Sunnybright Estate Subdivision

Fauna Impact Assessment

Bathurst Region, NSW

Prepared for Bathurst Regional Council

August 2017

OzArk Environmental & Heritage Management Pty Limited

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EXECUTIVE SUMMARY

Bathurst Regional Council (the proponent) propose to subdivide Sunnybright Estate on Lot 5 DP847225. The proposal is located within the suburb of Kelso, approximately 4km east of the Bathurst city centre, in the Bathurst Region Local Government Area, NSW. OzArk Environmental & Heritage Management Pty Ltd (OzArk) was commissioned by Bathurst Regional Council to complete a fauna impact assessment under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). This assessment addresses requirements of section 5A of the EP&A Act and the following legislation:

- Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- NSW *Threatened Species Conservation Act 1995* (TSC Act)
- NSW *Fisheries Management Act 1994* (FM Act).

Field assessment was carried out by Environmental Scientist Nikki Allen on 27 July 2017. The assessment rationale was to evaluate the type and quality of habitat to be affected by the proposal; apply professional judgement, then complete targeted assessment of potential habitat to detect the regions listed species, populations or communities.

Available habitat niches for fauna were limited within the study area due to current agricultural grazing and historical land use as an orchard. Additionally, a pipeline was being constructed during the field survey. These disturbances have limited the potential habitat value of the study area for threatened and sensitive native species. The assessment of the study area has concluded only common, generalist fauna species with resilience to anthropogenic disturbances and modified landscapes will occur within the study area.

A review of the habitat requirements for threatened species predicted to occur in the study area concluded eight threatened fauna have potential to be impacted by the proposal. Three were threatened microbats, which are likely to be impacted by the proposed removal of the existing man-made structures. To reduce the impact to threatened microbats it is recommended clearing of these structures is planned for autumn or winter to avoid impacting the breeding season. The remaining threatened fauna species are likely to experience a loss of feeding / foraging habitat as a result of the proposal. This impact is not considered to be significant to the survival of a viable local population of these species.

Additional safeguards and mitigation measures have been provided to minimise harm to the environment. If these are implemented then the proposal is unlikely to have a significant impact to species, populations and communities listed under the EPBC, TSC or FM Acts. No specific licences, permits, approvals and notifications required for the construction, maintenance and operation of the proposal under Part 4 of the EP&A Act have been identified. No additional survey is recommended.

TABLE OF CONTENTS

FIGURES

TABLES

PLATES

1 Introduction

Bathurst Regional Council (the proponent) propose to subdivide Sunnybright Estate on Lot 5 DP847225. The proposal is located within the suburb of Kelso, approximately 4km east of the Bathurst city centre, in the Bathurst Region Local Government Area (LGA), NSW. OzArk Environmental & Heritage Management Pty Ltd (OzArk) were commissioned by Bathurst Regional Council to complete a fauna impact assessment under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

1.1 Objectives

The objectives of the ecological assessment are to provide:

- Detailed assessment of the potential impact to any threatened species, populations, endangered ecological communities or their habitats; and any potential for offset requirements in accordance with the relevant Office of Environment and Heritage (OEH) Guidelines.
- Detailed description of the measures to avoid, minimise, mitigate and offset biodiversity impacts.

This assessment meets these objective while addressing requirements under the following legislation.

1.1.1 International agreements

- Japan-Australia Migratory Bird Agreement (JAMBA).
- China-Australia Migratory Bird Agreement (CAMBA).
- Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA).
- Ramsar Convention on Wetlands (Ramsar).

1.1.2 Commonwealth

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), including:
    - EPBC Act Environmental Offsets Policy.
    - Significant Impact Guidelines Version 1.1, 2013.

1.1.3 State

- NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).
- NSW *Threatened Species Conservation Act 1995* (TSC Act).
- NSW *Fisheries Management Act 1994* (FM Act).

1.2 Location

Three terms are used in this report to contextualise the proposal:

- Subject site.
- Study area.
- 10km search area.

Additional terms and abbreviations used are provided in **Appendix F**.

1.2.1 Subject site

The 'subject site' is the area directly affected by the proposal (DEC, 2004). For the purpose of this report, the subject site is the approximately 30ha area of Lot 5 DP847225 which will be subdivided (**Figure 1-1**).

1.2.2 Study area

The 'study area' includes the 'subject site' and any additional areas likely to be affected by the proposal, either directly or indirectly (DEC, 2004). The study area is the entirety of Lot 5 DP847225 (Sunnybright Estate) (**Figure 1-1**).

The regional context of the study area and proximity to environmentally sensitive areas is shown in **Table 1-1** and summarised below:

- **SEPP 44:** The Bathurst Region is a LGA to which the *State Environmental Planning Policy No 44—Koala Habitat Protection* (SEPP 44) applies to. The study area does not contain any feed trees listed in schedule 2 of SEPP 44 and no evidence of a resident population of Koalas was found in the study area. Therefore the study area is not considered to be Koala habitat as per the definitions of SEPP 44.
- **Protected riparian habitat:** the study area contains Strahler first order tributaries of Raglan Creek which are protected under the *Water Management Act 2000*.

Table 1-1: Proximity of environmentally sensitive areas to the study area

Environmental Considerations	In the study area?
An area reserved or dedicated under the *National Parks and Wildlife Act 1974*?	No
A World Heritage Area?	No
Environmental Protection Zones in environmental planning instruments?	No
Lands protected under SEPP 14 – Coastal Wetlands?	No
Lands protected under SEPP 26 – Littoral Rainforests?	No
Lands protected under SEPP 71 – Coastal Protection?	No
Lands protected under SEPP 44 – Koala Protection?	**Yes**
Lands protected under SEPP Sydney Drinking Water Catchment?	No
Land identified as wilderness under the *Wilderness Act 1987* or declared as wilderness under the *National Parks and Wildlife Act 1974*?	No
Aquatic reserves dedicated under the *Fisheries Management Act 1994*?	No
Wetland areas dedicated under the Ramsar Wetlands Convention?	No
Land identified as State Forest under the *Forestry Act 1916*?	Yes
Western Lands Lease	No
Land within a mining subsidence district?	No
Acid sulphate area?	No
Protected riparian habitat?	**Yes**
Mapped as Key Fish Habitat?	No
Critical habitat NSW?	No
Critical habitat nationally?	No

Figure 1-1: Proposal boundaries

1.2.3 10km search area

The 10km search area contains all land within a 10km radius of the study area. The 10km search area is used to review database records of listed plants and animals in order to predict what may occur in the study area.

1.3 The proposal

The proposal consists of Stage 1 subdivision over the western portion of the study area into approximately 100 lots for medium density residential development (**Figure 1-2**). The eastern portion of the study area is not impacted by the proposal. The proposal will clear all vegetation and structures, except for land immediately surrounding the water reservoir and the north-eastern wind row, see **Figure 1-2**, an approximately 27ha impact area.

Figure 1-2: Initial design drawings of the proposal (Source: Bathurst Regional Council)

2 Methods

The methodology employed for this report consisted of:

- A desktop and literature review of ecological databases and literature sources as direct references for the field survey.
- A field survey of the study area.

The assessment rationale was to evaluate the type and quality of habitat to be affected by the proposal; apply professional judgement, then complete targeted assessment of potential habitat to detect the regions listed species, populations or communities.

2.1 Reporting

Reporting components were completed by:

- Main Author: Nikki Allen.
- Editor: Rowan Murphy.

2.1.1 Licensing and qualifications

OzArk operates under NSW Department of Primary Industries (DPI) Ethics Approval No. 17/465 and NSW Scientific Research License 101087. Key details of scientific personnel from OzArk are provided in **Table 2–1**.

Table 2-1: Summary of OzArk qualifications

Name	Position	CV Details
Rowan Murphy	Ecologist / Project Manager	• Bachelor of Environmental Science (University of New England) • Bachelor of Laws (University of New England) • Practicing member of the NSW Ecological Consulting Association • Practicing member of the Environment Institute of Australia and New Zealand (EIANZ) • National Railtrack Safety Induction (ARTC) • WHS White Card: 1652972 • Apply First Aid (Parasol) ID: 6007220.
Nikki Allen	Environmental Scientist	• BSc. Major in Chemistry and Geography. University of New South Wales at the Australian Defence Force Academy • Grad. Dip. In Environmental Health. Queensland University of Technology. • Apply First Aid (ABC First Aid) ID: 34795 • CPCCOHS1001A Work Safely in the Construction Industry (White Card) • Roads and Maritime Worker on Foot Training

2.2 Desktop review

2.2.1 Information sources

Preliminary assessments drew on local experience, previous preliminary reporting and information held on government databases and archives (**Appendix E**). Data was used to assist in identifying distributions, suitable habitats and known records of threatened species to increase the effectiveness of field investigations. All databases were searched on 21 July 2017. Information sources reviewed included:

- Aerial photograph interpretation of the landscape and previous vegetation maps.
- Literature reviews (OzArk library, OEH Biometric list) to determine vegetation and species habitat(s) within the proposed study area and environs.
- Review of flora and fauna records contained in the NSW Threatened Species Database, EPBC Protected Matters Search Tool and DPI threatened fish distribution maps.
- NSW Wildlife Atlas/Bionet GIS data request and website search.
- Royal Botanical Gardens (PlantNET NSW Flora Online).

The background searches enabled the consultant to develop a predictive model for threatened flora and fauna to be recorded in the study area (**section 2.2.2** and **3.9**).

2.2.2 Predictive model for threatened flora and fauna

A review of the previously recorded (**Appendix E** – NSW Wildlife Atlas/Bionet GIS data), predicted (**Appendix E** – OEH, DPI Fisheries and Commonwealth database searches) and field survey recorded (**Appendix A**) threatened species was used to inform the list of threatened species with potential to be impacted by the proposal as discussed in **section 3.5** and **3.7**. An assessment of likelihood of occurrence for listed species, populations, communities and migratory species identified from database searches was compiled (**Appendix B**). Five terms of likelihood for occurrence (based on database results or other records, presence or absence of suitable habitat, features of the study area, results of the field survey and professional judgement) were used to determine the likelihood of occurrence:

- "Yes" = the species was or has been observed on the site.
- "Likely" = a medium to high probability that a species uses the site.
- "Potential" = suitable habitat for a species occurs on the site, but there is insufficient information to the species as likely to occur, or unlikely to occur.
- "Unlikely" = a very low to low probability that a species uses the site.
- "No" = habitat on-site and in the vicinity is unsuitable for the species.

Once a species presence was determined the likelihood of the species to be impacted by the proposal was determined. This decision was based upon whether or not the location, duration and methods of the proposal would impact on important habitat features, breeding requirements, food sources and threatening processes. Species determined to have potential to be impacted by the proposal are listed in **section 3.5**. Seven-part tests were undertaken for these species and results are summarised in **section 3.9**.

2.3 Field survey

Field assessment was carried out by Environmental Scientist Nikki Allen on 27 July 2017 (one part day). Weather was cool and clear, ranging from 6.1°C to 14.1°C, with no rainfall. Wind speeds recorded at the Bathurst Airport show the day was dominated by light wind (4-13km/hr), with gusts of moderate wind (20km/hr) (BoM, 2017).

The objective of the field assessment was to:

- Determine if fauna species or populations listed in the EPBC, TSC or FM Acts have potential to be, affected by the proposal.
- Describe the quality and value of fauna habitat affected by the proposal.

2.3.1 Fauna

Habitat assessment

Habitat in the study area was assessed for its potential to provide resources for listed species likely to occur (**Appendix B**). Preference of habitat for these species was determined by OEH, Department of Primary Industries (DPI) Fisheries and the Australian Government Department of Environment and Energy (DoEE) threatened online species profiles.

Database searches were undertaken before the assessment to inform the consultant of what species predicted or known to occur in the 10km search area may be recorded, or would need a targeted search. In particular the following habitat types were searched:

- Watercourses, dams and riparian habitat: These habitat types were targeted for presence of a local population of amphibians and as an opportunistic search for any mammals or birds drinking/taking refuge/hunting from this water source.
- Mature trees: Mature trees were inspected for hollows and nests to determine if they were used for breeding. Where a tree with a hollow was observed it was given a score reflecting its habitat value.
- Vegetation type and structure: Vegetation structure including the presence or absence of leaf litter, fallen logs, native grasses, shrubs, mid and upper stratum were noted to inform the predictive model for threatened species where limitations in the threatened species survey arose.
- Man-made structures: Man-made structures which were inspected to locate any direct or indirect evidence of fauna using the structures. In particular areas considered potential roosting for microbats (e.g. culverts, bridges and nest boxes), or basking areas for reptiles were assessed.

Any indirect evidence of fauna i.e. scats, tracks, calls, fur feathers, sloughed skins etc. was assessed. All eucalyptus trees in the study area were assessed for hollows, nests, feeding habitat including mistletoe or resting habitat.

Birds

Opportunistic sightings of birds were recorded during the assessment of the study area. A list of birds recorded during the opportunistic sightings is provided in **Appendix A**.

2.3.2 Limitations

Not all animals can be fully accounted for within any given study area. The presence of threatened species is not static. It changes over time, often in response to longer term natural

forces which can, at any time, be dramatically influenced by man-made disturbance or weather. In order to overcome some of these limitations, database searches were conducted for threatened species, populations and ecological communities known to occur within the region. A 'precautionary approach' for species occurrence has been adopted where required.

This report is based upon data acquired from recent and current surveys, however, it should be recognised that data gathered is indicative of the environmental conditions of the site at the time the report was prepared.

Limitations associated with the survey included:

- Trapping was not a component of the assessment.
- Microbat ultrasonic call capture and analysis was decided to not be included in the field survey as no trees to be removed by the proposal were assessed as containing potential bat habitat.
- Nocturnal assessments were not a component of the assessment.
- Active construction activities for construction of a pipeline reduced the presence and abundance of fauna species during the fieldwork. This disturbance significantly reduced the likelihood of threatened fauna being present. Therefore, targeted threatened fauna species searches as per the *Threatened Species Survey and Assessment: Guidelines for developments and activities (working draft)* (DEC, 2004) was deemed unlikely to find any threatened fauna. This limitation was supplemented with database searches and assessment, as outlined in **section 2.2.2**.

The above-mentioned constraints are not considered to compromise the findings or results of the field assessment as the subject site is predominantly cleared, with planted windbreaks of predominately exotic Monterey Pine (*Pinus radiata*) and native River Oak (*Casuarina cunninghamiana*).

3 Results

3.1 Landscape context

The landscape context of the study area is important when predicting the presence and abundance of species. Landscape features such as distance to water and land use can greatly influence the present of certain species in an area.

The study area is on a slope which ranges from 700m to 730m Australian Height Datum. Sunnybright Estate is one of the first of many orchards located on the edge of a residential estate in Bathurst. The eastern portion of the study area contains farm dams, some of which are connected to tributaries of Raglan Creek, which flows into the Macquarie River.

3.1.1 Climate

The study area is located within the South Eastern Highlands bioregion which has a temperate climate characterised by warm summers and no dry season. Average climate statistics from the Bathurst Airport monitoring station show temperatures range from an average monthly maximum temperature of 28.6°C in January to an average monthly minimum temperature of 0.9°C in July. Average annual rainfall the highest in December 73.7mm and lowest in May with 33.3mm (Bureau of Meteorology, 2017).

3.1.2 Land use

The study area has previously been operated as an orchard, with planted windbreaks of predominately Monterey Pine and River Oak, with various species of *Eucalyptus* scattered across the subject site. Currently the subject site is being grazed and pipelines are being constructed. Where pipeline construction is active, disturbance is significant with all vegetation being removed in its impact footprint (see **Plate 3-1**).

Plate 3-1: Example of cleared vegetation for construction of the pipeline

3.2 Aquatic ecological communities

Endangered aquatic ecological communities face a very high risk of extinction in the near future as determined by the Fisheries Scientific Committee. An ecological community is eligible for listing as endangered if it has undergone a very large reduction in ecological function, geographic distribution or genetic diversity, and is affected by a threatening process (DPI, 2016).

Drainage features within the study area is limited to farm dams the Strahler first order tributaries of Raglan Creek, which connect them (**Figure 3-1**). These drainage features are not considered to be Key Fish Habitat (KFH), nor are they associated with threatened aquatic ecological communities. Therefore there will be no impact to KFH or threatened aquatic ecological communities.

3.3 Terrestrial ecological communities

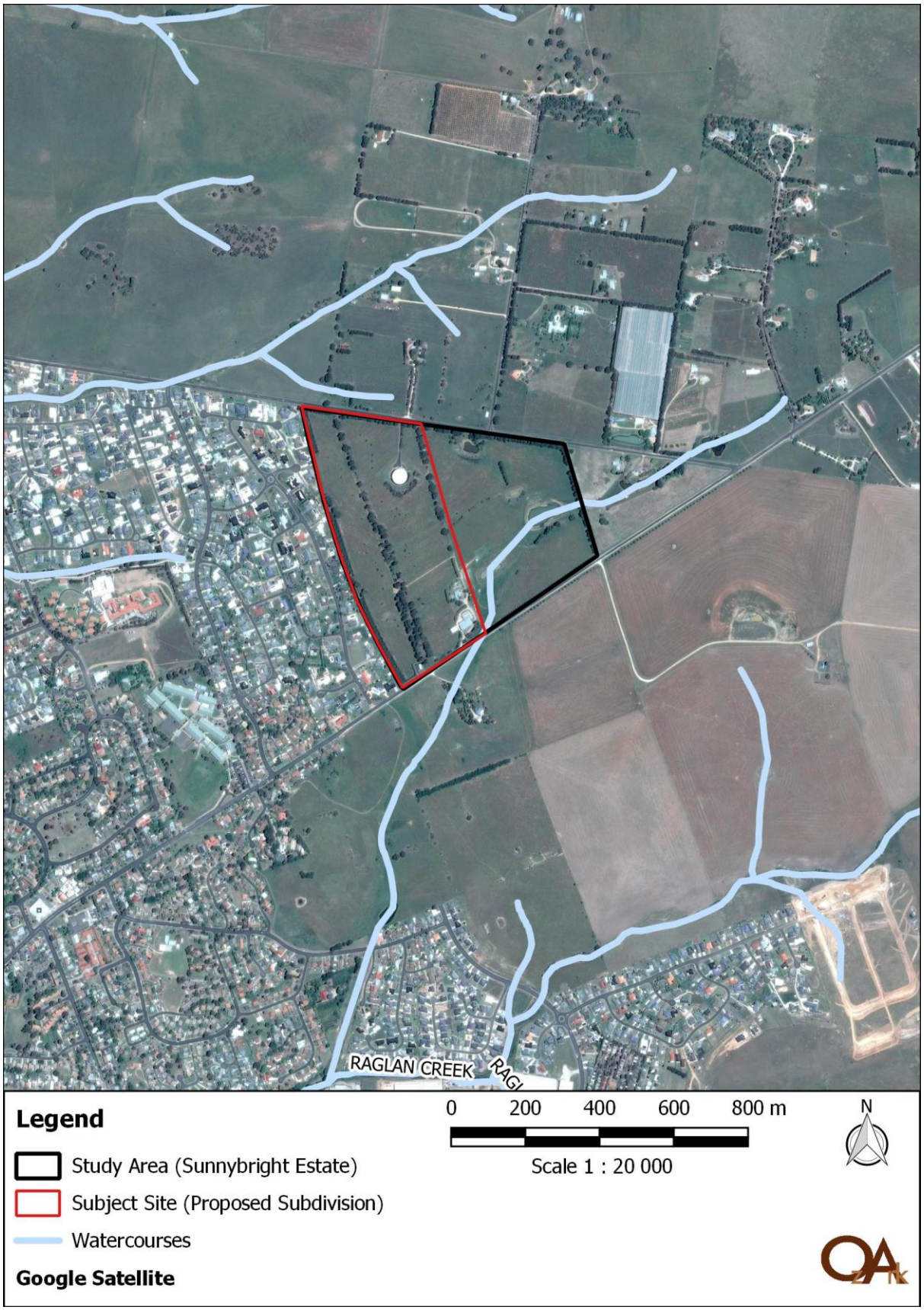
An ecological community is a naturally occurring group of native plants, animals and other organisms that are interacting in a unique habitat. Its structure, composition and distribution are determined by environmental factors such as soil type, position in the landscape, altitude, climate and water availability (DoE, 2016).

Field survey of the study area found the majority of the study area was dominated by exotic flora species which was not consistent with a native Plant Community Type (PCT). This is due to historic and current agricultural land use practices. While there were native flora species present, e.g. Climbing Saltbush (*Einadia nutans* subsp. *nutans*) and Wallaby Grass (*Rytidosperma sp.*), they were not in a high enough density or distribution to be considered a native PCT.

3.3.1 Vegetation connectivity

Review of aerial imaging shows there is little remnant native vegetation within 10km of the subject site, except for the riparian corridor of Macquarie River and higher elevation areas. As a result, only highly mobile threatened fauna (including birds and bats), or those which rely on riparian habitat (amphibians) have been recorded within 10km of the study area (see **Table 3-2**).

Figure 3-1: Drainage of the study area



3.4 Habitat features

Habitat types for fauna was limited due to existing and previous agricultural land use. Additionally, a pipeline was being constructed during the field survey. These disturbances have limited the potential habitat value of the study area for threatened and sensitive native species. The assessment of the study area has concluded only common, generalist fauna species with resilience to anthropogenic disturbances and modified landscapes will occur within the study area.

3.4.1 Artificial ponds and water bodies

The existing dams provide suitable but small foraging flats and habitat for waterbirds, microbats and macropods, as well as habitat for aquatic species such as frogs (**Plate 3-2**). The dams are not considered to be important habitat for threatened fauna as they are small in size. The proximity of the Macquarie River (approximately 3km away), an important and extensive aquatic habitat, reduces the possibility that the dams would provide habitat critical for the survival of threatened fauna.

Plate 3-2: Example of an existing dam at Sunnybright Estate

3.4.2 Cleared / disturbed grassland

Disturbed, exotic open grassland is the main habitat feature present on the subject site. The sparse and open nature of the grassland portions favour common generalist species that are capable of utilising open ground for foraging and common disturbance-tolerant species that are ubiquitous in modified habitats. Many of the bird species recorded in such habitats utilise the open grassland areas for foraging but are reliant on nearby native woodland communities for roosting and nesting (e.g. raptors and parrots). The grassland areas of the subject site provide foraging habitat for a variety of open ground foraging bird species such as Crested Pigeons (*Ocyphaps lophotes*) and White-winged Choughs (*Corcorax melanorhamphos*) (**Plate 3-3**). Hawks also forage aerially for insects over the open areas. The combination of farm dams and open grassland provides foraging habitat for macropods.

Plate 3-3: White-winged Choughs (*Corcorax melanorhamphos*) foraging in derived grassland

3.4.3 Mature Trees

There are no large hollow bearing trees present in the subject site. This precludes the subject site from being potential habitat for possums, owls and hollow dependant parrots. The subject site contains some windbreaks consisting of mature trees, mainly Monterey Pine (**Plate 3-4**). Large mature trees also provide perching, foraging and refuge habitat for bird species, however, no nests were observed. Due to the types of trees planted, no fallen logs with a diameter of at least 10cm were recorded. Mid-stratum vegetation was absent from the study area. This limits the use of the study area for many species including robins and native rodents.

Plate 3-4: Wind rows of mature trees present at the property

3.4.4 Man-made structures

An old homestead and various farm structures (including a water tank and coop) were present in the south-west corner of the study area (**Plate 3-5**). These abandoned structures provide roosting habitat for microbats, including some threatened species such as the Eastern Bentwing-bat (*Miniopterus schreibersii oceanensis)*. Reptiles may also utilise unused structures for shelter and sun basking.

Plate 3-5: Abandoned buildings present at the property

3.5 Fauna

3.5.1 Predicted threatened fauna

A review of habitat requirements and prior records for each listed species, populations and ecological communities predicted to occur in the study area concluded eight threatened fauna have potential to be impacted by the proposal (**Table 3-1**).

Table 3-1: Threatened species with potential to be impacted by the proposal

Type	Scientific Name	Common Name	TSC Act	EPBC Act	Records in 10km
Bats	*Falsistrellus tasmaniensis*	Eastern False Pipistrelle	Vulnerable		No
Bats	*Miniopterus schreibersii oceanensis*	Eastern Bentwing-bat	Vulnerable		Yes
Bats	*Saccolaimus flaviventris*	Yellow-bellied Sheathtail-bat	Vulnerable		No
Bats	*Circus assimilis*	Spotted Harrier	Vulnerable		Yes
Bats	*Falco subniger*	Black Falcon	Vulnerable		Yes
Bats	*Hieraaetus morphnoides*	Little Eagle	Vulnerable		No
Bats	*Lophoictinia isura*	Square-tailed Kite	Vulnerable		No
Bats	*Stagonopleura guttata*	Diamond Firetail	Vulnerable		Yes

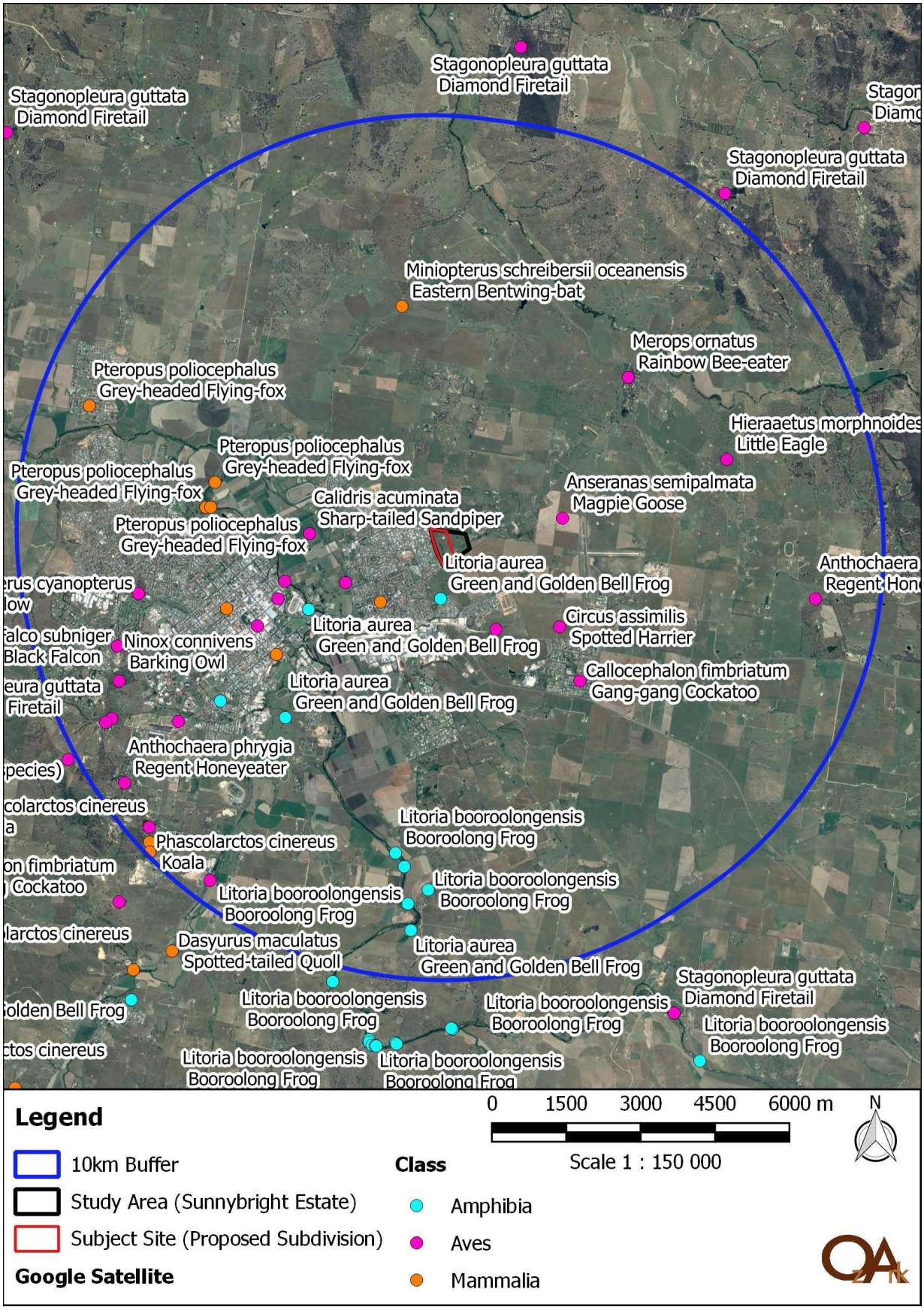
3.5.2 Previously recorded threatened fauna

Review of OEH BioNet data found 22 threatened fauna species had been previously recorded within the 10km buffer (**Table 3-2** and **Figure 3-2**).

Table 3-2: Threatened fauna species previously recorded within the 10km buffer

Type	Scientific Name	Common Name	TSC Act	EPBC Act	Records in 10km
Amphibia	*Litoria aurea*	Green and Golden Bell Frog	Endangered	Vulnerable	4
Amphibia	*Litoria booroolongensis*	Booroolong Frog	Endangered	Endangered	5
Amphibia	*Litoria castanea*	Yellow-spotted Tree Frog	Critically Endangered	Endangered	1
Aves	*Anseranas semipalmata*	Magpie Goose	Vulnerable		3
Aves	*Phaethon rubricauda*	Red-tailed Tropicbird	Vulnerable	Migratory	1
Aves	*Plegadis falcinellus*	Glossy Ibis	Protected	Migratory	1
Aves	*Circus assimilis*	Spotted Harrier	Vulnerable		2
Aves	*Hieraaetus morphnoides*	Little Eagle	Vulnerable		1
Aves	*Falco subniger*	Black Falcon	Vulnerable		1
Aves	*Calidris acuminata*	Sharp-tailed Sandpiper	Protected	Migratory	1
Aves	*Gallinago hardwickii*	Latham's Snipe	Protected	Migratory	1
Aves	*Callocephalon fimbriatum*	Gang-gang Cockatoo	Vulnerable		2
Aves	*Ninox connivens*	Barking Owl	Vulnerable		1
Aves	*Merops ornatus*	Rainbow Bee-eater	Protected	Migratory	1
Aves	*Anthochaera phrygia*	Regent Honeyeater	Critically Endangered	Critically Endangered	4
Aves	*Melithreptus gularis gularis*	Black-chinned Honeyeater (eastern subspecies)	Vulnerable		1
Aves	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow	Vulnerable		1
Aves	*Stagonopleura guttata*	Diamond Firetail	Vulnerable		1
Mammalia	*Dasyurus maculatus*	Spotted-tailed Quoll	Vulnerable	Endangered	1
Mammalia	*Phascolarctos cinereus*	Koala	Vulnerable	Vulnerable	4
Mammalia	*Pteropus poliocephalus*	Grey-headed Flying-fox	Vulnerable	Vulnerable	4
Mammalia	*Miniopterus schreibersii oceanensis*	Eastern Bentwing-bat	Vulnerable		1

Figure 3-2: Threatened species within 10km of the study area



3.5.3 Recorded fauna

Native fauna

Overall, 12 native fauna species were recorded, all of which were birds, see **Appendix A**.

Threatened fauna

During the field survey no threatened fauna species or populations were recorded.

Invasive pests

Only one invasive species, the Common Starling (*Sturnus vulgaris*), was recorded in the subject site.

3.5.4 Impact to fauna

All vegetation within the subject site, except for that immediately surrounding the water reservoir and the north-eastern Monetery Pine windbreak will be cleared (see **Figure 1-2**). This is a loss of approximately 27ha of exotic grassland vegetation. Habitat value of this exotic grassland is low for most threatened species as historic and current land use makes it mainly preferred habitat for habitat generalist species which can tolerate disturbance. Of the vegetation to be removed, only the mixed plantings of *Callistemon*, *Casuarina* and *Eucalyptus* are native. None of these trees contained hollows and no nests were observed.

Impact to threatened species is mainly restricted to raptors which could use the study area for hunting and microbats which may roost in the abandoned buildings. Impact to threatened species has been assessed through seven-part tests (**Appendix C**) which are summarised in **section 3.9.2**.

3.6 Key threatening processes

There are four Key Threatening Processes (KTP's) at the NSW State and Federal level which will be exacerbated by the proposal. The proposal will consist of minor vegetation clearing, which provides an opportunity for exotic perennial grasses to colonise the area. Dead trees and wood within the subject site will be removed. The proposal is expected to negligibly contribute to anthropogenic climate change.

The OEH, DoEE and DPI Fisheries list of KTPs was reviewed and 16 KTPs are active within the study area. Four of these will be exacerbated by the proposal:

- Clearing of native vegetation.
- Anthropogenic climate change.
- Invasion of native plant communities by exotic perennial grasses.
- Removal of dead wood and dead trees.

A summary of the proposed impacts relating to the relevant key threatening processes is given in **Table 3-3**.

Table 3-3: Review of proposed impacts to key threatening processes

Key Threatening Process	TSC Act	FM Act	EPBC Act	KTP present in region?	Exacerbated?
Aggressive exclusion of birds by noisy miners (*Manorina melanocephala*)	✔		✔	Yes	No
Alteration of habitat following subsidence due to longwall mining	✔			No	No
Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands	✔	✔		Yes	No
Anthropogenic climate change	✔	✔	✔	Yes	**Negligible**
Bushrock removal	✔			No	No
Clearing of native vegetation	✔		✔	Yes	**Yes**
Competition and grazing by the feral European rabbit (*Oryctolagus cuniculus*)	✔		✔	Yes	No
Competition and habitat degradation by feral goats (*Capra hircus*)	✔		✔	No	No
Competition from feral honey bees (*Apis mellifera*)	✔			Yes	No
Death or injury to marine species following capture in shark control programs on ocean beaches	✔	✔		No	No
Entanglement in or ingestion of anthropogenic debris in marine and estuarine environments	✔		✔	No	No
Forest Eucalypt dieback associated with over-abundant psyllids and bell miners	✔			Yes	No
Herbivory and environmental degradation caused by feral deer	✔			Yes	No
High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition	✔			Yes	No
Hook and line fishing in areas important for the survival of threatened fish species		✔		No	No
Importation of red imported fire ants (*Solenopsis invicta*)	✔		✔	No	No
Incidental catch (bycatch) of Sea Turtle during coastal otter-trawling operations within Australian waters north of 28 degrees South			✔	No	No
Incidental catch (or bycatch) of seabirds during oceanic longline fishing operations			✔	No	No
Infection by psittacine circoviral (beak and feather) disease affecting endangered psittacine species and populations	✔		✔	Yes	No
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis	✔		✔	No	No
Infection of native plants by Phytophthora cinnamomi	✔		✔	No	No
Introduction and Establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae	✔			No	No
Introduction of non-indigenous fish and marine vegetation to the coastal waters of New South Wales		✔		No	No

Key Threatening Process	TSC Act	FM Act	EPBC Act	KTP present in region?	Exacerbated?
Introduction of the large earth bumblebee (*Bombus terrestris*)	✔			No	No
Invasion and establishment of exotic vines and scramblers	✔			No	No
Invasion and establishment of Scotch broom (*Cytisus scoparius*)	✔			No	No
Invasion and establishment of the cane toad (*Bufo marinus*)	✔		✔	No	No
Invasion of native plant communities by African Olive *Olea europaea* L. subsp. *cuspidata*	✔			No	No
Invasion of native plant communities by exotic perennial grasses	✔			Yes	**Yes**
Invasion of native plant communities by *Chrysanthemoides monilifera* (bitou bush and boneseed)	✔			No	No
Invasion of northern Australia by Gamba Grass and other introduced grasses			✔	No	No
Invasion of the yellow crazy ant (*Anoplolepis gracilipes* (Fr. Smith)) into NSW	✔		✔	No	No
Invasion, establishment and spread of *Lantana camara*	✔			No	No
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	✔		✔	No	No
Loss of hollow-bearing trees	✔			Yes	No
Loss or degradation (or both) of sites used for hill-topping by butterflies	✔			No	No
Novel biota and their impact on biodiversity			✔	No	No
Predation and hybridisation of feral dogs (*Canis lupus familiaris*)	✔			No	No
Predation by exotic rats on Australian offshore islands of less than 1000 km^2 (100,000 ha)			✔	No	No
Predation by the European red fox (*Vulpes vulpes*)	✔		✔	Yes	No
Predation by the feral cat (*Felis catus*)	✔		✔	Yes	No
Predation by the ship rat (*Rattus rattus*) on Lord Howe Island	✔		✔	No	No
Predation by *Gambusia holbrooki* Girard, 1859 (plague minnow or mosquito fish)	✔			No	No
Predation, habitat degradation, competition and disease transmission by feral pigs (*Sus scrofa*)	✔		✔	Yes	No
Removal of dead wood and dead trees	✔			Yes	**Yes**
The degradation of native riparian vegetation along New South Wales water courses		✔		No	No
The introduction of fish to fresh waters within a river catchment outside their natural range		✔		No	No
The removal of large woody debris from NSW rivers and streams		✔		No	No

3.7 Matters of National Environmental Significance

Under the environmental assessment provisions of the EPBC Act, the Matters of National Environmental Significance (MNES) and impacts on Commonwealth land are required to be considered to assist in determining whether the proposal should be referred to the Australian Government DoEE. No MNES will be impacted by the proposed works (**Table 3-4**).

Table 3-4: Impacts to Matters of National Environmental Significance

Factor	Impact
Any impact on a World Heritage property?	NIL
Any impact on a National Heritage place?	NIL
Any impact on a wetland of international importance?	NIL
Any impact on a listed threatened species or communities?	NIL
Any impacts on listed migratory species?	NIL
Any impact on a Commonwealth marine area?	NIL
Does the proposal involve a nuclear action (including uranium mining)?	NIL
Additionally, any impact (direct or indirect) on Commonwealth land?	NIL
Any impact on a water resource, in relation to coal seam gas development and large coal mining development?	NIL

3.8 Cumulative impact

The proposal would be impacting on land which is highly degraded from previous and current agricultural land use. Fauna habitat features lost would be minimal, i.e. no hollows or nests removed, only loss of foraging habitat. The cumulative impact of increasing residential land would however, increase predation of native fauna from domesticated animals in the immediate area.

3.9 Significance of potential impact

Management of ecological items is determined on the basis of their assessed significance as well as the likely impact of the proposal. Significance of a species, population or community is determined by appointed NSW and National Scientific Committees; with cultural and public significance are considerations within the significance determination process. Within the framework of an impact assessment, impact to listed significant items must be assessed at a State level (under the FM Act and TSC Act), and if also nationally listed, under the EPBC Act. The following sections identify state or nationally listed threatened species and then determines if the impact is 'significant'.

3.9.1 Commonwealth legislation

The EPBC Act protects nationally and internationally important flora, fauna, ecological communities and heritage places, which are defined in the EPBC Act as matters of national environmental significance. The EPBC Act policy *Matters of National Environmental Significance: Significant Impact Guidelines 1.1* (DoE, 2013) forms the basis of determining if impact to protected matters is significant.

The habitat assessment identified no species listed under the EPBC Act which may potentially be affected by the proposal (**Appendix B**).

3.9.2 NSW legislation

The habitat assessment identified eight species or their habitats listed under the TSC or FM Acts may potentially be affected by the proposal (**Appendix B**).

Table 3-5 gives an overview of the results of the seven-part test (**Appendix D**) and shows a *Species Impact Statement* is not required, because:

1. In the case of a threatened species, the proposal is not likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.
2. In the case of an endangered population, the proposal is not likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.
3. In the case of an endangered ecological community or critically endangered ecological community:
    i. The proposal is not likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or
    ii. The proposal is not likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.
4. In relation to the habitat of a threatened species, population or ecological community:
    i. The extent to which habitat is likely to be removed or modified as a result of the proposal is not significant, and
    ii. That an area of habitat is not likely to become fragmented or isolated from other areas of habitat as a result of the proposal, and
    iii. The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality is not significant.
5. That the proposal is not likely to have an adverse effect on critical habitat (either directly or indirectly).
6. That the proposal is not consistent with the objectives or actions of a recovery plan or threat abatement plan.
7. That the proposal constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

Table 3-5: Summary of the findings of TSC Act 7-Part Tests

Threatened species, or communities		7-Part Test Questions							Likely significant impact?
		1	2	3	4	5	6	7	
Bats									
Falsistrellus tasmaniensis	Eastern False Pipistrelle	N	X	X	N	N	Y	Y	No
Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	N	X	X	N	N	Y	Y	No
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	N	X	X	N	N	Y	Y	No
Birds									
Circus assimilis	Spotted Harrier	N	X	X	N	N	Y	Y	No
Falco subniger	Black Falcon	N	X	X	N	N	Y	Y	No
Hieraaetus morphnoides	Little Eagle	N	X	X	N	N	Y	Y	No
Lophoictinia isura	Square-tailed Kite	N	X	X	N	N	Y	Y	No
Stagonopleura guttata	Diamond Firetail	N	X	X	N	N	Y	Y	No

Notes: Y= Yes (negative impact), N= No (no or positive impact), P = Potential, X= not applicable, ?= unknown impact.

4 Environmental safeguards

The proposal has followed the principles of 'avoid, minimise, mitigate' to reduce the impact of the proposal on local biodiversity values.

4.1 Avoid impact

The following avoidance mitigation measures have been recommended:

- Clearing of the existing homestead and associated farm structures should only occur in autumn or winter to avoid impacting on threatened microbat breeding season.

4.2 Minimise impact

The following minimisation mitigation measures have been recommended for the 3ha of land around the water reservoir not be cleared:

- Avoid storing equipment and machinery in the area not to be cleared.
- Avoiding unnecessary traffic across land not be cleared.

4.3 Mitigate impact

The following mitigation measures have been suggested:

- Any change in design outside the assessed impact footprint within the study area will require further assessment.
- Inductions would inform personnel that any unapproved impact to threatened species has legislative consequences; whether the impact was deliberate or accidental. Evidence of all personnel receiving an induction would be kept on file (signed induction sheets etc.).
- Parts of native trees from tree felling can be placed in areas of native vegetation to be retained. This will provide habitat complexity in the form of fallen timber.
- All food scraps and rubbish are to be appropriately disposed of in sealed receptacles to prevent providing foraging habitat for foxes, rats, dogs and cats.

Bat Habitat Removal Procedure

- Before the start of structure removal, check for evidence of current bat occupation. Evidence includes guano, stains, chatter / calls. Dark holes and crevices can be searched with a torch. Check Fairy Martin/ Swallow nests prior to removal for bats.
- If bats are present or disturbed during work, immediately stop work in that area for 30 minutes to allow bats time to warm up and fly out in response to the disturbance.
- After 30 minutes, check the area for presence of bats. If bats are still present, contact OzArk for advice on how to proceed including options for bat removal, exclusion, relocation and deterrence from the immediate work area.
- Work may only require deferral until the following day to allow bats to depart at dusk for evening fly out. After bats leave, installation of exclusion structures (e.g. flyscreen or plastic over hollow entrances etc.) can occur within the immediate work areas.
- If bats are unexpectedly injured during work, contact a local wildlife carer group for collection of the injured bat/s. Workers are not to handle bats unless appropriately vaccinated and have the correct PPE.

5 Conclusion

Where possible, impact to the environment will be avoided by timing clearing during autumn and winter to avoid impacting the microbat breeding season. Additional safeguards and mitigation measures have been provided to minimise harm to the environment. If these are implemented then the proposal is unlikely to have a significant impact to species, populations and communities listed under the EPBC, TSC or FM Acts.

No specific licences, permits, approvals and notifications required for the construction, maintenance and operation of the proposal under Part 4 of the EP&A Act have been identified.

6 References

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Appendix A: Field survey results

Recorded fauna species list

Scientific Name	Common Name	Status
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	Protected
Anthochaera carunculata	Red Wattlebird	Protected
Chenonetta jubata	Australian Wood Duck	Protected
Corcorax melanorhamphos	White-winged Chough	Protected
Corvus mellori	Little Raven	Protected
Cracticus tibicen	Australian Magpie	Protected
Grallina cyanoleuca	Magpie-lark	Protected
Malurus cyaneus	Superb Fairy-wren	Protected
Ocyphaps lophotes	Crested Pigeon	Protected
Platycercus eximius	Eastern Rosella	Protected
Rhipidura leucophrys	Willie Wagtail	Protected
Strepera graculina	Pied Currawong	Protected
Sturnus vulgaris	Common Starling	Introduced

Appendix B: Habitat assessment table

Full profile

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Amphibians	*Litoria aurea*	Green and Golden Bell Frog	Endangered	Vulnerable	Known	May occur	Yes	The Green and Golden Bell Frog main populations in NSW are located around the metropolitan areas of Sydney, Shoalhaven and mid north coast (one an island population). There is only one known population on the NSW Southern Tablelands. Inhabits marshes, dams and stream-sides, particularly those containing bullrushes (Typha spp.) or spikerushes (Eleocharis spp.). Optimum habitat includes water-bodies that are unshaded, free of predatory fish such as Plague Minnow (Gambusia holbrooki), have a grassy area nearby and diurnal sheltering sites available. Some sites, particularly in the Greater Sydney region occur in highly disturbed areas.	Potential - record in nearby watercourse	No - farm dams not affected
Animal> Amphibians	*Litoria booroolongensis*	Booroolong Frog	Endangered	Endangered	Known	Likely	Yes	The Booroolong Frog is restricted to NSW and north-eastern Victoria, predominantly along the western-flowing streams of the Great Dividing Range. It has disappeared from much of the Northern Tablelands, however several populations have recently been recorded in the Namoi catchment. The species is rare throughout most of the remainder of its range. Live along permanent streams with some fringing vegetation cover such as ferns, sedges or grasses.	Unlikely - preferred vegetation not present	No
Animal> Amphibians	*Litoria castanea*	Yellow-spotted Tree Frog	Critically Endangered	Endangered	Known	Likely	Yes	Yellow-spotted Tree frog has only one known population near Yass. Require large permanent ponds or slow flowing 'chain-of-ponds' streams with abundant emergent vegetation such as bulrushes and aquatic vegetation.	Unlikely - outside of known distribution	No
Animal> Amphibians	*Litoria raniformis*	Southern Bell Frog	Endangered		Known		No	The Southern Bell Frog is known to exist only in isolated populations in the Coleambally Irrigation Area, the Lowbidgee floodplain and around Lake Victoria. Usually found in or around permanent or ephemeral Black Box/Lignum/Nitre Goosefoot swamps, Lignum/Typha swamps and River Red Gum swamps or billabongs along floodplains and river valleys. They are also found in irrigated rice crops, particularly where there is no available natural habitat.	Unlikely - preferred vegetation not present	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Bats	*Chalinolobus dwyeri*	Large-eared Pied Bat	Vulnerable	Vulnerable	Known	Likely	No	Found mainly in areas with extensive cliffs and caves, from Rockhampton in Queensland south to Bungonia in the NSW Southern Highlands. It is generally rare with a very patchy distribution in NSW. There are scattered records from the New England Tablelands and North West Slopes. Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin (Petrochelidon ariel), frequenting low to mid-elevation dry open forest and woodland close to these features. Found in well-timbered areas containing gullies.	Unlikely - no caves	No
Animal> Bats	*Falsistrellus tasmaniensis*	Eastern False Pipistrelle	Vulnerable		Known		No	The Eastern False Pipistrelle is found on the south-east coast and ranges of Australia, from southern Queensland to Victoria and Tasmania. Prefers moist habitats, with trees taller than 20 m. Generally roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings.	Potential - abandoned buildings	Yes
Animal>Bats	*Miniopterus schreibersii oceanensis*	Eastern Bentwing-bat	Vulnerable		Known		Yes	Eastern Bentwing-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. Form discrete populations centred on a maternity cave that is used annually in spring and summer for the birth and rearing of young.	Potential - abandoned buildings	Yes
Animal>Bats	*Pteropus poliocephalus*	Grey-headed Flying-fox	Vulnerable	Vulnerable	Known	Foraging	Yes	Grey-headed Flying-foxes are generally found within 200 km of the eastern coast of Australia, from Rockhampton in Queensland to Adelaide in South Australia. In times of natural resource shortages, they may be found in unusual locations. Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy.	Unlikely - lack of roosting/feeding habitat	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Bats	*Saccolaimus flaviventris*	Yellow-bellied Sheathtail-bat	Vulnerable		Known		No	The Yellow-bellied Sheathtail-bat is a wide-ranging species found across northern and eastern Australia. In the most southerly part of its range - most of Victoria, south-western NSW and adjacent South Australia - it is a rare visitor in late summer and autumn. There are scattered records of this species across the New England Tablelands and North West Slopes. Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. Forages in most habitats across its very wide range, with and without trees; appears to defend an aerial territory.	Potential - abandoned buildings	Yes
Animal>Bats	*Scoteanax rueppellii*	Greater Broad-nosed Bat	Vulnerable		Predicted		No	The Greater Broad-nosed Bat is found mainly in the gullies and river systems that drain the Great Dividing Range, from north-eastern Victoria to the Atherton Tableland. It extends to the coast over much of its range. In NSW it is widespread on the New England Tablelands, however does not occur at altitudes above 500 m. Utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest. Although this species usually roosts in tree hollows, it has also been found in buildings. Forages after sunset, flying slowly and directly along creek and river corridors at an altitude of 3 - 6 m. Open woodland habitat and dry open forest suits the direct flight of this species as it searches for beetles and other large, slow-flying insects; this species has been known to eat other bat species.	Unlikely – does not occur at altitudes greater then 500m, study area is more than 700m	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Actitis hypoleucos*	Common Sandpiper				May occur	No	The Common Sandpiper is found along all coastlines of Australia and in many areas inland. The species utilises a wide range of coastal wetlands and some inland wetlands, with varying levels of salinity, and is mostly found around muddy margins or rocky shores and rarely on mudflats. The Common Sandpiper has been recorded in estuaries and deltas of streams, as well as on banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and claypans, and occasionally piers and jetties. The muddy margins utilised by the species are often narrow, and may be steep. The species is often associated with mangroves, and sometimes found in areas of mud littered with rocks or snags.	Unlikely - not coastal	No
Animal>Birds	*Anseranas semipalmata*	Magpie Goose	Vulnerable		Known		Yes	The Magpie Goose is mainly found in shallow wetlands (less than 1 m deep) with dense growth of rushes or sedges. Equally at home in aquatic or terrestrial habitats; often seen walking and grazing on land; feeds on grasses, bulbs and rhizomes. Activities are centred on wetlands, mainly those on floodplains of rivers and large shallow wetlands formed by run-off. Often seen in trios or flocks on shallow wetlands, dry ephemeral swamps, wet grasslands and floodplains; roosts in tall vegetation.	Unlikely - not a wetland	No
Animal>Birds	*Anthochaera phrygia*	Regent Honeyeater	Critically Endangered	Critically Endangered	Known	Breeding	Yes	The Regent Honeyeater mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia. Birds are also found in drier coastal woodlands and forests in some years. Range is between north-eastern Victoria and south-eastern Queensland. There are only three known key breeding regions remaining: north-east Victoria (Chiltern-Albury), and in NSW at Capertee Valley and the Bundarra-Barraba region. In the last 10 years Regent Honeyeaters have been recorded in urban areas around Albury where woodlands tree species such as Mugga Ironbark and Yellow Box were planted 20 years ago. The Regent Honeyeater is a generalist forager, although it feeds mainly on the nectar from a relatively small number of eucalypts that produce high volumes of nectar.	Unlikely - preferred vegetation not present	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Apus pacificus*	Fork-tailed Swift				Likely	No	In NSW, the Fork-tailed Swift is recorded in all regions. Many records occur east of the Great Divide, however, a few populations have been found west of the Great Divide. The Fork-tailed Swift is almost exclusively aerial, flying from less then 1 m to at least 300 m above ground and probably much higher. In Australia, they mostly occur over inland plains but sometimes above foothills or in coastal areas. They often occur over cliffs and beaches and also over islands and sometimes well out to sea. They also occur over settled areas, including towns, urban areas and cities. They mostly occur over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh. They are also found at treeless grassland and sandplains covered with spinifex, open farmland and inland and coastal sand-dunes. The sometimes occur above rainforests, wet sclerophyll forest or open forest or plantations of pines.	Potential - habitat generalist	No - bird almost exclusively aerial
Animal>Birds	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow	Vulnerable		Known		Yes	The Dusky Woodswallow is a woodland dependant bird. It is found in woodlands and dry open sclerophyll forests, usually dominated by eucalypts, including mallee associations. It has also been recorded in shrublands and heathlands and various modified habitats, including regenerating forests. Common habitat requirements are an open understorey with sparse eucalypt saplings, acacias and other shrubs, including heath. The ground cover may consist of grasses, sedges or open ground, often with coarse woody debris. Birds are also often observed in farm land, road sides and golf courses, usually at the edges of forest or woodland or wind breaks with dead timber.	Unlikely - preferred vegetation not present	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Botaurus poiciloptilus*	Australasian Bittern	Endangered		Predicted		No	The Australasian Bittern favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (Typha spp.) and spikerushes (Eleocharis spp.). Hides during the day amongst dense reeds or rushes and 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; platforms are often littered with prey remains. Breeding occurs in summer from October to January; nests are built in secluded places in densely-vegetated wetlands on a platform of reeds; there are usually six olive-brown eggs to a clutch.	Unlikely - not a wetland	No
Animal> Birds	*Burhinus grallarius*	Bush Stone-curlew	Endangered		Predicted		No	The Bush Stone-curlew is found throughout Australia except for the central southern coast and inland, the far south-east corner, and Tasmania. Only in northern Australia is it still common however and in the south-east it is either rare or extinct throughout its former range. Inhabits open forests and woodlands with a sparse grassy groundlayer and fallen timber.	Unlikely - preferred vegetation not present	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Calidris acuminata*	Sharp-tailed Sandpiper				Likely	Yes	The Sharp-tailed Sandpiper spends the non-breeding season in Australia with small numbers occurring regularly in New Zealand. Most of the population migrates to Australia, mostly to the south-east and are widespread in both inland and coastal locations and in both freshwater and saline habitats. Many inland records are of birds on passage. In Australasia, the Sharp-tailed Sandpiper prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline saltlakes inland. They also occur in saltworks and sewage farms. They use flooded paddocks, sedgelands and other ephemeral wetlands, but leave when they dry. They use intertidal mudflats in sheltered bays, inlets, estuaries or seashores, and also swamps and creeks lined with mangroves. They tend to occupy coastal mudflats mainly after ephemeral terrestrial wetlands have dried out, moving back during the wet season. They may be attracted to mats of algae and water weed either floating or washed up around terrestrial wetlands, and coastal areas with much beachcast seaweed. Sometimes they occur on rocky shores and rarely on exposed reefs.	Unlikely - not coastal	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Calidris ferruginea*	Curlew Sandpiper	Endangered	Critically Endangered	Known	May occur	No	In Australia, Curlew Sandpipers occur around the coasts and are also quite widespread inland, though in smaller numbers. Records occur in all states during the non-breeding period, and also during the breeding season when many non-breeding one year old birds remain in Australia rather than migrating north. Curlew Sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters. Occasionally they are recorded around floodwaters.	Unlikely - not coastal	No
Animal>Birds	*Calidris melanotos*	Pectoral Sandpiper				May occur	No	the Pectoral Sandpiper is widespread, but scattered. Records exist east of the Great Divide, from Casino and Ballina, south to Ulladulla. West of the Great Divide, the species is widespread in the Riverina and Lower Western regions. In Australasia, the Pectoral Sandpiper prefers shallow fresh to saline wetlands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands.	Unlikely - not coastal	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Callocephalon fimbriatum*	Gang-gang Cockatoo	Vulnerable		Known		Yes	The Gang-gang Cockatoo is distributed from southern Victoria through south- and central-eastern New South Wales. In New South Wales, the Gang-gang Cockatoo is distributed from the south-east coast to the Hunter region, and inland to the Central Tablelands and south-west slopes. It occurs regularly in the Australian Capital Territory. It is rare at the extremities of its range, with isolated records known from as far north as Coffs Harbour and as far west as Mudgee. In spring and summer, generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In autumn and winter, the species often moves to lower altitudes in drier more open eucalypt forests and woodlands,particularly box-gum and box-ironbark assemblages, or in dry forest in coastal areas and often found in urban areas.	Unlikely - preferred vegetation not present	No
Animal>Birds	*Calyptorhynchus lathami*	Glossy Black-Cockatoo	Vulnerable		Known		No	The Glossy Black-Cockatoo is uncommon although widespread throughout suitable forest and woodland habitats, from the central Queensland coast to East Gippsland in Victoria, and inland to the southern tablelands and central western plains of NSW, with a small population in the Riverina. An isolated population exists on Kangaroo Island, South Australia. Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur. Black Sheoak (Allocasuarina littoralis) and Forest Sheoak (A. torulosa) are important foods. Inland populations feed on a wide range of sheoaks, including Drooping Sheoak, Allocasuaraina diminuta, and A. gymnathera. Belah is also utilised and may be a critical food source for some populations. In the Riverina, birds are associated with hills and rocky rises supporting Drooping Sheoak, but also recorded in open woodlands dominated by Belah (Casuarina cristata). 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.	Unlikely - no evidence of feeding on Casuarinas present	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Chthonicola sagittata*	Speckled Warbler	Vulnerable		Known		No	The Speckled Warbler has a patchy distribution throughout south-eastern Queensland, the eastern half of NSW and into Victoria, as far west as the Grampians. The species is most frequently reported from the hills and tablelands of the Great Dividing Range, and rarely from the coast. The Speckled Warbler lives in a wide range of Eucalyptus dominated communities that have a grassy understorey, often on rocky ridges or in gullies. Typical habitat would include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy. Large, relatively undisturbed remnants are required for the species to persist in an area.	Unlikely - preferred vegetation not present	No
Animal>Birds	*Circus assimilis*	Spotted Harrier	Vulnerable		Known		Yes	The Spotted Harrier occurs throughout the Australian mainland, except in densly forested or wooded habitats of the coast, escarpment and ranges, and rarely in Tasmania. Individuals disperse widely in NSW and comprise a single population. Occurs in grassy open woodland including Acacia and mallee remnants, inland riparian woodland, grassland and shrub steppe. It is found most commonly in native grassland, but also occurs in agricultural land, foraging over open habitats including edges of inland wetlands.	Potential - suitable habitat	Yes

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Climacteris picumnus victoriae*	Brown Treecreeper (eastern subspecies)	Vulnerable		Known		No	The Brown Treecreeper is endemic to eastern Australia and occurs in eucalypt forests and woodlands of inland plains and slopes of the Great Dividing Range. It is less commonly found on coastal plains and ranges. The western boundary of the range of the species runs approximately through Corowa, Wagga Wagga, Temora, Forbes, Dubbo and Inverell. The eastern subspecies lives in eucalypt woodlands through central NSW and in coastal areas with drier open woodlands. Found in eucalypt woodlands (including Box-Gum Woodland) and dry open forest; mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey; also found in mallee and River Red Gum (Eucalyptus camaldulensis) Forest bordering wetlands with an open understorey of acacias, saltbush, lignum, cumbungi and grasses; usually not found in woodlands with a dense shrub layer; fallen timber is an important habitat component for foraging.	Unlikely - preferred vegetation not present	No
Animal>Birds	*Daphoenositta chrysoptera*	Varied Sittella	Vulnerable		Known		No	The Varied Sittella is sedentary and inhabits most of mainland Australia except the treeless deserts and open grasslands. Distribution in NSW is nearly continuous from the coast to the far west. Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland.	Unlikely - preferred vegetation not present	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Epthianura albifrons*	White-fronted Chat	Vulnerable		Known		No	The distribution of the White-fronted Chat extends across the southern half of Australia, from the southernmost areas of Queensland to southern Tasmania and across to Western Australia as far north as Carnarvon (Barrett et al. 2003). Found mostly in temperate to arid climates and very rarely seen in sub-tropical areas, the White-fronted Chat occupies foothills and lowlands below 1000 m above sea level (North 1904; Higgins et al. 2001; Barrett et al. 2003). In New South Wales the White-fronted Chat occurs mostly in the southern half of the state, occurring in damp open habitats along the coast, and near waterways in the western part of the state (Higgins et al. 2001). Along the coastline, White-fronted Chats are found predominantly in saltmarsh vegetation although they are also observed in open grasslands and sometimes in low shrubs bordering wetland areas. These birds are unlikely to fly over urbanised areas.	Unlikely - not riparian habitat	No
Animal>Birds	*Falco subniger*	Black Falcon	Vulnerable		Known		Yes	The Black Falcon is widely, but sparsely, distributed in New South Wales, mostly occurring in inland regions. In New South Wales there is assumed to be a single population that is continuous with a broader continental population, given that falcons are highly mobile, commonly travelling hundreds of kilometres. Populations are likely to occur in most substantial reserve of flat, open habitats in the arid and semi-arid zones, particularly those with riparian habitats. The Black Falcon inhabits woodland, shrubland and grassland in the arid and semi-arid zones, especially wooded (eucalyptdominated) watercourses; it also uses agricultural land with scattered remnant trees. The Falcon is often associated with streams or wetlands, visiting them in search of prey. It uses standing dead trees as lookout posts.	Potential - suitable habitat	Yes

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Gallinago hardwickii*	Latham's Snipe				May occur	Yes	Latham's Snipe is a non-breeding visitor to south-eastern Australia, and is a passage migrant through northern Australia. The species has been recorded along the east coast of Australia from Cape York Peninsula through to south-eastern South Australia. In Australia, Latham's Snipe occurs in permanent and ephemeral wetlands up to 2000 m above sea-level. They usually inhabit open, freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies) . However, they can also occur in habitats with saline or brackish water, in modified or artificial habitats, and in habitats located close to humans or human activity. The structure and composition of the vegetation that occurs around these wetlands is not important in determining the suitability of habitat (Naarding 1983).	Unlikely - not a wetland	No
Animal>Birds	*Glossopsitta pusilla*	Little Lorikeet	Vulnerable		Known		No	The Little Lorikeet is distributed widely across the coastal and Great Divide regions of eastern Australia from Cape York to South Australia. NSW provides a large portion of the species' core habitat, with lorikeets found westward as far as Dubbo and Albury. Forages primarily in the canopy of open Eucalyptus forest and woodland, yet also finds food in Angophora, Melaleuca and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity. Isolated flowering trees in open country, e.g. paddocks, roadside remnants and urban trees also help sustain viable populations of the species.	Unlikely - not riparian habitat	No
Animal>Birds	*Grantiella picta*	Painted Honeyeater	Vulnerable	Vulnerable	Known	Known	No	The greatest concentrations of the bird and almost all breeding occurs on the inland slopes of the Great Dividing Range in NSW, Victoria and southern Queensland. During the winter it is more likely to be found in the north of its distribution. Inhabits 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.	Unlikely - preferred vegetation not present	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Grus rubicunda*	Brolga	Vulnerable		Predicted		No	The Brolga was formerly found across Australia, except for the south-east corner, Tasmania and the south-western third of the country. It is still abundant in the northern tropics, but very sparse across the southern part of its range. 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.	Unlikely - not a wetland	No
Animal>Birds	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	Vulnerable		Known		No	The White-bellied Sea-Eagle is distributed along the coastline (including offshore islands) of mainland Australia and Tasmania. It also extends inland along some of the larger waterways, especially in eastern Australia. The habitats occupied by the sea-eagle are characterised by the presence of large areas of open water (larger rivers, swamps, lakes, the sea and sewage ponds). Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, forest (including rainforest) and even urban areas. Breeding territories are located close to water, and mainly in tall open forest or woodland, although nests are sometimes located in other habitats such as dense forest (including rainforest), closed scrub or in remnant trees on cleared land.	Unlikely - no riparian habitat	No
Animal>Birds	*Hieraaetus morphnoides*	Little Eagle	Vulnerable		Known		No	The Little Eagle is found throughout the Australian mainland excepting the most densely forested parts of the Dividing Range escarpment. It occurs as a single population throughout NSW. Occupies open eucalypt forest, woodland or open woodland. Sheoak or Acacia woodlands and riparian woodlands of interior NSW are also used. Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter.	Potential - suitable habitat	Yes

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Hirundapus caudacutus*	White-throated Needletail				Likely	No	The White-throated Needletail is widespread in across the coast of eastern and south-eastern Australia, and Tasmania. White-throated Needletails only occur as vagrants in the Northern Territory and in Western Australia. In Australia, the White-throated Needletail is almost exclusively aerial, from heights of less than 1 m up to more than 1000 m above the ground. Because they are aerial, it has been stated that conventional habitat descriptions are inapplicable (Cramp 1985), but there are, nevertheless, certain preferences exhibited by the species. They are probably recorded most often above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy, but they are less commonly recorded flying above woodland.	Potential - habitat generalist	No - bird almost exclusively aerial
Animal>Birds	*Lathamus discolor*	Swift Parrot	Endangered	Critically Endangered	Known	Likely	No	The Swift Parrot breeds in Tasmania during spring and summer, migrating in the autumn and winter months to south-eastern Australia from Victoria and the eastern parts of South Australia to south-east Queensland. In NSW mostly occurs on the coast and south west slopes. Migrates to the Australian south-east mainland between March and October. On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany Eucalyptus robusta, Spotted Gum Corymbia maculata, Red Bloodwood C. gummifera, Mugga Ironbark E. sideroxylon, and White Box E. albens. Commonly used lerp infested trees include Inland Grey Box E. microcarpa, Grey Box E. moluccana and Blackbutt E. pilularis.	Unlikely - preferred vegetation not present	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Leipoa ocellata*	Malleefowl	Endangered	Vulnerable		Likely	No	The stronghold for this species in NSW is the mallee in the south west centred on Mallee Cliffs NP and extending east to near Balranald and scattered records as far north as Mungo NP. West of the Darling River a population also occurs in the Scotia mallee including Tarawi NR and Scotia Sanctuary, and is part of a larger population north of the Murray River in South Australia. The population in central NSW has been significantly reduced through land clearance and fox predation and now occurs chiefly in Yathong, Nombinnie and Round Hill NRs and surrounding areas, though birds continue to survive in Loughnan NR. Predominantly inhabit mallee communities, preferring the tall, dense and floristically-rich mallee found in higher rainfall (300 - 450 mm mean annual rainfall) areas. Utilises mallee with a spinifex understorey, but usually at lower densities than in areas with a shrub understorey. Less frequently found in other eucalypt woodlands, such as Inland Grey Box, Ironbark or Bimble Box Woodlands with thick understorey, or in other woodlands such dominated by Mulga or native Cypress Pine species. Prefers areas of light sandy to sandy loam soils and habitats with a dense but discontinuous canopy and dense and diverse shrub and herb layers.	Unlikely - preferred vegetation not present	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Limosa limosa*	Black-tailed Godwit	Vulnerable		Predicted		No	The Black-tailed Godwit is found in all states and territories of Australia, however, it prefers coastal regions and the largest populations are found on the north coast between Darwin and Weipa. In Australia the Black-tailed Godwit has a primarily coastal habitat environment. The species is commonly found in sheltered bays, estuaries and lagoons with large intertidal mudflats or sandflats, or spits and banks of mud, sand or shell-grit; occasionally recorded on rocky coasts or coral islets. The use of habitat often depends on the stage of the tide. It is also found in shallow and sparsely vegetated, near-coastal, wetlands; such as saltmarsh, saltflats, river pools, swamps, lagoons and floodplains. There are a few inland records, around shallow, freshwater and saline lakes, swamps, dams and bore-overflows. They also use lagoons in sewage farms and saltworks.	Unlikely - not coastal	No
Animal>Birds	*Lophoictinia isura*	Square-tailed Kite	Vulnerable		Known		No	The Square-tailed Kite ranges along coastal and subcoastal areas from south-western to northern Australia, Queensland, NSW and Victoria. In NSW, scattered records of the species throughout the state indicate that the species is a regular resident in the north, north-east and along the major west-flowing river systems. Found in a variety of timbered habitats including dry woodlands and open forests. Shows a particular preference for timbered watercourses. In arid north-western NSW, has been observed in stony country with a ground cover of chenopods and grasses, open acacia scrub and patches of low open eucalypt woodland.	Potential - suitable habitat	Yes

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Melanodryas cucullata cucullata*	Hooded Robin (south-eastern form)	Vulnerable		Known		No	The Hooded Robin is widespread, found across Australia, except for the driest deserts and the wetter coastal areas - northern and eastern coastal Queensland and Tasmania. However, it is common in few places, and rarely found on the coast. Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas. Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses. Often perches on low dead stumps and fallen timber or on low-hanging branches, using a perch-and-pounce method of hunting insect prey.	Unlikely - preferred vegetation not present	No
Animal>Birds	*Melithreptus gularis gularis*	Black-chinned Honeyeater (eastern subspecies)	Vulnerable		Known		No	The eastern subspecies extends south from central Queensland, through NSW, Victoria into south eastern South Australia, though it is very rare in the last state. In NSW it is widespread, with records from the tablelands and western slopes of the Great Dividing Range to the north-west and central-west plains and the Riverina. It is rarely recorded east of the Great Dividing Range, although regularly observed from the Richmond and Clarence River areas. It has also been recorded at a few scattered sites in the Hunter, Central Coast and Illawarra regions, though it is very rare in the latter. Occupies mostly upper levels of drier open forests or woodlands dominated by box and ironbark eucalypts, especially Mugga Ironbark (Eucalyptus sideroxylon), White Box (E. albens), Inland Grey Box (E. microcarpa), Yellow Box (E. melliodora), Blakely's Red Gum (E. blakelyi) and Forest Red Gum (E. tereticornis). Also inhabits open forests of smooth-barked gums, stringybarks, ironbarks, river sheoaks (nesting habitat) and tea-trees	Unlikely - preferred vegetation not present	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Monarcha melanopsis*	Black-faced Monarch				Known	No	The Black-faced Monarch is widespread in eastern Australia. In Queensland, it is widespread from the islands of the Torres Strait and on Cape York Peninsula, south along the coasts (occasionally including offshore islands) and the eastern slopes of the Great Divide, to the New South Wales border. In New South Wales and the Australian Capital Territory, the species occurs around the eastern slopes and tablelands of the Great Divide, inland to Coutts Crossing, Armidale, Widden Valley, Wollemi National Park, Wombeyan Caves and Canberra. The Black-faced Monarch mainly occurs in rainforest ecosystems, including semi-deciduous vine-thickets, complex notophyll vine-forest, tropical (mesophyll) rainforest, subtropical (notophyll) rainforest, mesophyll (broadleaf) thicket/shrubland, warm temperate rainforest, dry (monsoon) rainforest and (occasionally) cool temperate rainforest.	Unlikely - no rainforest	No
Animal>Birds	*Motacilla flava*	Yellow Wagtail				May occur	No	Occurs throughout Australia. Can be found in a range of land uses including pastures, wetlands, shrublands, grasslands and man made environments. The yellow wagtail typically forages in damp grassland and on relatively bare open ground at edges of rivers, lakes and wetlands, but also feeds in dry grassland and in fields of cereal crops.	Unlikely - highly migratory and no records within 10km	No
Animal>Birds	*Myiagra cyanoleuca*	Satin Flycatcher				Known	No	The Satin Flycatcher is widespread in eastern Australia and vagrant to New Zealand (Blakers et al. 1984; Coates 1990a). In Queensland, it is widespread but scattered in the east, being recorded on passage on a few islands in the western Torres Strait. Satin Flycatchers inhabit heavily vegetated gullies in eucalypt-dominated forests and taller woodlands, and on migration, occur in coastal forests, woodlands, mangroves and drier woodlands and open forests. Satin Flycatchers mainly inhabit eucalypt forests, often near wetlands or watercourses. They generally occur in moister, taller forests than the Leaden Flycatcher, Myiagra rebecula, often occurring in gullies. They also occur in eucalypt woodlands with open understorey and grass ground cover, and are generally absent from rainforest.	Unlikely - no riparian habitat	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Neophema pulchella*	Turquoise Parrot	Vulnerable		Predicted		No	The Turquoise Parrot's range extends from southern Queensland through to northern Victoria, from the coastal plains to the western slopes of the Great Dividing Range. Lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland.	Unlikely - no hollows	No
Animal>Birds	*Ninox connivens*	Barking Owl	Vulnerable		Known		Yes	The Barking Owl is found throughout continental Australia except for the central arid regions and now occurs in a wide but sparse distribution in NSW. Core populations exist on the western slopes and plains (especially the Pilliga) and in some northeast coastal and escarpment forests. Sometimes extend their home range into urban areas, hunting birds in garden trees and insects attracted to streetlights. 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 on these fertile soils. Roost in shaded portions of tree canopies, including tall midstorey trees with dense foliage such as Acacia and Casuarina species.	Unlikely - no riparian habitat or hollows	No
Animal>Birds	*Ninox strenua*	Powerful Owl	Vulnerable		Known		No	The Powerful Owl is endemic to eastern and south-eastern Australia, mainly on the eastern side of the Great Dividing Range, from south-eastern Queensland to Victoria. The Powerful Owl is found in open forests and woodlands, as well as along sheltered gullies in wet forests with dense understoreys, especially along watercourses. Will sometimes be found in open areas near forests such as farmland, parks and suburban areas, as well as in remnant bushland patches. Needs old growth trees to nest.	Unlikely - no riparian habitat or hollows	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Numenius madagascariensis*	Eastern Curlew		Critically Endangered		May occur	No	Within Australia, the Eastern Curlew has a primarily coastal distribution. The species is found in all states and rarely inland. The Eastern Curlew is most commonly associated with sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats, often with beds of seagrass. Occasionally, the species occurs on ocean beaches (often near estuaries), and coral reefs, rock platforms, or rocky islets. The birds are often recorded among saltmarsh and on mudflats fringed by mangroves, and sometimes use the mangroves. The birds are also found in saltworks and sewage farms.	Unlikely - not coastal	No
Animal>Birds	*Oxyura australis*	Blue-billed Duck	Vulnerable		Known		No	The Blue-billed Duck is endemic to south-eastern and south-western Australia. It is widespread in NSW, but most common in the southern Murray-Darling Basin area. Birds disperse during the breeding season to deep swamps up to 300 km away. It is generally only during summer or in drier years that they are seen in coastal areas. The Blue-billed Duck prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation. The species is completely aquatic, swimming low in the water along the edge of dense cover. It will fly if disturbed, but prefers to dive if approached.	Unlikely - not a wetland	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Petroica boodang*	Scarlet Robin	Vulnerable		Known		No	The Scarlet Robin is found from south east Queensland to south east South Australia and also in Tasmania and south west Western Australia. In NSW, it occurs from the coast to the inland slopes. After breeding, some Scarlet Robins disperse to the lower valleys and plains of the tablelands and slopes. Some birds may appear as far west as the eastern edges of the inland plains in autumn and winter. The Scarlet Robin lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. This species lives in both mature and regrowth vegetation. It occasionally occurs in mallee or wet forest communities, or in wetlands and tea-tree swamps. Scarlet Robin habitat usually contains abundant logs and fallen timber: these are important components of its habitat. The Scarlet Robin breeds on ridges, hills and foothills of the western slopes, the Great Dividing Range and eastern coastal regions; this species is occasionally found up to 1000 metres in altitude. The Scarlet Robin is primarily a resident in forests and woodlands, but some adults and young birds disperse to more open habitats after breeding. In autumn and winter many Scarlet Robins live in open grassy woodlands, and grasslands or grazed paddocks with scattered trees.	Unlikely - lack of fallen timber	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Petroica phoenicea*	Flame Robin	Vulnerable		Known		No	The Flame Robin is endemic to south eastern Australia, and ranges from near the Queensland border to south east South Australia and also in Tasmania. In NSW, it breeds in upland areas and in winter, many birds move to the inland slopes and plains. Breeds in upland tall moist eucalypt forests and woodlands, often on ridges and slopes. Prefers clearings or areas with open understoreys. The groundlayer of the breeding habitat is dominated by native grasses and the shrub layer may be either sparse or dense. Occasionally occurs in temperate rainforest, and also in herbfields, heathlands, shrublands and sedgelands at high altitudes. In winter, birds migrate to drier more open habitats in the lowlands (i.e. valleys below the ranges, and to the western slopes and plains). Often occurs in recently burnt areas; however, habitat becomes unsuitable as vegetation closes up following regeneration. In winter lives in dry forests, open woodlands and in pastures and native grasslands, with or without scattered trees. In winter, occasionally seen in heathland or other shrublands in coastal areas.	Unlikely - preferred vegetation not present	No
Animal>Birds	*Phaethon rubricauda*	Red-tailed Tropicbird	Vulnerable		Known		Yes	The Tropicbird ranges throughout tropical and subtropical zones of the Indian and West Pacific Oceans, breeding on oceanic islands. Lord Howe Island is said to have the greatest breeding concentration in the world. Breeds in coastal cliffs and under bushes in tropical Australia. 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. Vagrant birds occur in coastal NSW waters, and occasionally even inland, particularly after storm events.	Unlikely - not coastal	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Polytelis swainsonii*	Superb Parrot	Vulnerable	Vulnerable	Predicted	May occur	No	The Superb Parrot is found throughout eastern inland NSW. On the South-western Slopes their core breeding area is roughly bounded by Cowra and Yass in the east, and Grenfell, Cootamundra and Coolac in the west. Birds breeding in this region are mainly absent during winter, when they migrate north to the region of the upper Namoi and Gwydir Rivers. The other main breeding sites are in the Riverina along the corridors of the Murray, Edward and Murrumbidgee Rivers where birds are present all year round. Inhabit Box-Gum, Box-Cypress-pine and Boree Woodlands and River Red Gum Forest. In the Riverina the birds nest in the hollows of large trees (dead or alive) mainly in tall riparian River Red Gum Forest or Woodland. On the South West Slopes nest trees can be in open Box-Gum Woodland or isolated paddock trees. Species known to be used are Blakely's Red Gum, Yellow Box, Apple Box and Red Box.	Unlikely - no hollows	No
Animal>Birds	*Pomatostomus temporalis temporalis*	Grey-crowned Babbler (eastern subspecies)	Vulnerable		Known		No	The eastern subspecies (temporalis occurs from Cape York south through Queensland, NSW and Victoria and formerly to the south east of South Australia. This subspecies also occurs in the Trans-Fly Region in southern New Guinea. In NSW, the eastern sub-species occurs on the western slopes of the Great Dividing Range, and on the western plains reaching as far as Louth and Balranald. It also occurs in woodlands in the Hunter Valley and in several locations on the north coast of NSW. It may be extinct in the southern, central and New England tablelands. Inhabits open Box-Gum Woodlands on the slopes, and Box-Cypress-pine and open Box Woodlands on alluvial plains. Woodlands on fertile soils in coastal regions.	Unlikely - no woodlands present	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Rhipidura rufifrons*	Rufous Fantail				Likely	No	The Rufous Fantail occurs in coastal and near coastal districts of northern and eastern Australia. In east and south-east Australia, the Rufous Fantail mainly inhabits wet sclerophyll forests, often in gullies dominated by eucalypts such as Tallow-wood (Eucalyptus microcorys), Mountain Grey Gum (E. cypellocarpa), Narrow-leaved Peppermint (E. radiata), Mountain Ash (E. regnans), Alpine Ash (E. delegatensis), Blackbutt (E. pilularis) or Red Mahogany (E. resinifera); usually with a dense shrubby understorey often including ferns. They also occur in subtropical and temperate rainforests; for example near Bega in south-east NSW, where they are recorded in temperate Lilly Pilly (Acmena smithi) rainforest, with Grey Myrtle (Backhousia myrtifolia), Sassafras (Doryphora sassafras) and Sweet Pittosporum (Pittosporum undulatum) subdominants. They occasionally occur in secondary regrowth, following logging or disturbance in forests or rainforests. When on passage, they are sometimes recorded in drier sclerophyll forests and woodlands, including Spotted Gum (Eucalyptus maculata), Yellow Box (E. melliodora), ironbarks or stringybarks, often with a shrubby or heath understorey. They are also recorded from parks and gardens when on passage. In north and north-east Australia, they often occur in tropical rainforest and monsoon rainforests, including semi-evergreen mesophyll vine forests, semi-deciduous vine thickets or thickets of Paperbarks (Melaleuca spp.) (Higgins et al. 2006).	Unlikely - no forests present	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Rostratula australis*	Australian Painted Snipe	Endangered	Endangered	Known	May occur	No	Most records of the Australian Painted Snipe are from the south east, particularly the Murray Darling Basin, with scattered records across northern Australia and historical records from around the Perth region in Western Australia. In NSW many records are from the Murray-Darling Basin including the Paroo wetlands, Lake Cowal, Macquarie Marshes, Fivebough Swamp and more recently, swamps near Balldale and Wanganella. Other important locations with recent records include wetlands on the Hawkesbury River and the Clarence and lower Hunter Valleys. Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Nests on the ground amongst tall vegetation, such as grasses, tussocks or reeds.	Unlikely - not a wetland	No
Animal>Birds	*Stagonopleura guttata*	Diamond Firetail	Vulnerable		Known		Yes	The Diamond Firetail is endemic to south-eastern Australia, extending from central Queensland to the Eyre Peninsula in South Australia. It is widely distributed in NSW, with a concentration of records from the Northern, Central and Southern Tablelands, the Northern, Cental and South Western Slopes and the North West Plains and Riverina. Not commonly found in coastal districts, though there are records from near Sydney, the Hunter Valley and the Bega Valley. This species has a scattered distribution over the rest of NSW, though is very rare west of the Darling River. Found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum Eucalyptus pauciflora Woodlands. Also occurs in open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities. Often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland.	Potential - nearby farm dams and lightly wooded area	Yes

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Birds	*Stictonetta naevosa*	Freckled Duck	Vulnerable		Known		No	The Freckled Duck is found primarily in south-eastern and south-western Australia, occurring as a vagrant elsewhere. It breeds in large temporary swamps created by floods in the Bulloo and Lake Eyre basins and the Murray-Darling system, particularly along the Paroo and Lachlan Rivers, and other rivers within the Riverina. The duck is forced to disperse during extensive inland droughts when wetlands in the Murray River basin provide important habitat. The species may also occur as far as coastal NSW and Victoria during such times. Prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds.	Potential - nearby farm dams	No - dams not affected by proposal
Animal>Birds	*Tyto novaehollandiae*	Masked Owl	Vulnerable		Known		No	The Masked Owl 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. Roosts and breeds in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting.	Unlikely - no riparian habitat or hollows	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Fish	*Maccullochella macquariensis*	Trout Cod	Endangered	Endangered		May occur	No	The single naturally occurring population is restricted to a small (approximately 120 km) stretch of the Murray River from below Yarrawonga Weir to Strathmerton , but is occasionally taken downstream as far as the Barmah State Forest and further downstream to Gunbower. The Trout Cod was introduced prior to 1918 to Cataract Dam in coastal NSW (outside the species range). The population is thought to have hybridised with Murray Cod (M. peelii peelii). Stocking sites include the Murray, Murrumbidgee, Macquarie and Abercrombie River catchments in NSW; the Goulburn, Ovens, Broken, Coliban and Mitta Mitta River catchments in Victoria; and the Murrumbidgee River catchment in the Australian Capital Territory. In NSW, stocked populations occur in the upper Murray River above the Hume Dam, upper Murrumbidgee River between Adaminaby and Murrells Crossing, near Cooma, middle sections of the Murrumbidgee River from Burrinjuck to Yanco Weir, the Macquarie River near Dubbo and Talbingo Dam in the Kosciusko National Park. The primary stocking sites in NSW include Angle Crossing, Wantabadgery, Collingullie, Narrandera and Yanco in the Murrumbidgee River system and Namina Falls and Devils Elbow in the Macquarie River System. Recent research in the Murray and Murrumbidgee Rivers show that Trout Cod occupy stream positions characterised by a high abundance of large woody debris (or 'snags') in water that is comparatively deep and close to riverbanks. However, midstream snags are also an important habitat component.	Unlikely - no water bodies in study area	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Fish	*Maccullochella peelii*	Murray Cod		Vulnerable		May occur	No	The Murray Cod was historically distributed throughout the Murray-Darling Basin (the Basin), with the exception of the upper reaches of some tributaries. The distribution of the Murray Cod occurs in the following bioregions according to the Interim Biogeographic Regionalisation for Australia (IBRA7) (DSEWPaC 2012ae): Murray-Darling Depression, Riverina, NSW South Western Slopes, South Eastern Highlands, Cobar Peneplain, Darling Riverine Plains, Brigalow Belt South and Nandewar. The Murray Cod utilises a diverse range of habitats from clear rocky streams, such as those found in the upper western slopes of NSW (including the ACT), to slow-flowing, turbid lowland rivers and billabongs. Murray Cod are frequently found in the main channels of rivers and larger tributaries. The species is, therefore, considered a main-channel specialist. Murray Cod tend to occur in floodplain channels and anabranches when they are inundated.	Unlikely - no water bodies in study area	No
Animal>Fish	*Macquaria australasica*	Macquarie Perch	Endangered	Endangered		May occur	No	Macquarie Perch are found in the Murray-Darling Basin (particularly upstream reaches) of the Lachlan, Murrumbidgee and Murray rivers, and parts of south-eastern coastal NSW, including the Hawkesbury/Nepean and Shoalhaven catchments. Macquarie perch are found in both river and lake habitats, especially the upper reaches of rivers and their tributaries.	Unlikely - no water bodies in study area	No
Animal>Invertebrates	*Paralucia spinifera*	Purple Copper Butterfly, Bathurst Copper Butterfly	Endangered	Vulnerable	Known	Likely	No	The Purple Copper Butterfly occurs on the Central Tablelands of NSW in an area approximately bounded by Oberon, Hartley and Bathurst. Geology, soils and dominant vegetation canopy species vary between habitat locations. However vegetation structure is consistent, commonly open woodland or open forest with a sparse understorey that is dominated by the shrub, Blackthorn Bursaria spinosa subsp. lasiophylla.	Unlikely - preferred vegetation not present	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Marsupials	*Cercartetus nanus*	Eastern Pygmy-possum	Vulnerable		Known		No	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 (Pseudocheirus peregrinus) dreys or thickets of vegetation, (e.g. grass-tree skirts).	Unlikely - no hollows	No
Animal>Marsupials	*Dasyurus maculatus*	Spotted-tailed Quoll	Vulnerable	Endangered	Known	Known	Yes	The spotted-tailed Quoll is recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Individual animals use hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites.	Unlikely - preferred vegetation not present	No
Animal>Marsupials	*Petauroides volans*	Greater Glider		Vulnerable		May occur	No	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. The greater glider favours forests with a diversity of eucalypt species, due to seasonal variation in its preferred tree species. Roosts in tree hollows and is more common in areas abundant in tree hollows.	Unlikely - no hollows	No
Animal>Marsupials	*Petaurus australis*	Yellow-bellied Glider	Vulnerable		Known		No	The Yellow-bellied Glider is found along the eastern coast to the western slopes of the Great Dividing Range, from southern Queensland to Victoria. Occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils.	Unlikely - no hollows	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Marsupials	*Petaurus norfolcensis*	Squirrel Glider	Vulnerable		Known		No	The Squirrel Glider is widely though sparsely distributed in eastern Australia, from northern Queensland to western Victoria. Inhabits 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. Prefers mixed species stands with a shrub or Acacia midstorey.	Unlikely - no hollows	No
Animal>Marsupials	*Petrogale penicillata*	Brush-tailed Rock-wallaby	Endangered	Vulnerable	Known	May occur	No	The range of the Brush-tailed Rock-wallaby extends from south-east Queensland to the Grampians in western Victoria, roughly following the line of the Great Dividing Range. However the distribution of the species across its original range has declined significantly in the west and south and has become more fragmented. In NSW they occur from the Queensland border in the north to the Shoalhaven in the south, with the population in the Warrumbungle Ranges being the western limit. Occupy rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges, often facing north. Browse on vegetation in and adjacent to rocky areas eating grasses and forbs as well as the foliage and fruits of shrubs and trees.	Unlikely - lack of rocks and preferred vegetation	No
Animal>Marsupials	*Phascogale tapoatafa*	Brush-tailed Phascogale	Vulnerable		Predicted		No	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 occassional records west ot 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.	Unlikely - preferred vegetation not present	No
Animal>Marsupials	*Phascolarctos cinereus*	Koala	Vulnerable	Vulnerable	Known	Known	Yes	The Koala has a fragmented distribution throughout eastern Australia from north-east Queensland to the Eyre Peninsula in South Australia. In NSW it mainly occurs on the central and north coasts with some populations in the west of the Great Dividing Range. Inhabit eucalypt woodlands and forests.	Unlikely - no feed trees or connected vegetation	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Reptiles	*Aprasia parapulchella*	Pink-tailed Legless Lizard	Vulnerable	Vulnerable	Known	May occur	No	There is a concentration of populations in the Canberra/Queanbeyan Region. Other populations have been recorded near Cooma, Yass, Bathurst, Albury and West Wyalong. This species is also found in the Australian Capital Territory. Inhabits sloping, open woodland areas with predominantly native grassy groundlayers, particularly those dominated by Kangaroo Grass (Themeda australis). Sites are typically well-drained, with rocky outcrops or scattered, partially-buried rocks. Commonly found beneath small, partially-embedded rocks and appear to spend considerable time in burrows below these rocks; the burrows have been constructed by and are often still inhabited by small black ants and termites.	Unlikely - lack of rocks and preferred vegetation	No
Animal>Reptiles	*Delma impar*	Striped Legless Lizard		Vulnerable		May occur	No	The Striped Legless Lizard occurs in the Southern Tablelands, the South West Slopes and possibly on the Riverina. Populations are known in the Goulburn, Yass, Queanbeyan, Cooma and Tumut areas. Found mainly in Natural Temperate Grassland but has also been captured in grasslands that have a high exotic component. Also found in secondary grassland near Natural Temperate Grassland and occasionally in open Box-Gum Woodland. Habitat is where grassland is dominated by perennial, tussock-forming grasses such as Kangaroo Grass Themeda australis, spear-grasses Austrostipa spp. and poa tussocks Poa spp., and occasionally wallaby grasses Austrodanthonia spp. Sometimes present in modified grasslands with a significant content of exotic grasses.	Unlikely - lack of rocks and preferred vegetation	No
Animal>Reptiles	*Hoplocephalus bungaroides*	Broad-headed Snake	Endangered		Known		No	The Broad-headed Snake is largely confined to Triassic and Permian sandstones, including the Hawkesbury, Narrabeen and Shoalhaven groups, within the coast and ranges in an area within approximately 250 km of Sydney. Shelters in rock crevices and under flat sandstone rocks on exposed cliff edges during autumn, winter and spring. Moves from the sandstone rocks to shelters in crevieces or hollows in large trees within 500m of escarpments in summer.	Unlikely - lack of rocks	No

Species Classification			Legislative Protection		Occurrence		Previously Recorded	Species Profile	OzArk Determination	
Class Name	Scientific Name	Common Name	TSC Act	EPBC Act	OEH	DoE	Within 10 km	Habit Description	Likelihood	Affected
Animal>Reptiles	*Suta flagellum*	Little Whip Snake	Vulnerable		Predicted		No	The Little Whip Snake is found within an area bounded by Crookwell in the north, Bombala in the south, Tumbarumba to the west and Braidwood to the east. Occurs in Natural Temperate Grasslands and grassy woodlands, including those dominated by Snow Gum Eucalyptus pauciflora or Yellow Box E. melliodora. Also occurs in secondary grasslands derived from clearing of woodlands. Found on well drained hillsides, mostly associated with scattered loose rocks.	Unlikely - lack of rocks and preferred vegetation	No
Animal>Reptiles	*Varanus rosenbergi*	Rosenberg's Goanna	Vulnerable		Known		No	Rosenberg's Goanna occurs on the Sydney Sandstone in Wollemi National Park to the north-west of Sydney, in the Goulburn and ACT regions and near Cooma in the south. There are records from the South West Slopes near Khancoban and Tooma River. Found in heath, open forest and woodland. Associated with termites, the mounds of which this species nests in; termite mounds are a critical habitat component. Individuals require large areas of habitat. Shelters in hollow logs, rock crevices and in burrows, which they may dig for themselves, or they may use other species' burrows, such as rabbit warrens.	Unlikely - no termite mounds	No

Appendix C: EPBC Act assessment of significance

There are no Commonwealth listed species predicted to be impacted by the proposal as per **Appendix B**.

Appendix D: TSC Act assessment of significance

1) In the case of a threatened species, the proposal is not likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.
2) In the case of an endangered population, the proposal is not likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.
3) In the case of an endangered ecological community or critically endangered ecological community:
    i. The proposal is not likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or
    ii. The proposal is not likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.
4) In relation to the habitat of a threatened species, population or ecological community:
    i. The extent to which habitat is likely to be removed or modified as a result of the proposal, and
    ii. That an area of habitat is not likely to become fragmented or isolated from other areas of habitat as a result of the Proposal, and
    iii. The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.
5) That the Proposal is not likely to have an adverse effect on critical habitat (either directly or indirectly).
6) That the Proposal is not consistent with the objectives or actions of a recovery plan or threat abatement plan.
7) That the Proposal constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

Key:

X = The development will not impact critical habitat.

+ = The proposal is not consistent with objectives or actions of a recovery plan or threat abatement plan.

= The proposed development constitutes or is part of a key threatening process:

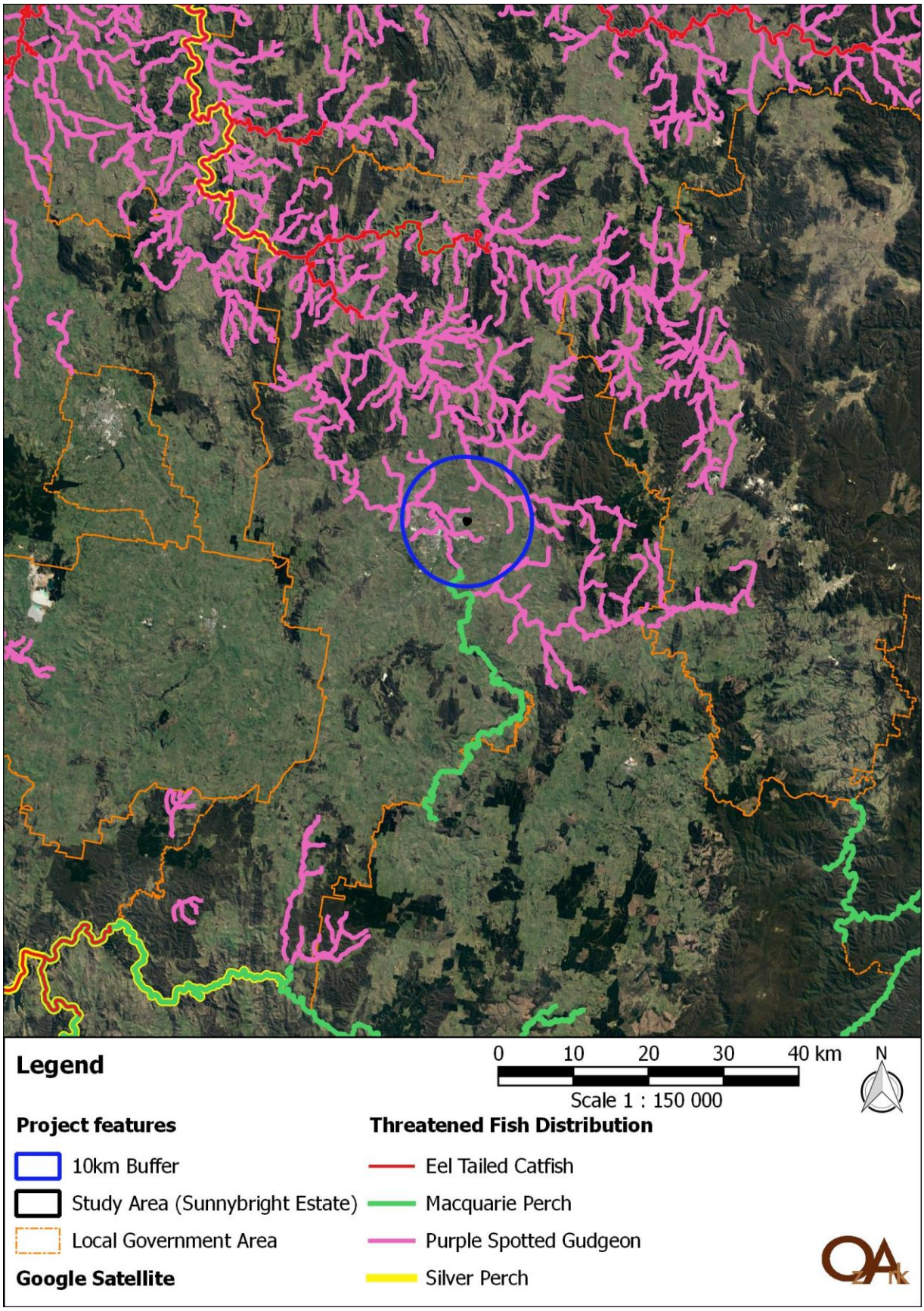
- Clearing of native vegetation.
- Invasion of native plant communities by exotic perennial grasses.
- Removal of dead wood and dead trees.

Species		7-Part Test Questions					
Scientific Name	**Common Name**	**1**	**2/3**	**4**	**5**	**6**	**7**
Raptors							
Circus assimilis	Spotted Harrier	All of these species, except for Square-tailed Kite, have been previously recorded within 10km of the study area. All birds nest high in the tree canopy in a large stick nest, preferably along vegetated riparian corridors. As the study area does not contain preferred roosting habitat (not on a major watercourse) and no nests were observed, the proposal is not expected to place a viable local population of any species at risk of extinction.	N/A	The proposal will clearing 27ha of non-native grassland which is considered potential feeding habitat for each of these raptors. This habitat type is present within the majority of the 10km buffer (approximately 30,000ha). Loss of 27ha of hunting range (less than 0.1% of land within the 10km buffer) is not considered to remove, modify, fragment or isolated habitat of any of these raptors to the extent that a local population is placed at risk of extinction.	X	+	#
Falco subniger	Black Falcon						
Hieraaetus morphnoides	Little Eagle						
Lophoictinia isura	Square-tailed Kite						
Small Woodland Birds							
Stagonopleura guttata	Diamond Firetail	Diamond Firetail has been previously recorded within 10km of the study area. It nests in shrubby understorey, or higher up, especially under hawk's or raven's nests. The subject site does not contain a shrubby understorey and no nests were observed. Therefore the proposal is not expected to disrupt the lifecycle of this species to the extent it places a viable local population at risk of extinction.	N/A	The proposal will clearing 27ha of non-native grassland which is considered potential feeding habitat for this species. This habitat type is present within the majority of the 10km buffer (approximately 30,000ha). Loss of 27ha of foraging and feeding habitat (less than 0.1% of land within the 10km buffer) is not considered to remove, modify, fragment or isolated habitat of this species to the extent that a local population is placed at risk of extinction.	X	+	#
Microbats							
Falsistrellus tasmaniensis	Eastern False Pipistrelle	Eastern Bentwing-bat is the only bat species to be previously recorded within 10km of the study area. This record is along the wooded road corridor of Sofala Road. This does not preclude the remaining bat species from being present, as a lack of records might be due to low microbat survey effort in the area. Each of these bat species can roost in man-made structures, which is the only suitable roost habitat present in the subject site. Except for the Yellow-bellied Sheathtail-bat, man-made structures are not the preferred roost habitat for these microbat species. The proposal will remove all potential roosting sites in the subject site. If	N/A	Suitable foraging habitat surrounds the subject site, including riparian corridors, orchards, the Macquarie River and Bathurst city. The proposal would clear approximately 27ha of non-native grassland, which would be potential feeding area, but less preferable to the surrounding feeding habitat listed above. The proposal will not clear habitat important to the survival of the species as the current habitat types are abundant within 10km of the study area. Therefore, the proposal is not considered to remove, modify, fragment or isolated habitat of any of these microbats to the	X	+	#
Miniopterus schreibersii oceanensis	Eastern Bentwing-bat						

Species		7-Part Test Questions					
Scientific Name	**Common Name**	**1**	**2/3**	**4**	**5**	**6**	**7**
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	these microbat species are present they will be temporarily displaced by the proposal but will be able to relocate to any of the surrounding suitable habitat present, including man-made structures on nearby agricultural land. Clearing of these man-made structures has been recommended for autumn and winter, outside of the main breeding period for these microbat species. If this is followed, the proposal is not considered to disrupt the lifecycle of these species to the extent it places a viable local population at risk of extinction.		extent that a local population is placed at risk of extinction.			

Appendix E: Database search results

Primary Industries (Fishing and Aquaculture)



Search results from NSW OEH Threatened Species Database (Central West CMA – Bathurst and Hill End sub-regions)

Scientific name	Common name	Type	NSW status	Occurrence
Litoria aurea	Green and Golden Bell Frog	Animal>Amphibians	Endangered	Known
Litoria booroolongensis	Booroolong Frog	Animal>Amphibians	Endangered	Known
Litoria castanea	Yellow-spotted Tree Frog	Animal>Amphibians	Critically Endangered	Known
Litoria raniformis	Southern Bell Frog	Animal>Amphibians	Endangered	Known
Chalinolobus dwyeri	Large-eared Pied Bat	Animal>Bats	Vulnerable	Known
Falsistrellus tasmaniensis	Eastern False Pipistrelle	Animal>Bats	Vulnerable	Known
Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	Animal>Bats	Vulnerable	Known
Pteropus poliocephalus	Grey-headed Flying-fox	Animal>Bats	Vulnerable	Known
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	Animal>Bats	Vulnerable	Known
Scoteanax rueppellii	Greater Broad-nosed Bat	Animal>Bats	Vulnerable	Predicted
Anseranas semipalmata	Magpie Goose	Animal>Birds	Vulnerable	Known
Anthochaera phrygia	Regent Honeyeater	Animal>Birds	Critically Endangered	Known
Artamus cyanopterus cyanopterus	Dusky Woodswallow	Animal>Birds	Vulnerable	Known
Botaurus poiciloptilus	Australasian Bittern	Animal>Birds	Endangered	Predicted
Burhinus grallarius	Bush Stone-curlew	Animal>Birds	Endangered	Predicted
Calidris ferruginea	Curlew Sandpiper	Animal>Birds	Endangered	Known
Callocephalon fimbriatum	Gang-gang Cockatoo	Animal>Birds	Vulnerable	Known
Calyptorhynchus lathami	Glossy Black-Cockatoo	Animal>Birds	Vulnerable	Known
Chthonicola sagittata	Speckled Warbler	Animal>Birds	Vulnerable	Known
Circus assimilis	Spotted Harrier	Animal>Birds	Vulnerable	Known
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Animal>Birds	Vulnerable	Known
Daphoenositta chrysoptera	Varied Sittella	Animal>Birds	Vulnerable	Known
Epthianura albifrons	White-fronted Chat	Animal>Birds	Vulnerable	Known
Falco subniger	Black Falcon	Animal>Birds	Vulnerable	Known
Glossopsitta pusilla	Little Lorikeet	Animal>Birds	Vulnerable	Known
Grantiella picta	Painted Honeyeater	Animal>Birds	Vulnerable	Known
Grus rubicunda	Brolga	Animal>Birds	Vulnerable	Predicted
Haliaeetus leucogaster	White-bellied Sea-Eagle	Animal>Birds	Vulnerable	Predicted
Hieraaetus morphnoides	Little Eagle	Animal>Birds	Vulnerable	Known
Lathamus discolor	Swift Parrot	Animal>Birds	Endangered	Known
Limosa limosa	Black-tailed Godwit	Animal>Birds	Vulnerable	Predicted
Lophoictinia isura	Square-tailed Kite	Animal>Birds	Vulnerable	Known
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	Animal>Birds	Vulnerable	Known

Scientific name	Common name	Type	NSW status	Occurrence
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	Animal>Birds	Vulnerable	Known
Neophema pulchella	Turquoise Parrot	Animal>Birds	Vulnerable	Predicted
Ninox connivens	Barking Owl	Animal>Birds	Vulnerable	Known
Ninox strenua	Powerful Owl	Animal>Birds	Vulnerable	Known
Oxyura australis	Blue-billed Duck	Animal>Birds	Vulnerable	Known
Petroica boodang	Scarlet Robin	Animal>Birds	Vulnerable	Known
Petroica phoenicea	Flame Robin	Animal>Birds	Vulnerable	Known
Phaethon rubricauda	Red-tailed Tropicbird	Animal>Birds	Vulnerable	Known
Polytelis swainsonii	Superb Parrot	Animal>Birds	Vulnerable	Predicted
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	Animal>Birds	Vulnerable	Known
Rostratula australis	Australian Painted Snipe	Animal>Birds	Endangered	Known
Stagonopleura guttata	Diamond Firetail	Animal>Birds	Vulnerable	Known
Stictonetta naevosa	Freckled Duck	Animal>Birds	Vulnerable	Known
Tyto novaehollandiae	Masked Owl	Animal>Birds	Vulnerable	Known
Paralucia spinifera	Purple Copper Butterfly, Bathurst Copper Butterfly	Animal>Invertebrates	Endangered	Known
Cercartetus nanus	Eastern Pygmy-possum	Animal>Marsupials	Vulnerable	Known
Dasyurus maculatus	Spotted-tailed Quoll	Animal>Marsupials	Vulnerable	Known
Petaurus australis	Yellow-bellied Glider	Animal>Marsupials	Vulnerable	Known
Petaurus norfolcensis	Squirrel Glider	Animal>Marsupials	Vulnerable	Known
Petrogale penicillata	Brush-tailed Rock-wallaby	Animal>Marsupials	Endangered	Known
Phascogale tapoatafa	Brush-tailed Phascogale	Animal>Marsupials	Vulnerable	Predicted
Phascolarctos cinereus	Koala	Animal>Marsupials	Vulnerable	Known
Aprasia parapulchella	Pink-tailed Legless Lizard	Animal>Reptiles	Vulnerable	Known
Hoplocephalus bungaroides	Broad-headed Snake	Animal>Reptiles	Endangered	Known
Suta flagellum	Little Whip Snake	Animal>Reptiles	Vulnerable	Predicted
Varanus rosenbergi	Rosenberg's Goanna	Animal>Reptiles	Vulnerable	Known
Tableland Basalt Forest in the Sydney Basin and South Eastern Highlands Bioregions	Tableland Basalt Forest in the Sydney Basin and South Eastern Highlands Bioregions	Community>Threatened Ecological Communities	Endangered Ecological Community	Predicted
White Box Yellow Box Blakely's Red Gum Woodland	White Box Yellow Box Blakely's Red Gum Woodland	Community>Threatened Ecological Communities	Endangered Ecological Community	Known
Euphrasia scabra	Rough Eyebright	Plant>Herbs and Forbs	Endangered	Known
Lepidium hyssopifolium	Aromatic Peppercress	Plant>Herbs and Forbs	Endangered	Known
Swainsona sericea	Silky Swainson-pea	Plant>Herbs and Forbs	Vulnerable	Known
Eucalyptus pulverulenta	Silver-leafed Gum	Plant>Mallees	Vulnerable	Known
Caladenia attenuata	Duramana Fingers	Plant>Orchids	Critically Endangered	Predicted

Scientific name	Common name	Type	NSW status	Occurrence
Acacia ausfeldii	Ausfeld's Wattle	Plant>Shrubs	Vulnerable	Known
Acacia meiantha	Acacia meiantha	Plant>Shrubs	Endangered	Known
Grevillea divaricata	Grevillea divaricata	Plant>Shrubs	Endangered	Known
Persoonia marginata	Clandulla Geebung	Plant>Shrubs	Vulnerable	Known
Veronica blakelyi	Veronica blakelyi	Plant>Shrubs	Vulnerable	Known
Zieria obcordata	Obcordate-leafed Zieria	Plant>Shrubs	Endangered	Known
Eucalyptus aggregata	Black Gum	Plant>Trees	Vulnerable	Known
Eucalyptus cannonii	Capertee Stringybark	Plant>Trees	Vulnerable	Known
Eucalyptus robertsonii subsp. hemisphaerica	Robertson's Peppermint	Plant>Trees	Vulnerable	Known
Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations	Infection by Psittacine circoviral (beak and feather) disease affecting endangered psittacine species	Threat>Disease	Key Threatening Process	Predicted
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis	Infection of frogs by amphibian chytrid causing the disease chytridiomycosis	Threat>Disease	Key Threatening Process	Predicted
Infection of native plants by Phytophthora cinnamomi	Infection of native plants by Phytophthora cinnamomi	Threat>Disease	Key Threatening Process	Predicted
Alteration of habitat following subsidence due to longwall mining	Alteration of habitat following subsidence due to longwall mining	Threat>Habitat Loss/Change	Key Threatening Process	Predicted
Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands	Alteration to the natural flow regimes of rivers, streams, floodplains & wetlands.	Threat>Habitat Loss/Change	Key Threatening Process	Predicted
Anthropogenic Climate Change	Human-caused Climate Change	Threat>Habitat Loss/Change	Key Threatening Process	Predicted
Bushrock removal	Bushrock Removal	Threat>Habitat Loss/Change	Key Threatening Process	Predicted
Clearing of native vegetation	Clearing of native vegetation	Threat>Habitat Loss/Change	Key Threatening Process	Predicted
High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition	Ecological consequences of high frequency fires	Threat>Habitat Loss/Change	Key Threatening Process	Predicted
Loss of Hollow-bearing Trees	Loss of Hollow-bearing Trees	Threat>Habitat Loss/Change	Key Threatening Process	Predicted
Loss or degradation (or both) of sites used for hill-topping by butterflies	Loss and/or degradation of sites used for hill-topping by butterflies	Threat>Habitat Loss/Change	Key Threatening Process	Predicted
Removal of dead wood and dead trees	Removal of dead wood and dead trees	Threat>Habitat Loss/Change	Key Threatening Process	Predicted

Scientific name	Common name	Type	NSW status	Occurrence
Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners	Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners	Threat>Other Threat	Key Threatening Process	Predicted
Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners Manorina melanocephala	Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners Manorina melanocephala."	Threat>Pest Animal	Key Threatening Process	Predicted
Competition and grazing by the feral European Rabbit, Oryctolagus cuniculus (L.)	Competition and grazing by the feral European rabbit	Threat>Pest Animal	Key Threatening Process	Predicted
Competition and habitat degradation by Feral Goats, Capra hircus Linnaeus 1758	Competition and habitat degradation by Feral Goats, Capra hircus Linnaeus 1758"	Threat>Pest Animal	Key Threatening Process	Predicted
Competition from feral honey bees, Apis mellifera L.	Competition from feral honeybees	Threat>Pest Animal	Key Threatening Process	Predicted
Herbivory and environmental degradation caused by feral deer	Herbivory and environmental degradation caused by feral deer	Threat>Pest Animal	Key Threatening Process	Predicted
Importation of Red Imported Fire Ants Solenopsis invicta Buren 1972	Importation of red imported fire ants into NSW	Threat>Pest Animal	Key Threatening Process	Predicted
Introduction of the Large Earth Bumblebee Bombus terrestris (L.)	Introduction of the large earth bumblebee (Bombus terrestris)	Threat>Pest Animal	Key Threatening Process	Predicted
Invasion and establishment of the Cane Toad (Bufo marinus)	Invasion and establishment of the Cane Toad	Threat>Pest Animal	Key Threatening Process	Predicted
Invasion of the Yellow Crazy Ant, Anoplolepis gracilipes (Fr. Smith) into NSW	Invasion of the yellow crazy ant (Anoplolepis gracilipes) into NSW	Threat>Pest Animal	Key Threatening Process	Predicted
Predation and hybridisation by Feral Dogs, Canis lupus familiaris	Predation and hybridisation by Feral Dogs, Canis lupus familiaris	Threat>Pest Animal	Key Threatening Process	Predicted
Predation by Gambusia holbrooki Girard, 1859 (Plague Minnow or Mosquito Fish)	Predation by the Plague Minnow (Gambusia holbrooki)	Threat>Pest Animal	Key Threatening Process	Predicted
Predation by the European Red Fox Vulpes Vulpes (Linnaeus, 1758)	Predation by the European Red Fox	Threat>Pest Animal	Key Threatening Process	Predicted
Predation by the Feral Cat Felis catus (Linnaeus, 1758)	Predation by feral cats	Threat>Pest Animal	Key Threatening Process	Predicted
Predation, habitat degradation, competition and disease transmission by Feral Pigs, Sus scrofa Linnaeus 1758	Predation, habitat degradation, competition and disease transmission by Feral Pigs (Sus scrofa)	Threat>Pest Animal	Key Threatening Process	Predicted

Scientific name	Common name	Type	NSW status	Occurrence
Invasion and establishment of exotic vines and scramblers	Invasion and establishment of exotic vines and scramblers	Threat>Weed	Key Threatening Process	Predicted
Invasion and establishment of Scotch Broom (Cytisus scoparius)	Invasion and establishment of Scotch Broom (Cytisus scoparius)	Threat>Weed	Key Threatening Process	Predicted
Invasion of native plant communities by African Olive Olea europaea subsp. cuspidata (Wall. ex G. Don) Cif.	Invasion of native plant communities by African Olive Olea europaea subsp. cuspidata (Wall. ex G. Don) Cif.	Threat>Weed	Key Threatening Process	Predicted
Invasion of native plant communities by Chrysanthemoides monilifera	Invasion of native plant communities by bitou bush & boneseed	Threat>Weed	Key Threatening Process	Predicted
Invasion of native plant communities by exotic perennial grasses	Invasion of native plant communities by exotic grasses"	Threat>Weed	Key Threatening Process	Predicted
Invasion, establishment and spread of Lantana (Lantana camara L. sens. Lat)	Invasion, establishment and spread of Lantana (Lantana camara L. sens. Lat)	Threat>Weed	Key Threatening Process	Predicted
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	Threat>Weed	Key Threatening Process	Predicted

EPBC Protected matters report

Australian Government
Department of the Environment and Energy

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.

Report created: 21/07/17 10:00:28

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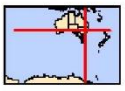
Coordinates
Buffer: 10.0Km



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:	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	30
Listed Migratory Species:	12

Other Matters Protected by the EPBC Act

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

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at 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 Land:	8
Commonwealth Heritage Places:	None
Listed Marine Species:	18
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	30
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)	[Resource Information]
Name	Proximity
Banrock station wetland complex	800 - 900km upstream
Riverland	700 - 800km upstream
The coorong, and lakes alexandrina and albert wetland	900 - 1000km upstream
The macquarie marshes	300 - 400km upstream

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
Natural Temperate Grassland of the South Eastern Highlands	Critically Endangered	Community likely to occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Anthochaera phrygia		
Regent Honeyeater [82338]	Critically Endangered	Breeding known to occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Grantiella picta		
Painted Honeyeater [470]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor		
Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Leipoa ocellata		
Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Polytelis swainsonii		
Superb Parrot [738]	Vulnerable	Species or species habitat may occur within area
Rostratula australis		
Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Fish		
Maccullochella macquariensis		
Trout Cod [26171]	Endangered	Species or species habitat may occur within

Name	Status	Type of Presence
		area
Maccullochella peelii		
Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area
Macquaria australasica		
Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area
Frogs		
Litoria aurea		
Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat may occur within area
Litoria booroolongensis		
Booroolong Frog [1844]	Endangered	Species or species habitat likely to occur within area
Litoria castanea		
Yellow-spotted Tree Frog, Yellow-spotted Bell Frog [1848]	Endangered	Species or species habitat likely to occur within area
Insects		
Paralucia spinifera		
Bathurst Copper Butterfly, Purple Copper Butterfly, Bathurst Copper, Bathurst Copper Wing, Bathurst-Lithgow Copper, Purple Copper [26335]	Vulnerable	Species or species habitat likely to occur within area
Mammals		
Chalinolobus dwyeri		
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to 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
Petauroides volans		
Greater Glider [254]	Vulnerable	Species or species habitat may 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
Pteropus poliocephalus		
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area
Plants		
Dichanthium setosum		
bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus pulverulenta		
Silver-leaved Mountain Gum, Silver-leaved Gum [21537]	Vulnerable	Species or species habitat likely to occur within area
Euphrasia arguta		
[4325]	Critically Endangered	Species or species habitat may occur within area
Lepidium hyssopifolium		
Basalt Pepper-cress, Peppercress, Rubble Pepper-cress, Pepperweed [16542]	Endangered	Species or species habitat known to occur within area
Leucochrysum albicans var. tricolor		
Hoary Sunray, Grassland Paper-daisy [56204]	Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Philotheca ericifolia [64942]	Vulnerable	Species or species habitat may occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area
Reptiles		
Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat may occur within area
Delma impar Striped Legless Lizard [1649]	Vulnerable	Species or species habitat may 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
Migratory Terrestrial Species		
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat likely to occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may 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 likely to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may 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 Postal Commission
Commonwealth Land - Australian Telecommunications Commission
Commonwealth Land - Australian Telecommunications Corporation
Commonwealth Land - Defence Housing Authority
Commonwealth Land - Defence Service Homes Corporation
Commonwealth Land - Telstra Corporation Limited
Defence - KELSO ORDINANCE DEPOT
Defence - RACECOURSE DEPOT (BATHURST TRAINING/STORES DEPOT)

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		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat likely to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area

Extra Information

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 Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Alauda arvensis Skylark [656]		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
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Passer montanus Eurasian Tree Sparrow [406]		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
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
Capra hircus Goat [2]		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
Feral deer Feral deer species in Australia [85733]		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
Oryctolagus cuniculus Rabbit, European Rabbit [128]		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		
Cytisus scoparius Broom, English Broom, Scotch Broom, Common Broom, Scottish Broom, Spanish Broom [5934]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur

Name	Status	Type of Presence within area
Nassella neesiana Chilean Needle grass [67699]		Species or species habitat likely to occur within area
Nassella trichotoma Serrated Tussock, Yass River Tussock, Yass Tussock, Nassella Tussock (NZ) [18884]		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
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
Ulex europaeus Gorse, Furze [7693]		Species or species habitat likely to occur within area

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 and National Heritage properties, Wetlands of International and National 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.

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

Where very little information is available for 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 reliable distribution mapping methods are used to update these distributions as time permits.

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.

Coordinates

-33.402352 149.617497,-33.403265 149.62505,-33.406006 149.626144,-33.409159 149.620458,-33.406902 149.619084,-33.404161 149.618076,-33.402352 149.617497

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-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
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-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.

Appendix F: Terms and abbreviations

Terms and abbreviations used in this report

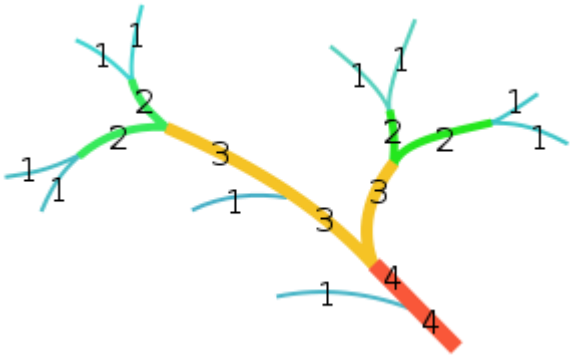
Abbreviation	Terminology	Description
	Assessment of significance	The Assessment of Significance refers to the factors that must be considered by decision makers to assess whether a proposal is likely to have a significant effect on threatened biodiversity. These mechanisms are contained in s5A of the EP&A Act and s94 of the TSC Act.
BoM	Australian Bureau of Meteorology	The Bureau of Meteorology is Australia's national weather, climate and water agency.
CAMBA	China-Australia Migratory Bird Agreement	A bilateral migratory bird agreement with China entered into in 1986. It provides an important mechanism for pursuing conservation outcomes for migratory birds, including migratory waterbirds.
CMA	Catchment Management Authority	Bodies established across New South Wales to ensure regional communities have a say in how natural resources are managed in their catchments. CMA's have now been replaced with LLS's.
	Consent authority	in relation to a development application or an application for a complying development certificate, means: The council having the function to determine the application, or If a provision of this Act, the regulations or an environmental planning instrument specifies a Minister, the Planning Assessment Commission, a joint regional planning panel or public authority (other than a council) as having the function to determine the application-that Minister, Commission, panel or authority, as the case may be.
	Critical habitat	Critical habitat is defined as an area crucial to the survival of an endangered species, population or ecological community. The declaration of critical habitat provides greater protection and stricter controls over activities in the area.
	Cumulative impacts	Impacts, when considered together, lead to a stronger impact than any impact in isolation.
	Direct impacts	Directly affect the habitat and individuals. They include, but are not limited to, death through predation, trampling, poisoning of the animal/plant itself and the removal of suitable habitat. When applying each factor, consideration must be given to all of the likely direct impacts of the proposed activity or development.
DoE	Australian Government Department of Environment.	The Department of the Environment designs and implements the Australian Government's policies and programmes to protect and conserve the environment, water and heritage and promote climate action.
DP	Deposited Plan	A plan of land deposited in Land and Property Information (part of the Land Management Authority) and used for legal identification purposes. They most commonly depict a subdivision of a parcel of land.
EEC	Endangered Ecological Community	An ecological community identified by relevant legislation likely to become extinct or is in immediate danger of extinction.
	Edge effects	A change in species composition, physical conditions or other ecological factors at the boundary between two ecosystems or the ecological changes carried out at the boundaries of ecosystems (including changes in species composition, gradients of moisture, sunlight, soil and air temperature, wind speed and other factors).
	Environment	The environment includes all aspects of the surroundings of humans, whether affecting any human as an individual or in his or her social groupings.
EPA	Environment Protection Authority	Their purpose is to improve environmental performance and waste management for NSW. The EPA works with community, business, industry and government to maintain a balance between protecting the environment, managing competing demands on the environment and supporting sustainable growth.

Abbreviation	Terminology	Description
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW).	Provides the legislative framework for land use planning and development assessment in NSW.
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth).	Provides for the protection of the environment, especially matters of national environmental significance, and provides a national assessment and approvals process.
EPI	Environmental Planning Instrument	Environmental planning instruments are fundamental documents governing development of land in NSW. They are made under Part 3 of the EP&A Act for the purposes of achieving any of the objects under that Act.
ESD	Ecologically sustainable development.	Development which uses, conserves and enhances the resources of the community so ecological processes on which life depends, are maintained and the total quality of life, now and in the future, can be increased.
FM Act	*Fisheries Management Act 1994* (NSW)	The objects of this Act are to conserve, develop and share the fishery resources of the State for the benefit of present and future generations. This Act protects aquatic habitats and species which are not protected under the TSC Act.
GDA	Geocentric Datum of Australia	The Geocentric Datum of Australia (GDA) is the latest Australian coordinate system, replacing the Australian Geodetic Datum (AGD). The GDA is a part of a global coordinate reference frame and is directly compatible with the Global Navigation Satellite Systems.
GDE	Groundwater Dependent Ecosystems	Six types of groundwater dependent ecosystems are conventionally recognised in Australia: Terrestrial vegetation relies the availability of shallow groundwater. Wetlands such as paperbark swamp forests and mound springs ecosystems. River base flow systems where a groundwater discharge provides a base flow component to the river's discharge. Aquifer and cave ecosystems where life exists independent of sunlight Terrestrial fauna, both native and introduced, dependant on groundwater as a source of drinking water. Estuarine and near shore marine systems, such as some coastal mangroves, salt marshes and sea grass beds, which rely on the submarine discharge of groundwater.
GIS	Geographic Information System	A geographic information system (GIS) is a system designed to capture, store, manipulate, analyse, manage, and present all types of spatial or geographical data.
GPS	Global Positioning System	A hand held device capable of applying location coordinates to digital objects such as photographs and GIS data such as lines or points.
	Habitat	The area occupied, or periodically or occasionally occupied, by any threatened species, population or ecological community and includes all the different aspects (both biotic and abiotic) used by species during the different stages of their life cycles.
IBRA	Interim Biogeographic Regionalisation of Australia	The Interim Biogeographic Regionalisation for Australia (IBRA) is a biogeographic regionalisation of Australia developed by the Australian Government's Department of the Environment. Each region is a land area made up of a group of interacting ecosystems repeated in similar form across the landscape.
	Indirect impacts	Occur when project-related activities affect species, populations or ecological communities in a manner other than direct loss. Indirect impacts can include loss of individuals through starvation, exposure, predation by domestic and/or feral animals, loss of breeding opportunities, loss of shade/shelter, deleterious hydrological changes, increased soil salinity, erosion, inhibition of nitrogen fixation, weed invasion, fertiliser

Abbreviation	Terminology	Description
		drift, or increased human activity within or directly adjacent to sensitive habitat areas. As with direct impacts, consideration must be given, when applying each factor, to all of the likely indirect impacts of the proposed activity or development.
JAMBA	Japan-Australia Migratory Bird Agreement	A bilateral migratory bird agreement with Japan entered into in 1974. It provides an important mechanism for pursuing conservation outcomes for migratory birds, including migratory waterbirds.
KTP	Key Threatening Process	A key threatening process is defined as a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, populations or ecological communities. A requirement of their listing on the TSC Act is that the process adversely affects two or more threatened species, populations or ecological communities, or may cause species, populations or ecological communities not threatened to become threatened.
LEP	Local Environmental Plan	A type of planning instrument made under Part 3 of the EP&A Act.
	Life cycle	The series or stages of reproduction, growth, development, ageing and death of an organism.
LG Act	*Local Government Act 1993*	The purposes of this Act are as follows: to provide the legal framework for an effective, efficient, environmentally responsible and open system of local government in New South Wales, to regulate the relationships between the people and bodies comprising the system of local government in New South Wales, to encourage and assist the effective participation of local communities in the affairs of local government, to give councils: the ability to provide goods, services and facilities, and to carry out activities, appropriate to the current and future needs of local communities and of the wider public the responsibility for administering some regulatory systems under this Act a role in the management, improvement and development of the resources of their areas, to require councils, councillors and council employees to have regard to the principles of ecologically sustainable development in carrying out their responsibilities.
LGA	Local Government Area	The relevant LGA is Governed by Council who are the determining authority for this development application.
LLS	Local Land Services	Launched in January 2014. Each LLS delivers services to farmers, landholders and the community across rural and regional New South Wales. LLS bring together agricultural production advice, biosecurity, natural resource management and emergency management into a single organisation.
	Local population	The population occurs in the study area. The assessment of the local population may be extended to include individuals beyond the study area if it can be clearly demonstrated contiguous or interconnecting parts of the population continue beyond the study area. The local population of a threatened plant species comprises those individuals occurring in the study area or the cluster of individuals extend into habitat adjoining and contiguous with the study area could reasonably be expected to be cross-pollinating with those in the study area. The local population of resident fauna species comprises those individuals known or likely to occur in the study area, as well as any individuals occurring in adjoining areas (contiguous or otherwise) are known or likely to utilise habitats in the study area. The local population of migratory or nomadic fauna species comprises those individuals likely to occur in the study area from time to time.

Abbreviation	Terminology	Description
	Local population (EEC)	The ecological community present within the study area. However, the local occurrence may include adjacent areas if the ecological community on the study area forms part of a larger contiguous area of the ecological community and the movement of individuals and exchange of genetic material across the boundary of the study area can be clearly demonstrated.
	Locality	The area within a 50 kilometre radius of the subject site.
MNES	Matters of national environmental significance.	Refers to the seven matters of national environmental significance outlined under the EPBC Act.
NOW	NSW Office of Water	The NSW Office of Water in the Department of Primary Industries is responsible for the management of the state's surface water and groundwater resources. The Department of Primary Industries is a division within NSW Trade and Investment. The Office of Water reports to the NSW Government for water policy and the administration of key water management legislation, including the *Water Management Act 2000* and *Water Act 1912*.
Noxious Weeds Act	*Noxious Weeds Act 1993* (NSW)	The objects of this Act are as follows: • to reduce the negative impact of weeds on the economy, community and environment of this State by establishing control mechanisms to: • prevent the establishment in this state of significant new weeds, and • prevent, eliminate or restrict the spread in this state of particular significant weeds, and • effectively manage widespread significant weeds in this state, • to provide for the monitoring of and reporting on the effectiveness of the management of weeds in this state.
NPW Act	*National Parks and Wildlife Act 1974* (NSW)	The objects of this Act are as follows: • The conservation of nature, including, but not limited to, the conservation of: • habitat, ecosystems and ecosystem processes, and • biological diversity at the community, species and genetic levels, and • landforms of significance, including geological features and processes, and • landscapes and natural features of significance including wilderness and wild rivers, The conservation of objects, places or features (including biological diversity) of cultural value within the landscape, including, but not limited to: • places, objects and features of significance to Aboriginal people, and • places of social value to the people of New South Wales, and • places of historic, architectural or scientific significance, • Fostering public appreciation, understanding and enjoyment of nature and cultural heritage and their conservation, • Providing for the management of land reserved under this Act in accordance with the management principles applicable for each type of reservation. The objects of this Act are to be achieved by applying the principles of ecologically sustainable development.
NV Act	*Native Vegetation Act 2003*	The objects of this Act are: • to provide for, encourage and promote the management of native vegetation on a regional basis in the social, economic and environmental interests of the State, and • to prevent broad scale clearing unless it improves or maintains environmental outcomes, and

Abbreviation	Terminology	Description
		• to protect native vegetation of high conservation value having regard to its contribution to such matters as water quality, biodiversity, or the prevention of salinity or land degradation, and • to improve the condition of existing native vegetation, particularly where it has high conservation value, and • to encourage the revegetation of land, and the rehabilitation of land, with appropriate native vegetation, In accordance with the principles of ecologically sustainable development.
OEH	Office of Environment and Heritage	The Office of Environment and Heritage (OEH) is a separate agency within the Planning and Environment cluster. OEH was formed on 4 April 2011 and works to protect and conserve the NSW environment, including the natural environment, Aboriginal country, culture and heritage and our built heritage, and manages NSW national parks and reserves.
PoEO Act	*Protection of the Environment Operations Act 1997*	The objects of this Act are as follows: • to protect, restore and enhance the quality of the environment in New South Wales, having regard to the need to maintain ecologically sustainable development, • to provide increased opportunities for public involvement and participation in environment protection, • to ensure the community has access to relevant and meaningful information about pollution, • to reduce risks to human health and prevent the degradation of the environment by the use of mechanisms promoting: • pollution prevention and cleaner production, • the reduction to harmless levels of the discharge of substances likely to cause harm to the environment, • the elimination of harmful wastes, • the reduction in the use of materials and the re-use, recovery or recycling of materials, • the making of progressive environmental improvements, including the reduction of pollution at source, • the monitoring and reporting of environmental quality on a regular basis, • to rationalise, simplify and strengthen the regulatory framework for environment protection, • to improve the efficiency of administration of the environment protection legislation, • to assist in the achievement of the objectives of the *Waste Avoidance and Resource Recovery Act 2001*.
RAMSAR	Convention on Wetlands of International Importance	The Ramsar Convention's broad aims are to halt the worldwide loss of wetlands and to conserve, through wise use and management, those remaining. This requires international cooperation, policy making, capacity building and technology transfer.
	Risk of extinction	The likelihood that the local population will become extinct either in the short-term or in the long-term as a result of direct or indirect impacts on the viability of that population.
ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement	A bilateral migratory bird agreement with the Republic of Korea entered into in 2007. It provides an important mechanism for pursuing conservation outcomes for migratory birds, including migratory waterbirds.
RF Act	*Rural Fires Act 1997*	The objects of this Act are to provide: • for the prevention, mitigation and suppression of bush and other fires in local government areas (or parts of areas) and other parts of the State constituted as rural fire districts, and • for the co-ordination of bush firefighting and bush fire prevention throughout the State, and • for the protection of persons from injury or death, and property from damage, arising from fires, and • for the protection of infrastructure and environmental, economic, cultural, agricultural and community assets from damage arising from fires, and

Abbreviation	Terminology	Description
		• for the protection of the environment by requiring certain activities referred to in paragraphs (a)-(c1) to be carried out having regard to the principles of ecologically sustainable development described in section 6 (2) of the *Protection of the Environment Administration Act 1991*.
SEPP 44	State Environmental Planning Policy No.44 – Koala Habitat	This Policy aims to encourage the proper conservation and management of areas of natural vegetation with habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline: • by requiring the preparation of plans of management before development consent can be granted in relation to areas of core koala habitat, and • by encouraging the identification of areas of core koala habitat, and • by encouraging the inclusion of areas of core koala habitat in environment protection zones.
Significant impact		A 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity.
SIS	Species Impact Statement	A document included with an Environmental Impact Statement which details a full description of the action proposed, including its nature, extent, location, timing and layout and, to the fullest extent reasonably practicable, the information referred to in this section. The requirements as to the contents of an SIS for different categories of protected species are given in section 110 of the TSC Act.
study area		Study area means the subject site and any additional areas which are likely to be affected by the proposal, either directly or indirectly. The study area should extend as far as is necessary to take all potential impacts into account.
Strahler stream order		Strahler stream order and are used to define stream size based on a hierarchy of tributaries. 
subject site		Encompasses all land which the Development Consent with apply to. This is the area to be impacted by the development and is the focus of this report.
Subject Species		Threatened species known to, or have the potential to utilise habitat within the subject site.
TSC Act	*Threatened Species Conservation Act 1995* (NSW)	This Act provides for the protection of all threatened plants and animals native to NSW and their habitats (including endangered populations and ecological communities, and their habitats). Threatened 'fish' and marine vegetation are specifically excluded as these are covered by the *Fisheries Management Act 1994*.