>Numenius phaeopus</i>	Whimbrel		Very marginal habitat associated with the study area.	Low
<i>Pluvialis fulva</i>	Pacific Golden Plover		Very marginal habitat associated with the study area.	Low
<i>Rostratula benghalensis (sensu lato)</i>	Painted Snipe	Endangered	Broad habitat types associated with the site but poor quality habitat within the study area.	Low

Table A3 Threatened Flora Search Results - Potential Occurrence Assessment

Scientific Name	Common Name	Status		Habitat Requirement (Source: OEH 2013; SEWPaC 2013)	Suitability of Site Habitat	Potential Occurrence
		TSC Act	EPBC Act			
Flora						
<i>Allocasuarina defungens</i>	Dwarf Heath Casuarina	E	E	Tall heath on sand, also on clay and sandstone.	No suitable habitat associated with the study area.	Low
<i>Angophora robur</i>	Sandstone Rough-barked Apple	V	V	Dry open forest in sandy or skeletal soils on sandstone, or occasionally granite, with frequent outcrops of rock.	No suitable habitat associated with the study area.	Low
<i>Arthraxon hispidus</i>	Hairy Joint Grass	V	V	Moist shady places in or on the edges of rainforest and wet eucalypt forest, often near creeks or swamps.	Potential habitat in green field parts of the study area.	Moderate
<i>Cryptocarya foetida</i>	Stinking Cryptocarya	V	V	Littoral rainforest in sandy soils, mature trees known on basalt soils.	Very marginal habitat present at the site.	Low
<i>Cryptostylis hunteriana</i>	Leafless Tongue-orchid	V	V	Does not have well defined habitat and is known from a range of communities, including swamp-heath and woodland.	No typical habitat present at the site.	Low
<i>Eucalyptus glaucina</i>	Slaty Red Gum	V	V	Found only on the north coast of NSW and in separate districts: near Casino where it can be locally common, and farther south, from Taree to Broke, west of Maitland. Grows in grassy woodland and dry eucalypt forest. Grows on deep, moderately fertile and well-watered soils.	No suitable habitat occurring at the site.	Low
<i>Eucalyptus tetrapleura</i>	Square-fruited Ironbark	V	V	Dry or moist eucalypt forest on moderately fertile soil, often in low areas with poor drainage.	No suitable habitat occurring at the site.	Low
<i>Grevillea masonii</i>	Mason's Grevillea	E	E	Road verges and pasture at low altitudes in gravelly loam soils.	No suitable habitat occurring at the site.	Low
<i>Marsdenia longiloba</i>	Clear Milkvine	E	V	Subtropical and warm temperate rainforest, lowland moist eucalypt forest adjoining rainforest and, sometimes, in areas with rock outcrops.	No suitable habitat occurring at the site.	Low

Scientific Name	Common Name	Status		Habitat Requirement (Source: OEH 2013; SEWPaC 2013)	Suitability of Site Habitat	Potential Occurrence
		TSC Act	EPBC Act			
<i>Maundia triglochoides</i>	-	V	-	Swamps or shallow fresh water on clay.	Potential habitat within ephemeral swamps to the west of the study area.	Moderate
<i>Melaleuca irbyana</i>	Weeping Paperbark	E	-	Open eucalypt forest in poorly drained, usually clay, soils.	No typical habitat associated with the site.	Low
<i>Melichrus hirsutus</i>	Hairy Melichrus	E	E	Low-altitude eucalypt forest with shrubby understorey on sandy infertile soil with rocky outcrops.	No suitable habitat at the site.	Low
<i>Phaius australis</i>	Southern Swamp Orchid	E	E	Swampy grassland or swampy forest including rainforest, eucalypt or paperbark forest mostly in coastal areas.	Very marginal habitat associated with the western portion of the study area.	Low
<i>Streblus pendulinus</i>	Siah's Backbone	-	E	Found in warmer rainforests, chiefly along watercourses at altitudinal range is from near sea level to 800 m above sea level. Grows in well developed rainforest, gallery forest and drier, more seasonal rainforest. On Norfolk Island, the species is found in a variety of forest types, though it is rare.	No suitable habitat at the site.	Low