Merewether Golf Club Ecological Due Diligence Assessment

Catalyst Project Consulting Pty Ltd

ecological AUSTRALIA
A TETRA TECH COMPANY

1300 646 131
www.ecoaus.com.au

DOCUMENT TRACKING

Project Name	Merewether Golf Club Ecological Due Diligence Assessment
Project Number	**19NEW-12686**
Project Manager	Gordon Patrick
Prepared by	Dee Ryder / Gordon Patrick
Reviewed by	Gordon Patrick
Approved by	Sophie Powrie
Status	**Final**
Version Number	**3**
Last saved on	**28 August 2019**

This report should be cited as 'Eco Logical Australia Click here to enter a year. *Merewether Golf Club Ecological Due Diligence Assessment*. Prepared for Catalyst Project Consulting Pty Ltd'.

ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd, with the assistance of Milos Rastovic and Anthony d'Arcy of Catalyst Project Consulting and Michelle, Manager of Merewether Golf Club.

Template 2.8.1

Contents

List of Figures

List of Tables

Abbreviations

Abbreviation	Description
BC Act	Biodiversity Conservation Act 2016
DA	Development Application
DPE	Department of Planning and Environment
EEC	Endangered Ecological Community
EPBC Act	Environmental Protection and Biodiversity Conservation Act (1999)
ILU	Integrated Living Units
PCT	Plant Community Type
MGC	Merewether Golf Club
SCC	Site Compatibility Certificate
SEPP	State Environmental Planning Policy

1. Introduction

Eco Logical Australia was engaged by Catalyst Project Consulting Pty Ltd on behalf of ThirdAge Villages to conduct an ecological due diligence assessment for a study area located at 40 King Street, Merewether, NSW (**Figure 1**). The assessment provides and understanding of the biodiversity values of the site and their relevance for a Site Compatibility Certificate application under the NSW Seniors Housing SEPP.

The study area, known as Merewether Golf Club (MGC), is approximately 36.3 ha in area and comprised of multiple lots – (Lot 1/DP229558, Lot 2/DP239405, Lot 2/DP229558, Lot 3/DP229558, Lot 3/DP515310, Lot 4/DP1223244 and Lot 6/DP231541) located within in the Newcastle City Council local government area. The golf club currently consists of an 18-hole golf course; a driving range and shelter; licenced club house; pro shop; green keeper and maintenance buildings; barbeque and outdoor recreation areas; as well as parking facilities.

MGC is bounded in the North, East and part of the South-East boundary by privately owned land. The remainder of the South boundary is bounded by the Pacific Highway. A small portion of land (Lot 11/DP237615) owned by Newcastle City Council is present on the southern boundary of the subject site with restricted off-road access from Henry Street, Merewether. Several power easements also cross the study area.

The MGC study area consists of a mosaic of maintained grassed fairway areas, remnant isolated trees / forest - woodland areas, landscaped sections and areas containing vegetation which are primarily derived of planted tree and shrub species. There are a several ponded water bodies present across the subject site, as well as a number of ephemeral creeks / drainage lines. Current buildings include an existing clubhouse and parking area, a driving range shelter, a covered barbecue area and greenkeeper sheds.

ThirdAge is seeking a Site Compatibility Certificate for a proposed Seniors Housing development at the site. A future development application would then be lodged to build and operate this Seniors Housing proposal. Merewether Golf Club also proposes, at some future time, to redevelop the existing clubhouse at the site to align with this new Seniors Housing development. The primary purpose of this report is to inform the Site Compatibility Certificate application for the proposed Seniors Housing. However, this report has also identified and considered the clubhouse portion of the site so that any cumulative impacts can be understood.

The proposed development site (subject site) is located in the central north of the MGC site and is approximately 2.9 ha in area (). Approximately 0.3 ha of the subject site will contain the proposed new clubhouse, which forms part of separate works to occur in the future, however, is included to inform the impacts (Figure 4). The land is currently zoned as RE2 – Private Recreation. The project will encompass 148 senior living Integrated Living Unit (ILU) apartments (within four linked buildings) and new clubhouse and parking facility, primarily located on the existing clubhouse and car parking areas. Sections of the current 18th hole (including the tee, fairway and green) will be impacted by the development, as such, the MGC course layout will be modified / rearranged to re-incorporate the 18th hole – this will be undertaken as part of other MGC works.

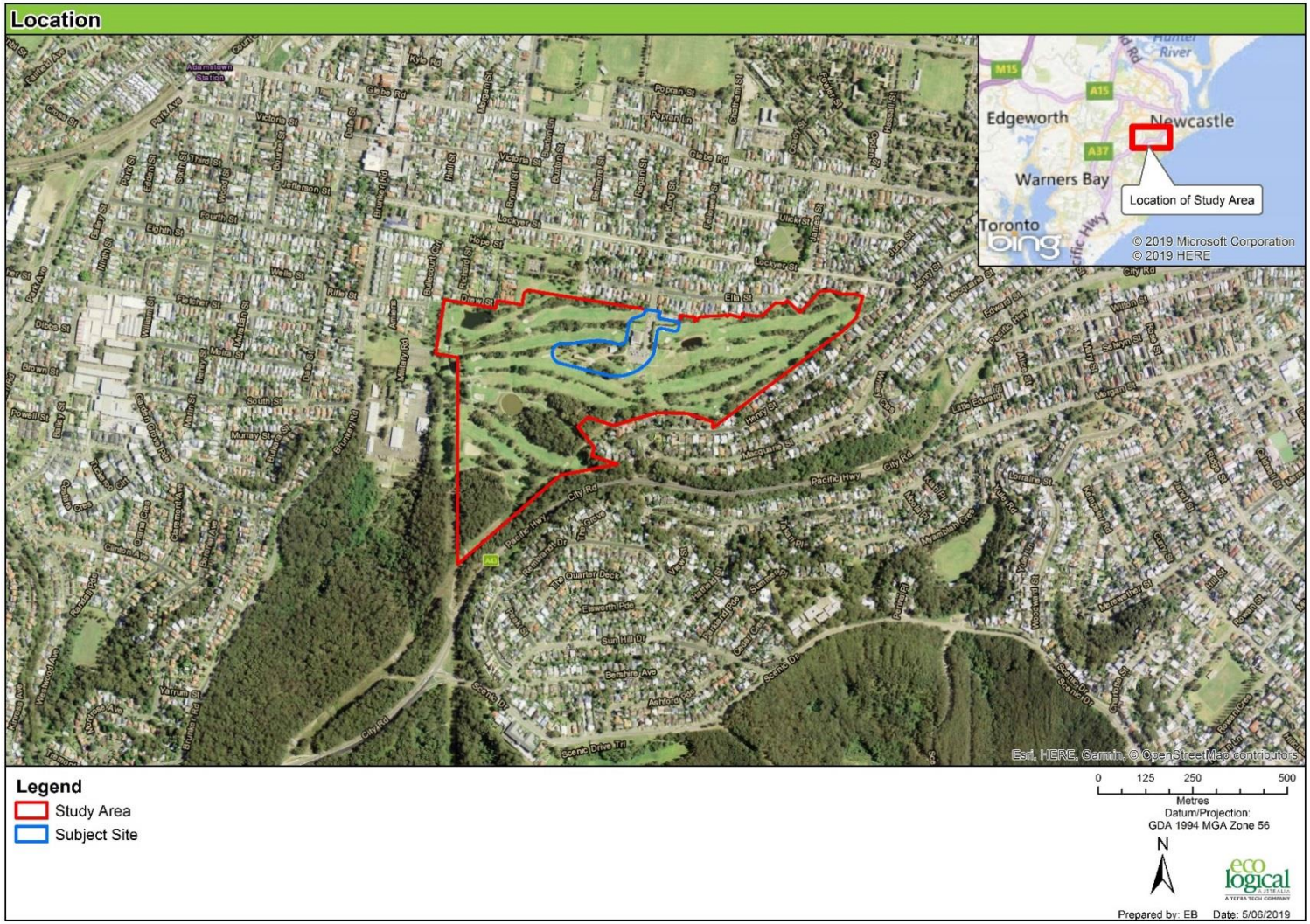

Figure 1: Study area location and locality

2. Methods

2.1 Literature review

In order to obtain a greater understanding of threatened and migratory species that may utilise the subject site, the NSW Bionet Atlas and Commonwealth Protected Matters Search Tools were used to provide threatened fauna and flora records nearby and within the subject site. Records within a 10 x 10 km area centred on the subject site were collected using the NSW Bionet Atlas and records within a 10 km radius of the subject site using Commonwealth Protected Matters Search Tool.

Aerial photography (Google Earth) of the subject site and surrounds were also used to investigate the extent of vegetation cover and landscape features.

2.2 Site inspection

The inspection of the subject site and the wider study area was conducted on 19 March 2019 by Senior Botanist/Ecologist Gordon Patrick and Ecologist Dee Ryder. The weather was fine and 23 degrees. Specific tasks undertaken to assess the potential biodiversity attributes included:

- Vegetation validation including any endangered ecological communities (EEC).
- Identification of potential habitat for both State and Commonwealth listed threatened and migratory species.
- Identification of habitat features for potential threatened flora and fauna species within the study area.
- Recording of any opportunistic observations of State and Commonwealth listed threatened and migratory species.
- Identification of specific site constraints from a biodiversity perspective.

Field data was collected utilising a field tablet (loaded with Collector®), digital camera and note pads.

3. Results

3.1 Literature review

34 State and Commonwealth listed threatened flora and flora species were identified from previous records within a 10 x 10 km area centred on the subject site using the NSW Bionet Atlas. These are listed in **Appendix C**.

Fifty-three (53) Commonwealth listed threatened species, six (6) listed migratory species, two (2) Endangered Ecological Communities (EECs) and one (1) Wetland of International Importance were identified from within a 10 x 10 km area centred on the subject site using the Commonwealth Protected Matters Search Tool. These are also listed in **Appendix C**.

Figure 2 and **Figure 3** both provide the known records for threatened flora and fauna in the study locality (5 km radius of the study area).

From the database searches and knowledge of the locality no threatened flora species have previously been recorded with the subject site or the study area. Several records of *Tetratheca juncea*, *Diuris praecox* and *Grevillea shiressii* (all listed Vulnerable species) are known from intact stands of vegetation in nearby areas (<1 km).

One threatened fauna species, Powerful Owl (*Ninox strenua*), has previously been recorded from within the study area and approximately 100 m to the west of the subject site, and additionally another record approximately 250 m to the east. Other threatened fauna species recorded or known within close vicinity of the study area include, *Tyto tenebricosa* (Sooty Owl), *Ptilinopus superbus* (Superb Fruit Dove), *Glossopsitta pusilla* (Little Lorikeet) and *Miniopterus schreibersii oceanensis* (Eastern Bent-wing Bat).

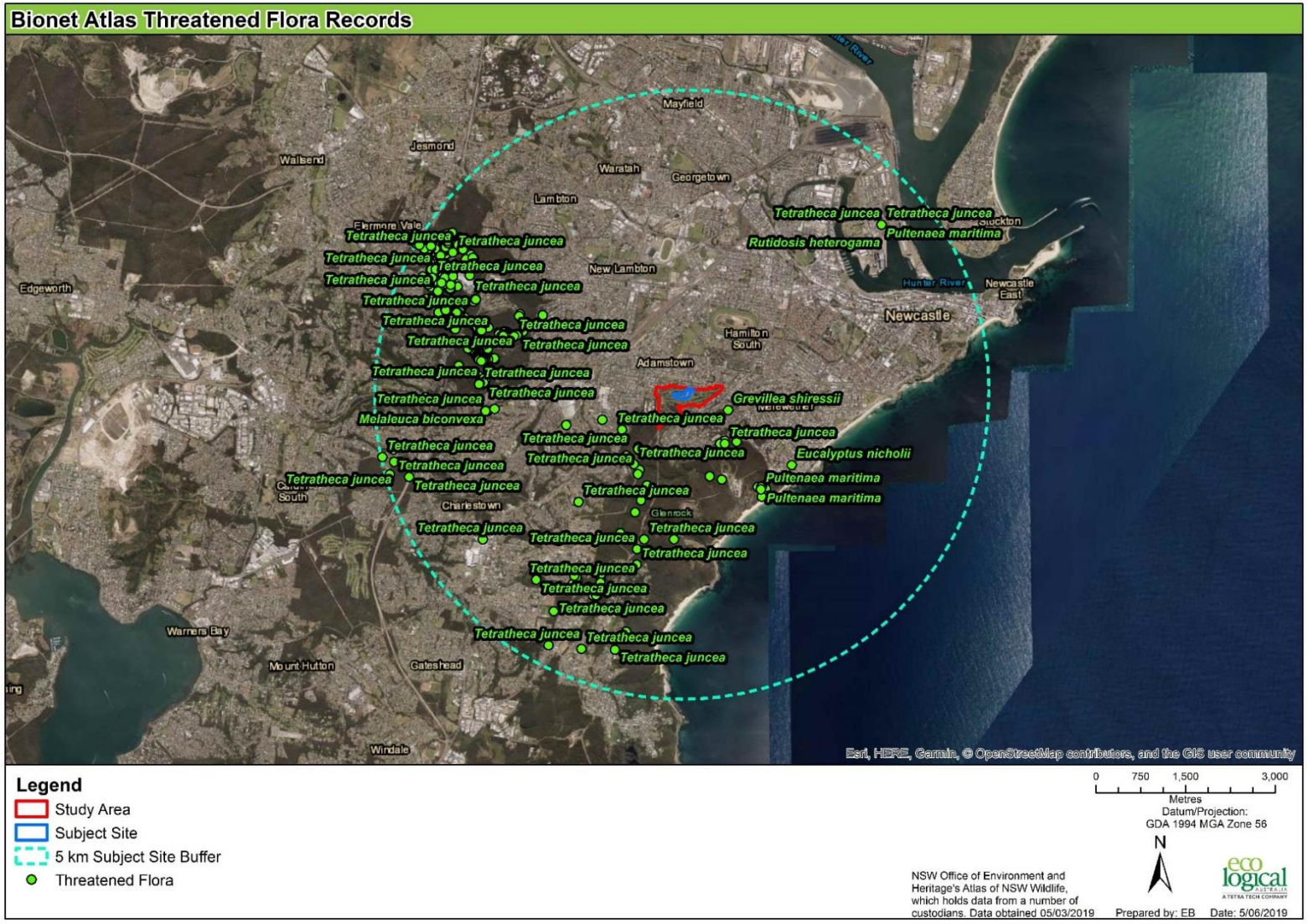

Figure 2: Threatened flora of the locality (5 km radius of the subject site)

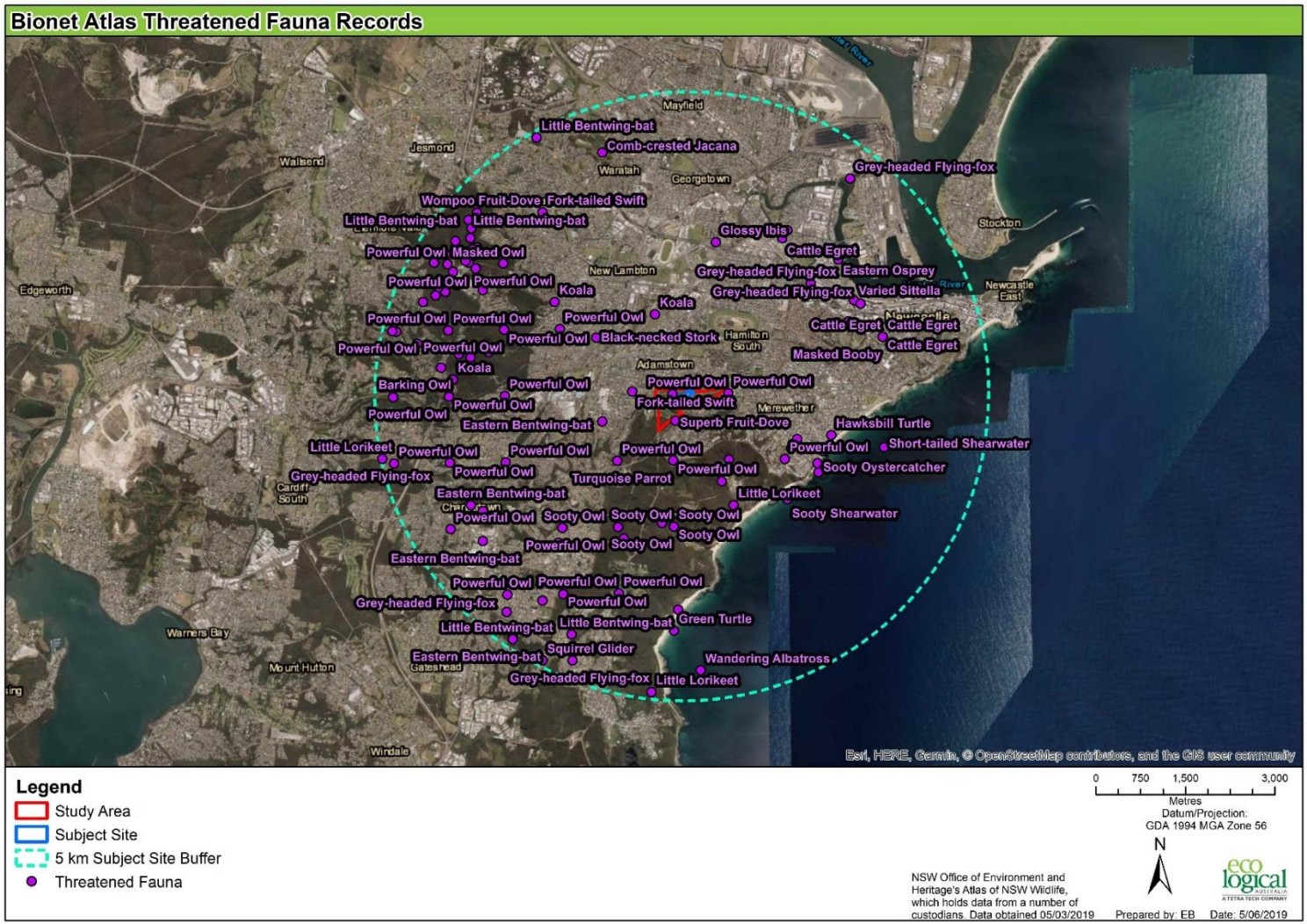

Figure 3: Threatened fauna of the locality (5 km radius of the subject site)

4. Site inspection

The subject site consists of several maintained grassed areas (fairways, greens, tees), remnant isolated trees and small pockets of vegetation, landscaped sections and forest - woodland areas which are primarily derived of planted tree and shrub species. There is one small ephemeral watercourse / drainage line running across the subject site. Additionally, the area contains a fully paved car parking area as well as an existing clubhouse, a driving range shelter, a covered barbecue area and greenkeeper sheds.

4.1 Flora / vegetation

The subject site is approximately 2.9 ha in area and contains some vegetation that appears to be remnant, this is in the form of three individual trees and two small stands dominated by *Melaleuca* species (approximately 0.1 ha). These remnant trees (**Figure 4, Plate 1** and **Plate 2**) may be related to a Plant Community Type (PCT) present in the wider area. There is difficulty at this stage of the project in assigning a PCT due to the highly disturbed and modified nature of the site, as well as the extent of native tree planting. Once more detailed surveys are carried out as part of the DA process, a classification can be provided in regard to the PCT(s) present within the subject site. Note that these remnants are highly disturbed and contain little in regard to native shrub or groundcover species.

The remaining timbered sections of the subject site are comprised of planted tree and small tree species (primarily local indigenous species) which are fruiting (biologically mature) but generally of a young age (estimated 15 – 25 years old). These areas do not contain any shrubs, and have groundcover dominated by introduced grasses which are common within the maintained grassland areas of the golf course (**Plate 3**).

All vegetated areas within the subject site are maintained for use as a golf course, with the understorey either slashed regularly, absent due to mounding or mulched around seating furniture. No threatened flora species were detected during the site inspection. The landscaped areas provide no potential habitat for threatened flora species listed under the BC Act or the EPBC Act.

Flora species noted during the site inspection from within the subject site are listed in **Appendix A**.

Plate 1: Remnant *Eucalyptus resinifera* (Red Mahogany) near 18th Tee

Plate 2: Potential remnant stand of *Melaleuca nodosa* (Prickly-leaved Paperbark) near 18th tee

Plate 3: Planted vegetation / trees on southern side of 18th fairway

Plate 4: Drainage line and access track crossing the 18th fairway and greenkeeper shed within the subject site

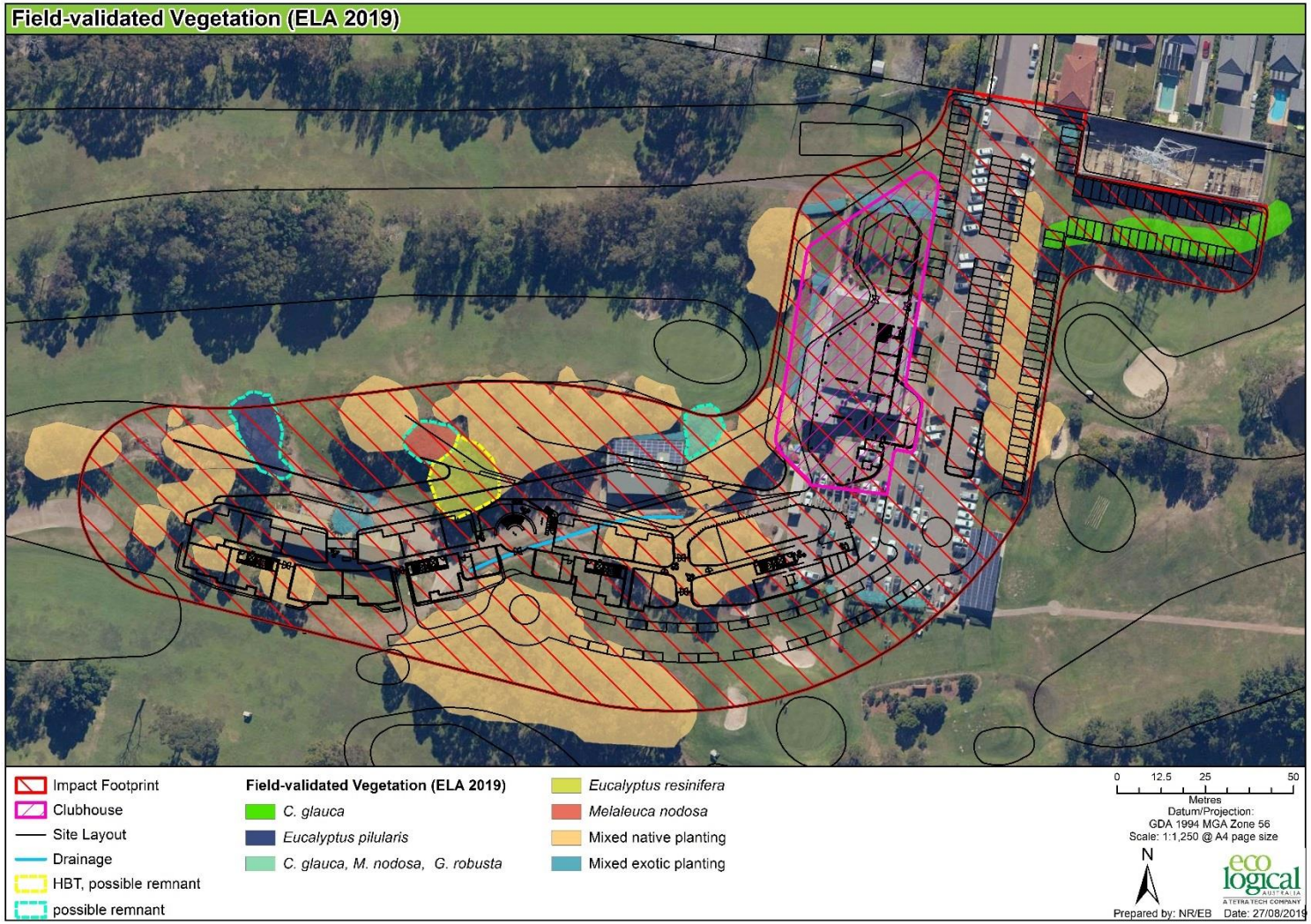

Figure 4: Vegetation within the subject site and adjacent areas

Note: This image has been produced with spatial data that was not georeferenced, placement has been guided by planning drawings provided by Catalyst Project Consulting.

4.2 Habitat for threatened fauna and migratory species

There were no threatened or migratory fauna species observed during the site inspection, although several fairly common native fauna species were present including *Podargus strigoides* (Tawny frogmouth), *Pseudocheirus peregrinus* (Common Ringtail Possum), *Cracticus tibicen* (Australian Magpie) and *Limnodynastes peronii* (Striped Marsh Frog). A list of fauna species opportunistically observed within the study area during the brief site inspection are presented in **Appendix B**.

Due to the highly maintained and modified nature of the site, there is limited potential for the subject site to contain habitat for threatened fauna species with the exception of foraging and hunting purposes and resting for species passing through. No habitat features, such as large hollow-bearing trees were present within the subject site. Small hollows, suitable for threatened microbat species, are potentially present in the remnant *Eucalyptus resinifera* (**Plate 3**) located adjacent to the 18th tee. There is also some potential for microbat species to roost in buildings and structures, including the green keeper sheds.

One small drainage line, dominated by *Persicaria hydropiper*, *Cyperus* sp. and introduced grasses, crossing the 18th fairway contains limited habitat for amphibian species (**Plate 4**). Frog spawn (Striped Marsh Frog) was noted from a ponded section of the watercourse located to the west of the green keepers shed.

The subject site is likely used from time to time by threatened fauna, including the Powerful Owl (and other threatened owl species), *Pteropus poliocephalus* (Grey-headed Flying-fox) and microbat species for hunting or foraging purposes, although the area is unlikely to constitute core or prime nesting or roosting habitat.

5. Ecological constraints and Site Compatibility Certificate considerations

The application for a site compatibility certificate under the Seniors Housing SEPP must consider a number of matters including:

(i) the natural environment (including known significant environmental values, resources or hazards) and the existing uses and approved uses of land in the vicinity of the proposed development, and

(vi) if the development may involve the clearing of native vegetation that is subject to the requirements of section 12 of the Native Vegetation Act 2003 – the impact that the proposed development is likely to have on the conservation and management of native vegetation.

There is potential for remnant native vegetation to provide habitat in the form of small hollows and represent a highly modified remnant Endangered Ecological Community (EEC). It is recommended that remnant vegetation is avoided. Steps to avoid or minimise loss should be recorded for the DA.

The subject site consists largely of planted exotic and native species, with a small area considered as being comprised of remnant trees. The vegetation is likely to provide occasional foraging and hunting habitat for a variety of both common and threatened native fauna species, although no threatened species were observed during the site visit.

The Native Vegetation Act 2003 was repealed and replaced with the Local Land Services Act 2013. However, the LLS Act 2013 does not apply to land zoned RE2 (Private Recreation). Therefore, consent under the LLS Act 2013 would not be required for clearing of native vegetation.

The Biodiversity Conservation Act 2016 does however apply to the site and will need to be considered in future Development Applications lodged on the site. If the development triggers the Biodiversity Offset Scheme, a Biodiversity Development Assessment Report will be required to be submitted with the DA and biodiversity offsets will be required.

There are four triggers for the Biodiversity Offset Scheme:

Table 1: Biodiversity Offset Scheme Triggers

Trigger	Relevance to the proposed development
Clearing that exceeds the area threshold according to section 7.2 of the BC Regulation 2017	Site has a minimum lot size of 40 ha and therefore would trigger BOS if clearing exceeds 1 ha.
Clearing of vegetation shown on the Biodiversity Values Map according to section 7.3 of the BC Regulation 2017	Site is not shown on the Biodiversity Value Map
Clearing that has a significant impact on endangered ecological communities or threatened species in accordance with section 7.2(1)(a) of the BC Act 2016	Whilst a comprehensive assessment has not been undertaken, development of the site would be unlikely to have a significant impact on threatened species.

Trigger	Relevance to the proposed development
Clearing of Areas of Outstanding Biodiversity Value in accordance with section 7.2(1)(c) of the BC Act 2016	The site is not listed as an Area of Outstanding Biodiversity Value

As per Table 1, if the clearing of native vegetation on site would exceed 1 ha, the Biodiversity Offset Scheme would be triggered.

Based on the current design and development footprint, a total of approximately 0.750 ha of native vegetation will may be cleared as part of the proposed works (Table 2). Therefore, none of the four triggers relating to the Biodiversity Offset Scheme relate to this project.

Table 2: Impacted vegetation calculation

Impacted vegetation	Area in hectares	Area in m2
Mixed exotic planting	0.096	**960**
Possible native remnant	0.075	**750**
Mixed native planting	0.701	**7,010**

Note: placement of the development footprint is based on spatial data that was not georeferenced, placement has been guided by planning drawings provided by Catalyst Project Consulting, therefore, there may be small deviations from the actual site footprint.

6. References

Australian Government Department of the Environment, 2019 *EPBC Act Protected Matters Report.* Australian Government Department of the Environment

NSW Department of Environment and Heritage 2019, *NSW BioNet,* NSW Department of Environment and Heritage, 5 March 2019 http://www.bionet.nsw.gov.au

Appendix A Flora species

Table 3: Flora species surveyed within the study area

Scientific name	Common name
Casuarina cunninghamiana	River Oak
Allocasuarina torulosa	Forest Oak
Archontophoenix cunninghamiana	Bangalow Palm
Callistemon sp.	A Bottlebrush
Callistemon viminalis	Weeping Bottlebrush
Casuarina glauca	Swamp Oak
Cinnamomum camphora *	Camphor laurel
Eucalyptus acmenoides	White Mahogany
Eucalyptus fibrosa	Broad-leaved Ironbark
Eucalyptus grandis *	Rose Gum
Eucalyptus haemastoma	Scribbly Gum
Corymbia maculata	Spotted Gum
Eucalyptus microcorys	Tallowwood
Eucalyptus pilularis	Blackbutt
Eucalyptus propinqua	Small-fruited Grey Gum
Eucalyptus punctata	Grey Gum
Eucalyptus resinifera	Red Mahogany
Eucalyptus crebra	Narrow-leaved Ironbark
Grevillea robusta *	Silky Oak
Lomandra longifolia	Spiny-headed Matt-rush
Melaleuca nodosa	Prickly-leaved Paperbark
Melaleuca styphelioides	Prickly-leaved Tea Tree
Persicaria hydropiper	Water Pepper
Pinus elliottii *	Slash Pine
Populus nigra *	Lombardy Poplar
Syncarpia glomulifera	Turpentine

* Denotes exotic or non-locally indigenous species

Appendix B Fauna species

Table 4: Opportunistic fauna observed within the study area

Class	*Scientific name*	Common name
Amphibia	*Crinia signifera*	Common Eastern Froglet
Amphibia	*Limnodynastes peronii*	Striped Marsh Frog
Aves	*Cracticus tibicen*	Australian Magpie
Aves	*Platycercus eximius*	Eastern Rosella
Aves	*Ocyphaps lophotes*	Crested Pigeon
Aves	*Dacelo novaeguineae*	Laughing Kookaburra
Aves	*Manorina melanocephala*	Noisy Minor
Aves	*Cracticus nigrogularis*	Pied Butcherbird
Aves	*Grallina cyanoleuca*	Pied Mudlark
Aves	*Trichoglossus moluccanus*	Rainbow Lorikeet
Aves	*Threskiornis aethiopicus*	Sacred Ibis
Aves	*Podargus strigoides*	Tawny Frogmouth

Appendix C Threatened and Migratory Species - Database Records

Table 5: Threatened and Migratory Species - Database Records

Class	*Scientific Name*	Common Name	NSW status	Comm. status
Amphibia	*Crinia tinnula*	Wallum Froglet		V,P
Amphibia	*Heleioporus australiacus*	Giant Burrowing Frog		V
Amphibia	*Litoria aurea*	Green and Golden Bell Frog		V
Amphibia	*Litoria littlejohni*	Littlejohn's Tree Frog		V
Aves	*Anthochaera phrygia*	Regent Honeyeater		E4A,P
Aves	*Apus pacificus*	Fork-tailed Swift		P
Aves	*Ardea ibis*	Cattle Egret		P
Aves	*Callocephalon fimbriatum*	Gang-gang Cockatoo		V,P,3
Aves	*Calyptorhynchus lathami*	Glossy Black-Cockatoo		V,P,2
Aves	*Cuculus optatus*	Oriental Cuckoo		CAMBA
Aves	*Daphoenositta chrysoptera*	Varied Sittella		V,P
Aves	*Dasyornis brachypterus*	Eastern Bristlebird		V
Aves	*Diomedea exulans*	Wandering Albatross		E1,P
Aves	*Ephippiorhynchus asiaticus*	Black-necked Stork		E1,P
Aves	*Erythrotriorchis radiatus*	Red Goshawk		V
Aves	*Glossopsitta pusilla*	Little Lorikeet		V,P
Aves	*Grantiella picta*	Painted Honeyeater		V
Aves	*Haliaeetus leucogaster*	White-bellied Sea-Eagle		V,P
Aves	*Hirundapus caudacutus*	White-throated Needletail		P
Aves	*Irediparra gallinacea*	Comb-crested Jacana		V,P
Aves	*Lathamus discolor*	Swift Parrot		E1,P,3
Aves	*Lophochroa leadbeateri*	Major Mitchell's Cockatoo	V,P,2	
Aves	*Lophoictinia isura*	Square-tailed Kite	V,P,3	
Aves	*Merops ornatus*	Rainbow Bee-eater	P	J
Aves	*Monarcha melanopsis*	Black-faced Monarch		BONN
Aves	*Monarcha trivirgatus*	Spectacled Monarch		BONN
Aves	*Motacilla flava*	Yellow Wagtail		CAMBA,JAMBA,ROKAMBA
Aves	*Myiagra cyanoleuca*	Satin Flycatcher		BONN

Class	*Scientific Name*	Common Name	NSW status	Comm. status
Aves	*Neophema pulchella*	Turquoise Parrot	V,P,3	
Aves	*Ninox connivens*	Barking Owl	V,P,3	
Aves	*Ninox strenua*	Powerful Owl	V,P,3	
Aves	*Oxyura australis*	Blue-billed Duck	V,P	
Aves	*Plegadis falcinellus*	Glossy Ibis	P	C
Aves	*Pomatostomus temporalis temporalis*	Grey-crowned Babbler (eastern subspecies)	V,P	
Aves	*Ptilinopus magnificus*	Wompoo Fruit-Dove	V,P	
Aves	*Ptilinopus regina*	Rose-crowned Fruit-Dove	V,P	
Aves	*Ptilinopus superbus*	Superb Fruit-Dove	V,P	
Aves	*Rhipidura rufifrons*	Rufous Fantail		BONN
Aves	*Tyto novaehollandiae*	Masked Owl	V,P,3	
Aves	*Tyto tenebricosa*	Sooty Owl	V,P,3	
Flora	*Angophora inopina*	Charmhaven Apple		V
Flora	*Caladenia tessellata*	Thick-lipped Spider-orchid		V
Flora	*Callistemon linearifolius*	Netted Bottle Brush		V,3
Flora	*Commersonia prostrata*	Dwarf Kerrawang		E
Flora	*Cryptostylis hunteriana*	Leafless Tongue-orchid		V
Flora	*Cynanchum elegans*	White-flowered Wax Plant		E
Flora	*Davidsonia jerseyana*	Davidson's Plum		E1,2
Flora	*Diuris praecox*	Rough Doubletail		V,P,2
Flora	*Eucalyptus camfieldii*	Camfield's Stringybark		V
Flora	*Eucalyptus nicholii*	Narrow-leaved Black Peppermint		V
Flora	*Grevillea parviflora* subsp. *parviflora*	Small-flower Grevillea		V
Flora	*Grevillea shiressii*			V
Flora	*Macadamia tetraphylla*	Rough-shelled Bush Nut	V	V
Flora	*Melaleuca biconvexa*	Biconvex Paperbark	V	V
Flora	*Muehlenbeckia costata*	Scrambling Lignum	V	
Flora	*Pultenaea maritima*	Coast Headland Pea	V	
Flora	*Rhodamnia rubescens*	Scrub Turpentine	E4A	
Flora	*Rutidosis heterogama*	Heath Wrinklewort	V	V
Flora	*Syzygium paniculatum*	Magenta Lilly Pilly	E1	V
Flora	*Tetratheca glandulosa*		V	
Flora	*Tetratheca juncea*	Black-eyed Susan	V	V
Flora	*Zannichellia palustris*		E1	

Class	*Scientific Name*	Common Name	NSW status	Comm. status
Flora	*Prasophyllum sp. Wybong*	Leek Orchid		CE
Flora		Central Hunter Valley eucalypt forest and woodland	E4A	
Flora		Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community	E	
Flora		Hunter estuary wetlands		RAMSAR
Mammalia	*Chalinolobus dwyeri*	Large-eared Pied Bat		V
Mammalia	*Dasyurus maculatus maculatus*	Spotted-tail Quoll		E
Mammalia	*Miniopterus australis*	Little Bentwing-bat	V,P	
Mammalia	*Miniopterus schreibersii oceanensis*	Eastern Bentwing-bat	V,P	
Mammalia	*Mormopterus norfolkensis*	Eastern Freetail-bat	V,P	
Mammalia	*Petauroides volans*	Greater Glider	P	V
Mammalia	*Petaurus norfolcensis*	Squirrel Glider	V,P	
Mammalia	*Phascolarctos cinereus*	Koala	V,P	V
Mammalia	*Potorous tridactylus tridactylus*	Long-nosed Potoroo		V
Mammalia	*Pseudomys novaehollandiae*	New Holland Mouse	P	V
Mammalia	*Pteropus poliocephalus*	Grey-headed Flying-fox	V,P	V
Mammalia	*Scoteanax rueppellii*	Greater Broad-nosed Bat	V,P	
Mammalia	*Vespadelus troughtoni*	Eastern Cave Bat	V,P	

Note: Marine species have been removed due to lack of suitable habitat within the study area.

P=protected, V=vulnerable, E1= endangered, E2=endangered population, E4a=critically endangered, C, J or K=listed on the CAMBA, JAMBA or ROKAMBA bilateral migratory bird agreement, BONN=LISTED MIGRATORY UNDER BONN CONVENTION, RAMSAR =Wetlands of International importance RAMSAR Convention

Appendix D Threatened species likelihood table

Table 6: Threatened Flora Likelihood of presence

Family	Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat or species on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Myrtaceae	*Angophora inopina*	Charmhaven Apple	V	V	Endemic to the Central Coast region of NSW. Populations occur around Karuah, and from Toronto to Charmhaven. There is an unconfirmed record of the species near Bulahdelah.	Occurs most frequently in *Eucalyptus haemastoma–Corymbia gummifera–Angophora inopina* woodland/forest, *Hakea teretifolia–Banksia oblongifolia* wet heath, *Eucalyptus resinifera–Melaleuca sieberi–Angophora inopina* sedge woodland and *Eucalyptus capitellata–Corymbia gummifera–Angophora inopina* woodland/forest.	Is lignotuberous, allowing vegetative growth to occur following disturbance. Flowering appears to take place principally between mid-December and mid-January but is generally poor and sporadic.		Yes	None	Yes	No	No	No	No
Orchidaceae	*Caladenia tessellata*	Thick Lip Spider Orchid	E1	V	Currently known from two disjunct areas; one population near Braidwood on the Southern Tablelands and three populations in the Wyong area on the Central Coast.	Grassy sclerophyll woodland on clay loam or sandy soils, or low woodland with stony soil.	The single leaf regrows each year. Flowers appear between September and November (but apparently generally late September or early October in extant southern populations).		Yes	None	Yes	No	No	No	No
Myrtaceae	*Callistemon linearifolius*	Netted Bottle Brush	V		Georges River to Hawkesbury River in the Sydney area (limited to the Hornsby Plateau area), and north to the Nelson Bay area of NSW. Also, Coalcliff in the northern Illawarra.	Dry sclerophyll forest.	Flowers spring – summer.		Yes	None	Yes	No	No	No	No
Malvaceae	*Commersonia prostrata*	Dwarf Kerrawang	E1	E	In NSW, found in the Southern Highlands and Southern Tablelands (Penrose State Forest, Tallong, near the Corang, and Rowes Lagoon), the Thirlmere Lakes area and on the North Coast (Tomago sandbeds north of Newcastle).	Eucalyptus pauciflora (Snow Gum) Woodland; Ephemeral Wetland floor; E. agglomerata (Blue leaved Stringybark) Open Forest; E. mannifera (Brittle Gum) Low Open Woodland; E. haemostoma (Scribbly Gum)/ E. robusta (Swamp Mahogany) Ecotonal Forest.	Flowering is mainly between October and November. Associated native species may include Imperata cylindrica, Empodisma minus and Leptospermum continentale. Appears to respond positively to some forms of disturbance (e.g. some Victorian records are from gravel road surfaces and the Tomago population is on an area previously subject to sandmining).	*Rulingia prostrata*	Yes	None	Yes	No	No	No	No

Family	Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat or species on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Orchidaceae	*Cryptostylis hunteriana*	Leafless Tongue Orchid	V	V	In NSW, recorded mainly on coastal and near coastal ranges north from Victoria to near Forster, with two isolated occurrences inland north-west of Grafton.	Coastal heathlands, margins of coastal swamps and sedgelands, coastal forest, dry woodland, and lowland forest.	The larger populations typically occur in woodland dominated by *Eucalyptus sclerophylla* (Scribbly Gum), *E. sieberi* (Silvertop Ash), *Corymbia gummifera* (Red Bloodwood) and *Allocasuarina littoralis* (Black Sheoak); appears to prefer open areas in the understorey of this community. Being leafless it is expected to have limited photosynthetic capability and probably depends upon a fungal associate to meet its nutritional requirements from either living or dead organic material. In addition to reproducing from seed, it is also capable of vegetative reproduction and thus forms colonies which can become more or less permanent at a site.		Yes	None	Yes	No	No	No	No
Apocynaceae	*Cynanchum elegans*	White-flowered Wax Plant	E1	E	Restricted to eastern NSW, from Brunswick Heads on the north coast to Gerroa in the Illawarra region, and as far west as Merriwa in the upper Hunter River valley.	Dry rainforest; littoral rainforest; *Leptospermum laevigatum-Banksia integrifolia subsp. integrifolia* (Coastal Tea-tree– Coastal Banksia) coastal scrub; *Eucalyptus tereticornis* (Forest Red Gum) or *Corymbia maculata* (Spotted Gum) open forest and woodland; and *Melaleuca armillaris* (Bracelet Honeymyrtle) scrub.	Flowering occurs between August and May, with a peak in November. The fruit can take up to six months to mature. Seed production is variable and unreliable. Seeds are wind dispersed. It is considered to be unlikely that a soil seed bank for this species exists. Plants are capable of suckering from rootstock in response to occasional slashing or grazing. The fire response of the species is unknown.		Yes	None	Yes	No	No	No	No
Cunoniaceae	*Davidsonia jerseyana*	Davidson's Plum	E1	E	Restricted to north-east NSW to as far south as Wardell.	Lowland subtropical rainforest and wet eucalypt forest below 300m.			Yes	None	Yes	No	No	No	No
Orchidaceae	*Diuris praecox*	Rough Doubletail	V	V	Between Bateau Bay and Smiths Lake, in hills and slopes of near-coastal districts.	Open forests.	Exists as subterranean tubers most of the year. It produces leaves and flowering stems in winter.		Yes	None	Yes	No	No	No	No

Family	Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat or species on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Myrtaceae	*Eucalyptus camfieldii*	Camfield's Stringybark	V	V	Narrow band from the Raymond Terrace area south to Waterfall.	Coastal heath on shallow sandy soils overlying Hawkesbury sandstone, mostly on exposed sandy ridges.	Associated species frequently include stunted species of *Eucalyptus oblonga* (Narrow-leaved Stringybark), *E. capitellata* (Brown Stringybark) and *E. haemastoma* (Scribbly Gum). Flowering period is irregular, flowers recorded throughout the year. Poor response to too frequent fires.		Yes	None	Yes	No	No	No	No
Myrtaceae	*Eucalyptus nicholii*	Narrow-leaved Black Peppermint	V	V	New England Tablelands from Nundle to north of Tenterfield.	Dry grassy woodland, on shallow soils of slopes and ridges.			Yes	None	Yes	No	No	No	No
Proteaceae	*Grevillea parviflora subsp. parviflora*	Small-flower Grevillea	V	V	Sporadically distributed throughout the Sydney Basin and in the Hunter in the Cessnock - Kurri Kurri area. Also known from Putty to Wyong and Lake Macquarie on the Central Coast.	Heath and shrubby woodland to open forest on sandy or light clay soils usually over thin shales.	Plants are capable of suckering from a rootstock and most populations demonstrate a degree of vegetative spread, particularly after disturbance such as fire. Flowering has been recorded between July to December as well as April-May. Flowers are insect-pollinated and seed dispersal is limited. Seedling recruitment after fire is uncommon, and most recovery after disturbance appears to be gesprouting from rhizomes.		Yes	None	Yes	No	No	No	No
Proteaceae	*Grevillea shiressii*		V	V	Known from two populations near Gosford, at Mooney Mooney Creek and Mullet Creek. There is also a naturalised population at Newcastle.	Creek banks in wet sclerophyll forest with a moist understorey in alluvial sandy or loamy soils.	Flowers mainly late winter to Spring (July-December), with seed released at maturity in October. A fire sensitive obligate seeder that is highly susceptible to local extinction due to frequent fire. Seed germination does occur in the absence of fire, however some physical disturbance is likely to promote seed germination.		Yes	None	Yes	No	No	No	No
Proteaceae	*Macadamia tetraphylla*	Rough-shelled Bush Nut	V	V	Confined chiefly to the north of the Richmond River in north-east NSW, extending just across the border into Qld.	Subtropical rainforest, usually near the coast.			Yes	None	Yes	No	No	No	No

Family	Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat or species on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Myrtaceae	*Melaleuca biconvexa*	Biconvex Paperbark	V	V	Only found in NSW, populations found in the Jervis Bay area in the south and the Gosford-Wyong area in the north.	Damp places, often near streams or low-lying areas on alluvial soils.	Flowering occurs over just 3-4 weeks in September and October. Resprouts following fire.		Yes	None	Yes	No	No	No	No
Polygonaceae	*Muehlenbeckia costata*	Scrambling Lignum	V		Scattered distribution from Qld to the Blue Mountains in NSW. Records mainly from New England Tablelands and North West Slopes	Heath, mallee and open eucalypt woodland on granite or acid volcanic outcrops.			Yes	None	Yes	No	No	No	No
Fabaceae (Faboideae)	*Pultenaea maritima*	Coast Headland Pea	V		Within NSW, recorded from Newcastle north to Byron Bay on 16 headlands.	Grasslands, shrublands and heath on exposed coastal headlands.			Yes	None	Yes	No	No	No	No
Asteraceae	*Rutidosis heterogama*	Heath Wrinklewort	V	V	Between Cessnock and Kurri Kurri, in Howes Valley, and north from Wyong to Newcastle on the Central Coast. Also, on the north coast between Wooli and Evans Head in Yuraygir and Bundjalung National Parks. Also occurs on the New England Tablelands from Torrington and Ashford south to Wandsworth south-west of Glen Innes.	Heath on sandy soils, moist areas in open forest, and along disturbed roadsides.			Yes	None	Yes	No	No	No	No
Myrtaceae	*Syzygium paniculatum*	Magenta Lilly Pilly	E1	V	Only in NSW, in a narrow, linear coastal strip from Upper Lansdowne to Conjola State Forest.	Subtropical and littoral rainforest on gravels, sands, silts and clays.			Yes	None	Yes	No	No	No	No
Elaeocarpaceae	*Tetratheca glandulosa*		V		Found from Sampons Pass (Yengo NP) in the north to West Pymble (Lane Cove NP) in the south. The eastern limit is at Ingleside (Pittwater LGA) and the western limit is at East Kurrajong (Wollemi NP).	Heath, scrub, woodlands and open forest on upper-slopes and mid-slope sandstone benches. Soils generally shallow, consisting of a yellow, clayey/sandy loam.	Flowers July-November however residual flowers may persist until late December. Flowering influenced by seasonal weather conditions and/or microclimate. Resprouts from a woody root following fire, however the role fire plays in seed germination and persistence of the species is unclear.		Yes	None	Yes	No	No	No	No

Family	Scientific Name	Common Name	BC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat or species on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Elaeocarpaceae	*Tetratheca juncea*	Black-eyed Susan	V	V	Confined to the northern Sydney Basin bioregion and the southern North Coast bioregion in the local government areas of Wyong, Lake Macquarie, Newcastle, Port Stephens, Great Lakes and Cessnock.	Low open forest/woodland, heathland and moist forest, mainly on low nutrient soils associated with the Awaba Soil Landscape.	It usually spreads via underground stems which can be up to 50 cm long. Consequently, individual plants may be difficult to identify. It also reproduces sexually but this requires insect pollination.		Yes	None	Yes	No	No	No	No
Zannichelliaceae	*Zannichellia palustris*		E1		In NSW, known from the lower Hunter and in Sydney Olympic Park.	Fresh or slightly saline stationary or slowly flowing water.	Flowers during warmer months. NSW populations behave as annuals, dying back completely every summer.		Yes	None	Yes	No	No	No	No

Table 7: Threatened fauna likelihood table

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Aves	Meliphagidae	*Anthochaera phrygia*	Regent Honeyeater	E4A	CE	Inland slopes of south-east Australia, and less frequently in coastal areas. In NSW, most records are from the North-West Plains, North-West and South-West Slopes, Northern Tablelands, Central Tablelands and Southern Tablelands regions; also recorded in the Central Coast and Hunter Valley regions.	Eucalypt woodland and open forest, wooded farmland and urban areas with mature eucalypts, and riparian forests of *Casuarina cunninghamiana* (River Oak).	Two of three known key breeding areas are in NSW: the Capertee Valley and Bundarra-Barraba region. The species breeds between July and January and usually nests in horizontal branches or forks in tall mature eucalypts and Sheoaks. The Regent Honeyeater primarily feeds on nectar from box and ironbark eucalypts and occasionally from banksias and mistletoes.		No	Marginal	yes	no	Unlikely	No	No
Aves	Apodidae	*Apus pacificus*	Fork-tailed Swift		M	Recorded in all regions of NSW.	Riparian woodland., swamps, low scrub, heathland, saltmarsh, grassland, Spinifex sandplains, open farmland and inland and coastal sand-dunes.	Non-breeding visitor to all states and territories of Australia, arriving from its breeding grounds in Siberia around October, and departing in April. The species is thought to be highly mobile within Australia, moving across the country in search of food. They probably roost aerially.		yes	None	yes	no	No	No	No
Aves	Ardeidae	*Ardea ibis*	Cattle Egret			Widespread and common across NSW.	Grasslands, wooded lands and terrestrial wetlands.	Uses predominately shallow, open and fresh wetlands including meadows and swamps with low emergent vegetation and abundant aquatic flora. The Cattle Egret often forages away from water on low lying grasslands, improved pastures and croplands. It is commonly found amongst livestock.		yes	Marginal	yes	no	Potential	No	No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Aves	Cacatuidae	*Callocephalon fimbriatum*	Gang-gang Cockatoo population in the Hornsby and Ku-ring-gai Local Government Areas	E2,V		The population is believed to be largely confined to an area bounded by Thornleigh and Wahroonga in the north, Epping and North Epping in the south, Beecroft and Cheltenham in the west and Turramurra/South Turramurra to the east.	Forest and woodland, urban fringes.	Old growth attributes required for nesting and roosting purposes. Also utilises less heavily timbered woodlands and urban fringe areas to forage but appears to favour well-timbered country. Individuals are likely to move outside the 'defined' population boundary in the general area and should still be considered of this population. Last known breeding population in the Sydney Metropolitan area, of between 18 - 40 pairs.		yes	None	yes	no	No	No	No
Aves	Cacatuidae	*Callocephalon fimbriatum*	Gang-gang Cockatoo	V		In NSW, distributed from the south-east coast to the Hunter region, and inland to the Central Tablelands and south-west slopes. Isolated records known from as far north as Coffs Harbour and as far west as Mudgee.	Tall mountain forests and woodlands in summer; in winter, may occur at lower altitudes in open eucalypt forests and woodlands, and urban areas.	Favours old growth attributes for nesting and roosting.		yes	None	yes	no	No	No	No
Aves	Cacatuidae	*Calyptorhynchus lathami*	Glossy Black-Cockatoo, Riverina population	E2,V		Within the Narrandera Range and to the north-west in the Brobenah Hills, McPhersons Range, Cocoparra Range, Lachlan Range and Jimberoo State Forests, and the Naradhan Range.	Largely restricted to hills and low ridges where suitable stands of its food plant *Allocasuarina verticillata* (Drooping Sheoak) remain.	Requires large tree-hollows for breeding. Areas adjacent to drainage lines may be preferred for nesting. The diet consists almost exclusively of sheoak seeds, especially Drooping Sheoak for the Riverina population.		yes	None	yes	no	No	No	No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Aves	Cacatuidae	*Calyptorhynchus lathami*	Glossy Black-Cockatoo	V		In NSW, widespread along coast and inland to the southern tablelands and central western plains, with a small population in the Riverina.	Open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur.	Feeds almost exclusively on the seeds of several species of she-oak *(Casuarina* and *Allocasuarina* species), shredding the cones with the massive bill. Dependent on large hollow-bearing eucalypts for nest sites. A single egg is laid between March and May.		yes	None	yes	no	No	No	No
Mammalia	Vespertilionidae	*Chalinolobus dwyeri*	Large-eared Pied Bat	V	V	Recorded from Rockhampton in Qld south to Ulladulla in NSW. Largest concentrations of populations occur in the sandstone escarpments of the Sydney basin and the NSW north-west slopes.	Wet and dry sclerophyll forests, Cyprus Pine dominated forest, woodland, sub-alpine woodland, edges of rainforests and sandstone outcrop country.	Roosts in caves, rock overhangs and disused mine shafts and as such is usually associated with rock outcrops and cliff faces. It also possibly roosts in the hollows of trees. The species is thought to require roosting habitat that is adjacent to higher fertility sites which are used for foraging. This species probably forages for small, flying insects below the forest canopy. Likely to hibernate through the coolest months. It is uncertain whether mating occurs early in winter or in spring.		yes	None	yes	no	No	No	No
Amphibia	Myobatrachidae	*Crinia tinnula*	Wallum Froglet	V		Along the coastal margin from Litabella National Park in south-east Qld to Kurnell in Sydney.	Acidic swamps on coastal sand plains (typically in sedgelands and wet heathlands), drainage lines, and swamp sclerophyll forests.	The species breeds in swamps with permanent water as well as shallow ephemeral pools and drainage ditches. Breeding is thought to peak in the colder months but can occur throughout the year following rain. Wallum Froglets shelter under leaf litter, vegetation, other debris or in burrows of other species. Shelter sites are wet or very damp and often located near the water's edge. Males may		yes	Marginal	yes	no	Potential	No	No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
								call throughout the year and at any time of day, peaking following rain.								
Aves	Neosittidae	*Daphoenositta chrysoptera*	Varied Sittella	V		Distribution in NSW is nearly continuous from the coast to the far west.	Inhabits eucalypt forests and woodlands, mallee and *Acacia* woodland.	Feeds on arthropods gleaned from crevices in rough or decorticating bark, dead branches, standing dead trees and small branches and twigs in the tree canopy. Builds a cup-shaped nest of plant fibres and cobwebs in an upright tree fork high in the living tree canopy, and often re-uses the same fork or tree in successive years.		yes	None	yes	no	No	No	No
Aves	Dasyornithidae	*Dasyornis brachypterus*	Eastern Bristlebird	E1	E	There are three main populations: Northern - southern Qld/northern NSW, Central - Barren Ground NR, Budderoo NR, Woronora Plateau, Jervis Bay NP, Booderee NP and Beecroft Peninsula and Southern - Nadgee NR and Croajingalong NP in the vicinity of the NSW/Victorian border.	Central and southern populations inhabit heath and open woodland with a heathy understorey. In northern NSW, habitat comprises open forest with dense tussocky grass understorey.	Feeds on a variety of insects, particularly ants. Nests are elliptical domes constructed on or near the ground amongst dense vegetation. Two eggs are laid during August to February.		yes	None	yes	no	No	No	No
Mammalia	Dasyuridae	*Dasyurus maculatus*	Spotted-tailed Quoll	V	E	Found on the east coast of NSW, Tasmania, eastern Victoria and north-eastern Qld.	Rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline.	Mostly nocturnal, although will hunt during the day; spends most of the time on the ground, although also an excellent climber. Consumes gliders, possums, small wallabies, rats, birds, bandicoots, rabbits and insects; also eats carrion and takes domestic fowl. Females occupy home ranges up to about 750 hectares and males up to 3500 hectares; usually	Dasyurus maculatus maculatus; Dasyurus maculatus maculatus (SE mainland population)	yes	None	yes	no	No	No	No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
								traverse their ranges along densely vegetated creeklines.								
Aves	Diomedeidae	*Diomedea exulans*	Wandering Albatross	E1	V, M	Has been recorded along the length of the NSW coast.	Marine.	Spend the majority of their time in flight, soaring over the southern oceans. They breed on South Georgia Island, Prince Edward and Marion Islands, Crozet and Kerguelen Islands and Macquarie Island. They feed in pelagic, offshore and inshore waters, often at night, taking fish and cephalopods such as squid, crustaceans and carrion, and will often follow ships feeding on the refuse they trail.	Diomedea exulans (sensu lato)	yes	None	yes	no	No	No	No
Aves	Ciconiidae	*Ephippiorhynchus asiaticus*	Black-necked Stork	E1		Coastal and subcoastal northern and eastern Australia, south to central-eastern NSW and with vagrants recorded further south and inland.	In NSW, floodplain wetlands of the major coastal rivers are key habitat. Also, minor floodplains, coastal sandplain wetlands and estuaries.	Usually forage in water 5-30cm deep for vertebrate and invertebrate prey (eels, fish, frogs and invertebrates). Black-necked Storks build large nests high in tall trees close to water. In NSW, breeding activity occurs May - January; incubation May - October; nestlings July - January; fledging from September.		yes	None	yes	no	No	No	No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Aves	Accipitridae	*Erythrotriorchis radiatus*	Red Goshawk	E4A	V	In NSW, extends to ~30°S. Recent records confined to the Northern Rivers region north of the Clarence River.	Open woodland and forest, often along or near watercourses or wetlands. In NSW, preferred habitats include mixed subtropical rainforest, *Melaleuca* swamp forest and coastal riparian *Eucalyptus* forest.	Red Goshawks mainly eat medium to large birds, but they also take mammals, reptiles and insects. The breeding behaviour of Red Goshawks is not well known. Breeding is likely to be in spring and summer in southern Qld and NSW (if they breed in the state at all). The birds lay clutches of 1-2 eggs, in a stick nest in a tall tree (>20 m tall) within 1 km of a watercourse or wetland. In winter in eastern Australia, the birds appear to move from nesting sites in the ranges to coastal plains, where they are associated with permanent wetlands.		yes	None	yes	no	No	No	No
Aves	Psittacidae	*Glossopsitta pusilla*	Little Lorikeet	V		In NSW, found from the coast westward as far as Dubbo and Albury.	Dry, open eucalypt forests and woodlands, including remnant woodland patches and roadside vegetation.	Nomadic movements are common, influenced by season and food availability. Feeds mostly on nectar and pollen, occasionally on native fruits such as mistletoe, and only rarely in orchards Roosts in treetops, often distant from feeding areas. Nests in proximity to feeding areas if possible, most typically selecting hollows in the limb or trunk of smooth-barked Eucalypts. Nesting season extends from May to September.		yes	Marginal	yes	no	Potential		No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Aves	Meliphagidae	*Grantiella picta*	Painted Honeyeater	V	V	Widely distributed in NSW, predominantly on the inland side of the Great Dividing Range but avoiding arid areas.	Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests.	A specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus *Amyema.* Insects and nectar from mistletoe or eucalypts are occasionally eaten. Nest from spring to autumn in a small, delicate nest hanging within the outer canopy of drooping eucalypts, she-oak, paperbark or mistletoe branches.		yes	None	yes	no	No		No
Aves	Accipitridae	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	V		Distributed along the coastline of mainland Australia and Tasmania, extending inland along some of the larger waterways, especially in eastern Australia.	Freshwater swamps, rivers, lakes, reservoirs, billabongs, saltmarsh and sewage ponds and coastal waters. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, forest and urban areas.	The breeding season extends from June to January (or sometimes February) in southern Australia. Breeding habitat is usually close to water but may occur up to a kilometre away. Nests are mainly located in tall open forest or woodland, but sometimes in other habitats such as dense forest, closed scrub or in remnant trees on cleared land. The White-bellied Sea-Eagle feeds opportunistically on a variety of fish, birds, reptiles, mammals and crustaceans, and on carrion and offal.		yes	Marginal	yes	no	Potential		No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Amphibia	Myobatrachidae	*Heleioporus australiacus*	Giant Burrowing Frog	V	V	South eastern NSW and Victoria, in two distinct populations: a northern population in the sandstone geology of the Sydney Basin as far south as Ulladulla, and a southern population occurring from north of Narooma through to Walhalla, Victoria.	Heath, woodland and open dry sclerophyll forest on a variety of soil types except those that are clay based.	Breeding habitat of this species is generally soaks or pools within first or second order streams. They are also commonly recorded from 'hanging swamp' seepage lines and where small pools form from the collected water. This species breeds mainly in autumn, but has been recorded calling throughout the year. Egg masses are foamy with an average of approximately 500-800 eggs and are laid in burrows or under vegetation in small pools. Spends more than 95% of its time in non-breeding habitat in areas up to 300 m from breeding sites. Whilst in non-breeding habitat it burrows below the soil surface or in the leaf litter.		yes	None	yes	no	No		No
Aves	Apodidae	*Hirundapus caudacutus*	White-throated Needletail	M		All coastal regions of NSW, inland to the western slopes and inland plains of the Great Divide.	Occur most often over open forest and rainforest, as well as heathland, and remnant vegetation in farmland.	Breeds in eastern Siberia, north-eastern China and Japan. The species arrives in Australia in September–October, and most depart by April. It almost always forages aerially. Recorded roosting in trees in forests and woodlands, both among dense foliage in the canopy or in hollows.		yes	Marginal	yes	no	Potential		No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Aves	Jacanidae	*Irediparra gallinacea*	Comb-crested Jacana	V		In NSW, occurs south along the east coast to the Hunter region, with stragglers recorded in south-eastern NSW.	Permanent freshwater wetlands, either still or slow-flowing, with a good surface cover of floating vegetation or fringing and aquatic vegetation.	They feed on insects and other invertebrates, seeds and other vegetation. Breed mainly in spring and summer in NSW, with clutches recorded from September to April. The nest is a platform or shallow cup of vegetable material, though eggs sometimes laid directly onto a large leaf with no nest built. Comb-crested Jacanas are dispersive, moving about in response to the condition of wetlands, and occasionally turn up well beyond normal range.		yes	None	yes	no	No		No
Aves	Psittacidae	*Lathamus discolor*	Swift Parrot	E1	CE	Migrates from Tasmania to mainland in Autumn-Winter. In NSW, the species mostly occurs on the coast and south west slopes.	Box-ironbark forests and woodlands.	Favoured feed trees include winter flowering species such as *Eucalyptus robusta* (Swamp Mahogany), *Corymbia maculata* (Spotted Gum), *C. gummifera* (Red Bloodwood), *E. sideroxylon* (Mugga Ironbark), and *E. albens* (White Box*)*. Commonly used lerp infested trees include *E. microcarpa* (Inland Grey Box), *E. moluccana* (Grey Box) and *E. pilularis* (Blackbutt). Following winter they return to Tasmania where they breed from September to January.		yes		yes	no	Fill cells R to U to determine likelihood		No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Amphibia	Hylidae	*Litoria aurea*	Green and Golden Bell Frog	E1	V	Since 1990, recorded from ~50 scattered sites within its former range in NSW, from the north coast near Brunswick Heads, south along the coast to Victoria. Records exist west to Bathurst, Tumut and the ACT region.	Marshes, dams and stream-sides, particularly those containing Typha spp. (bullrushes) or *Eleocharis* spp. (spikerushes). Some populations occur in highly disturbed areas.	The species is active by day and usually breeds in summer when conditions are warm and wet. Males call while floating in water and females produce a raft of eggs that initially float before settling to the bottom, often amongst vegetation. Tadpoles feed on algae and other plant-matter; adults eat mainly insects, but also other frogs.		yes	Marginal	yes	no	Potential		No
Amphibia	Hylidae	*Litoria littlejohni*	Littlejohn's Tree Frog	V	V	Plateaus and eastern slopes of the Great Dividing Range from Watagan State Forest south to Buchan in Victoria. The species has not been recorded in southern NSW within the last decade.	Breeding habitat is the upper reaches of permanent streams and perched swamps. Non-breeding habitat is heath-based forests and woodlands	Breeding is triggered by heavy rain and can potentially occur all year, but is usually from late summer to early spring. Males call from low vegetation close to slow flowing pools. Eggs are laid in loose gelatinous masses attached to small submerged twigs. Eggs and tadpoles are mostly found in still or slow flowing pools that receive extended exposure to sunlight. Shelters under leaf litter and low vegetation, and hunts for invertebrate prey either in shrubs or on the ground.		yes	None	yes	no	No		No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Aves	Cacatuidae	*Lophochroa leadbeateri*	Major Mitchell's Cockatoo	V		In NSW, occurs across the arid and semi-arid inland, as far east as Bourke and Griffith, and sporadically even further east.	Wide range of treed and treeless inland habitats, always within easy reach of water.	Feeds mostly on the ground, especially on the seeds of native and exotic melons and on the seeds of species of saltbush, wattles and cypress pines. Normally found in pairs or small groups, though flocks of hundreds may be found where food is abundant. Nesting, in tree hollows, occurs throughout the second half of the year; nests are at least 1 km apart, with no more than one pair every 30 square kilometres.		yes	None	yes	no	No		No
Aves	Accipitridae	*Lophoictinia isura*	Square-tailed Kite	V		In NSW, it is a regular resident in the north, north-east and along the major west-flowing river systems. It is a summer breeding migrant to the south-east, including the NSW south coast.	Timbered habitats including dry woodlands and open forests, particularly timbered watercourses.	It is a specialist hunter of passerines, especially honeyeaters, and most particularly nestlings, and insects in the tree canopy, picking most prey items from the outer foliage. Appears to occupy large hunting ranges of more than 100km2. Breeding is from July to February, with nest sites generally located along or near watercourses, in a fork or on large horizontal limbs.		yes	None	yes	no	No		No
Aves	Meropidae	*Merops ornatus*	Rainbow Bee-eater			Distributed across much of mainland Australia, including NSW.	Open forests and woodlands, shrublands, farmland, areas of human habitation, inland and coastal sand dune systems, heathland, sedgeland, vine forest and vine thicket.	The breeding season extends from August to January. The nest is constructed in an enlarged chamber at the end of long burrow that is excavated by both sexes. Populations that breed in southern Australia are migratory, birds moving north to northern Australia, Papua New Guinea and eastern Indonesia after breeding, and remaining there for the		yes	Marginal	yes	no	Potential		No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
								duration of the Australian winter. Its diet mainly consists of bees and wasps.								
Mammalia	Vespertilionidae	*Miniopterus australis*	Little Bentwing-bat	V		East coast and ranges south to Wollongong in NSW.	Moist eucalypt forest, rainforest, vine thicket, wet and dry sclerophyll forest, Melaleuca swamps, dense coastal forests and banksia scrub.	Roost in caves, tunnels, tree hollows, abandoned mines, stormwater drains, culverts, bridges and sometimes buildings during the day, and at night forage for small insects beneath the canopy of densely vegetated habitats. They often share roosting sites with the Common Bentwing-bat. Maternity colonies form in spring. Males and juveniles disperse in summer.		yes	None	yes	no	No		No
Mammalia	Vespertilionidae	*Miniopterus schreibersii oceanensis*	Eastern Bentwing-bat	V		In NSW it occurs on both sides of the Great Dividing Range, from the coast inland to Moree, Dubbo and Wagga Wagga.	Rainforest, wet and dry sclerophyll forest, monsoon forest, open woodland, paperbark forests and open grassland.	It forages above and below the tree canopy on small insects, especially moths. The bats congregate at the same maternity roosts each year to give birth and rear young. In the southern part of the species' range this occurs during spring. Maternity roosts may be located in caves, abandoned mines, concrete bunkers and lava tubes. Over-wintering roosts used outside the breeding period include cooler caves, old mines, and stormwater channels, under bridges and occasionally buildings.		yes	None	yes	no	No		No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Aves	Dicruridae	*Monarcha melanopsis*	Black-faced Monarch		M	In NSW, occurs around the eastern slopes and tablelands of the Great Divide, inland to Coutts Crossing, Armidale, Widden Valley, Wollemi National Park and Wombeyan Caves. It is rarely recorded farther inland.	Rainforest, open eucalypt forests, dry sclerophyll forests and woodlands, gullies in mountain areas or coastal foothills, Brigalow scrub, coastal scrub, mangroves, parks and gardens.	The species spends summer and autumn in eastern Australia, and winters in southern and eastern Papua New Guinea from March to August. Breeds from October to March, in rainforest habitat.		yes	Marginal	yes	no	Potential		No
Aves	Dicruridae	*Monarcha trivirgatus*	Spectacled Monarch			Coastal eastern Australia south to Port Stephens in NSW.	Mountain/lowland rainforest, wooded gullies, riparian vegetation including mangroves.	Summer breeding migrant to north-east NSW and south-east QLD from September/October to May. Nests in a tree fork or in hanging vines, 1 m - 6 m above the ground, often near water.	*Symposiachrus trivirgatus*	yes	None	yes	no	No		No
Mammalia	Molossidae	*Mormopterus norfolkensis*	Eastern Freetail-bat	V		Found along the east coast from south Qld to southern NSW.	Dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range.	Roost mainly in tree hollows but will also roost under bark or in man-made structures. Usually solitary but also recorded roosting communally, probably insectivorous.		yes	Marginal	yes	no	Potential		No
Aves	Motacillidae	*Motacilla flava*	Yellow Wagtail		M	Regular summer migrant to mostly coastal Australia. In NSW recorded Sydney to Newcastle, the Hawkesbury and inland in the Bogan LGA.	Swamp margins, sewage ponds, saltmarshes, playing fields, airfields, ploughed land, lawns.	Breeds Europe to Siberia and west Alaska. Regular summer migrant to Australia (November-April).		yes	Marginal	yes	no	Potential		No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Aves	Dicruridae	*Myiagra cyanoleuca*	Satin Flycatcher		M	In NSW, widespread on and east of the Great Divide and sparsely scattered on the western slopes, with very occasional records on the western plains.	Eucalypt-dominated forests, especially near wetlands, watercourses, and heavily-vegetated gullies.	Satin Flycatchers move north in autumn to spend winter in northern Australia and New Guinea and returning south in spring. In NSW, they depart between February and March and return between September and October. In NSW, breeding occurs between November and March, with a nest usually built in the high, exposed outer branches of a tree.		yes	None	yes	no	No		No
Aves	Psittacidae	*Neophema pulchella*	Turquoise Parrot	V		Occurs along the length of NSW from the coastal plains to the western slopes of the Great Dividing Range.	Eucalypt and cypress pine open forests and woodlands, ecotones between woodland and grassland, or coastal forest and heath.	Prefers to feed in the shade of a tree and spends most of the day on the ground searching for the seeds or grasses and herbaceous plants or browsing on vegetable matter. Nests in tree hollows, logs or posts, from August to December. It lays four or five white, rounded eggs on a nest of decayed wood dust.		yes	None	yes	no	No		No
Aves	Strigidae	*Ninox connivens*	Barking Owl	V		Wide but sparse distribution in NSW, avoiding the most central arid regions. Core populations exist on the western slopes and plains and in some northeast coastal and escarpment forests.	Woodland and open forest, including fragmented remnants and partly cleared farmland, wetland and riverine forest.	It roosts in dense shaded foliage in large trees. Nesting occurs in hollows in large, old eucalypts, either living or dead. The nesting season is during mid-winter and spring but may vary between pairs and from year to year. The Barking Owl preferentially hunts small arboreal mammals such as Squirrel Gliders and Ringtail Possums, but also takes birds, invertebrates and terrestrial mammals.		yes	None	yes	no	No		No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Aves	Strigidae	*Ninox strenua*	Powerful Owl	V		In NSW, it is widely distributed throughout the eastern forests from the coast inland to tablelands, with scattered records on the western slopes and plains.	Woodland, open sclerophyll forest, tall open wet forest and rainforest.	It roosts by day in dense vegetation comprising species such as *Syncarpia glomulifera* (Turpentine), *Allocasuarina littoralis* (Black She-oak), *Acacia melanoxylon* (Blackwood), *Angophora floribunda* (Rough-barked Apple), *Exocarpus cupressiformis* (Cherry Ballart) and eucalypt species. The main prey items are medium-sized arboreal marsupials. Powerful Owls nest in large tree hollows in large eucalypts that are at least 150 years old. Nesting occurs from late autumn to mid-winter.		yes	None	yes	no	No		No
Aves	Anatidae	*Oxyura australis*	Blue-billed Duck	V		Widespread in NSW but is most concentrated in the southern Murray-Darling Basin area.	Coastal and inland wetlands and swamps.	Blue-billed Ducks usually nest solitarily in Cumbungi over deep water between September and February. Young birds disperse in April-May from their breeding swamps in inland NSW to non-breeding areas on the Murray River system and coastal lakes. They feed on the bottom of swamps eating seeds, buds, stems, leaves, fruit and small aquatic insects such as the larvae of midges, caddisflies and dragonflies.		yes	None	yes	no	No		No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Mammalia	Pseudocheiridae	*Petauroides volans*	Greater Glider population in the Eurobodalla local government area	E2	V	This population on the south coast of NSW is bounded by the Moruya River to the north, Coila Lake to the south and the Princes Highway and cleared land exceeding 700 m in width to the west.	Eucalypt forests and woodlands.	Feeds exclusively on eucalypt leaves, buds, flowers and mistletoe. Shelter during the day in tree hollows and will use up to 18 hollows in their home range. Occupy a relatively small home range with an average size of 1 to 3 ha. Give birth to single young in late autumn or early winter.		yes	None	yes	no	No		No
Mammalia	Petauridae	*Petaurus norfolcensis*	Squirrel Glider in the Wagga Wagga Local Government Area	E2,V		The extent of the endangered population is legally defined by the boundaries of the Wagga Wagga LGA.	Open forest, woodland and riverine forest habitats.	Live in family groups and require abundant tree hollows for refuge and nest sites, so are more likely to inhabit mature or old growth forest. Nests are bowl-shaped, and leaf lined. Two young are born between May and December. The diet consists primarily of nectar, pollen, plant exudates and invertebrates. Eucalypt species known to provide suitable denning and foraging resources include (but are not restricted to): *Eucalyptus blakelyi* (Blakely's Red Gum), *E. microcarpa* (Grey Box), *E. polyanthemos* (Red Box), *E. sideroxylon* (Mugga Ironbark), *E. camaldulensis* (River Red Gum), *E. albens* (White Box) and *E. melliodora* (Yellow Box).		yes	None	yes	no	No		No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Mammalia	Petauridae	*Petaurus norfolcensis*	Squirrel Glider on Barrenjoey Peninsula, north of Bushrangers Hill	E2,V		The endangered population is within the Pittwater Local Government Area on the Barrenjoey Peninsula, north of Bushrangers Hill.	In NSW, occurs in a range of coastal habitats from low scrubby eucalypt woodlands and banksia thickets to tall, wet eucalypt forests bordering on rainforest.	The diet consists primarily of nectar, pollen, plant exudates and invertebrates. In Pittwater, important food sources are likely to be the winter flowering *Banksia integrifolia* (Coast Banksia*)* and *Corymbia maculata* (Spotted Gum) and the summer flowering *B. serrata* (Old Man Banksia) and *Eucalyptus paniculata* (Grey Ironbark*).* Other likely food sources include *Angophora costata, Banksia spinulosa, Corymbia gummifera, Eucalyptus botryoides, E. punctata, E. robusta, Melaleuca quinquenervia,* mistletoes and *Xanthorrhoea* species. Tree hollows are an important habitat feature providing den sites for raising young. Births may occur throughout the year, usually with peak in winter.		yes	None	yes	no	No		No
Mammalia	Petauridae	*Petaurus norfolcensis*	Squirrel Glider	V		Widely though sparsely distributed on both sides of the Great Dividing Range in eastern Australia, from northern Qld to western Victoria.	Mature or old growth Box, Box-Ironbark woodlands and River Red Gum forest west of the Great Dividing Range and Blackbutt-Bloodwood forest with heath understorey in coastal areas.	Live in family groups of a single adult male one or more adult females and offspring. Require abundant tree hollows for refuge and nest sites. Diet varies seasonally and consists of *Acacia* gum, eucalypt sap, nectar, honeydew and manna, with invertebrates and pollen providing protein.		yes		yes	no	Fill cells R to U to determine likelihood		No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Mammalia	Phascolarctidae	*Phascolarctos cinereus*	Koala, Hawks Nest and Tea Gardens population	E2,V	V	Known from, and in the immediate vicinity of, the towns of Hawks Nest and Tea Gardens in the Great Lakes Local Government Area.	Eucalypt forest and woodland communities, including coastal forests, rainforest, riparian areas, swamp sclerophyll forests, heathland and shrubland.	Swamp Mahogany and Tallowwood are of primary importance to this Koala population. Other local native tree species used by Koalas include Broad-leaved Paperbark, Blackbutt, Red Bloodwood, Flooded Gum and Smooth-barked Apple		yes	None	yes	no	No		No
Mammalia	Phascolarctidae	*Phascolarctos cinereus*	Koala in the Pittwater Local Government Area	E2,V	V	The endangered population occurs within the Pittwater Local Government Area, with most recent records occurring on the Barrenjoey Peninsula.	Eucalypt forests and woodlands. Key likely habitats within Pittwater Council are: Swamp Mahogany Forest, ecotone between Spotted Gum Forest & Hawkesbury Sandstone Open-Forest, Northern form of Coastal Sandstone Woodland at Whale Beach, Red Bloodwood - Scribbly Gum Woodland, Bilgola Plateau Forest and the Grey Ironbark - Grey Gum form of the Newport Bangalay Woodland.	The Grey Gum (*Eucalyptus punctata*) is the most important food tree for this species in Pittwater. Other favoured food trees are *E. haemastoma* (Scribbly Gum), *E. robusta* (Swamp Mahogany) and *E. racemosa* (Snappy Gum). Generally, koalas can be expected to feed to a limited extent on all species of *Eucalyptus, Corymbia* and *Angophora* that they encounter in Pittwater.		yes	None	yes	no	No		No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Mammalia	Phascolarctidae	*Phascolarctos cinereus*	Koala	V	V	In NSW it mainly occurs on the central and north coasts with some populations in the west of the Great Dividing Range. There are sparse and possibly disjunct populations in the Bega District, and at several sites on the southern tablelands.	Eucalypt woodlands and forests.	Feed on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species. Inactive for most of the day, feeding and moving mostly at night. Spend most of their time in trees, but will descend and traverse open ground to move between trees. Home range size varies with quality of habitat, ranging from less than two ha to several hundred hectares in size. Females breed at two years of age, with mating occurring between September and February.	*Phascolarctos cinereus* (combined populations of Qld, NSW and the ACT)	yes	None	yes	no	No		No
Aves	Threskiornithidae	*Plegadis falcinellus*	Glossy Ibis		M	Recorded over much of NSW. Spring/summer breeding migrant to southern Murray-Darling region and Macquarie Marshes.	Edges of lakes and rivers, lagoons, flood-plains, wet meadows, swamps, reservoirs, sewage ponds, rice-fields and cultivated areas under irrigation. Occasionally estuaries, deltas, saltmarshes and coastal lagoons.	Breeds spring-summer, nests in colonies in well-vegetated wetlands. Roost in trees or shrubs usually near water bodies. Forage in shallow water over a soft substrate or on grassy or muddy margins of wetlands.		yes	Marginal	yes	no	Potential		No
Aves	Pomatostomidae	*Pomatostomus temporalis temporalis*	Grey-crowned Babbler (eastern subspecies)	V		In NSW, occurs on the western slopes of the Great Dividing Range, and as far as Louth and Balranald on the western plains. Also occurs in woodlands in the Hunter Valley and in some locations on the north coast	Open woodland habitats; favours Box-gum woodlands on the slopes and Box-cypress and open Box woodlands on alluvial plains.	The species is insectivorous and forages on trunks and branches of trees or on the ground. It builds conspicuous dome-shaped stick nests in shrubs or eucalypt saplings, which are also used for roosting each night. It breeds co-operatively in sedentary family groups of 2-13 birds.		yes	None	yes	no	No		No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
								Breeding occurs between July and February.								
Mammalia	Potoroidae	*Potorous tridactylus tridactylus*	Long-nosed Potoroo	V	V	In NSW it is generally restricted to coastal heaths and forests east of the Great Dividing Range, with an annual rainfall exceeding 760 mm.	Coastal heaths and dry and wet sclerophyll forests.	Breeding occurs throughout the year, although there is a peak from late winter to early summer. The fruit-bodies of hypogeous (underground-fruiting) fungi are a large component of the diet. They also eat roots, tubers, insects and their larvae. Individuals are thought to be non-territorial and have home ranges of about 2-5ha. Potoroos are nocturnal and crepuscular and rarely seen. They spend the day in "squats" in dense vegetation and their regular movement through the vegetation creates characteristic runways.	*Potorous tridactylus*	yes	None	yes	no	No		No
Mammalia	Muridae	*Pseudomys novaehollandiae*	New Holland Mouse		V	Fragmented distribution across eastern NSW.	Open heathlands, woodlands and forests with a heathland understorey, vegetated sand dunes.	It is a social animal, living predominantly in burrows shared with other individuals. Distribution is patchy in time and space, with peaks in abundance during early to mid-stages of vegetation succession typically induced by fire.		yes	None	yes	no	No		No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Mammalia	Pteropodidae	*Pteropus poliocephalus*	Grey-headed Flying-fox	V	V	Along the eastern coast of Australia, from Bundaberg in Qld to Melbourne in Victoria.	Subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.	Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy. Annual mating commences in January and a single young is born in October or November. Can travel up to 50 km from the camp to forage. Feed on the nectar and pollen of *Eucalyptus, Melaleuca* and *Banksia* species, and fruits of rainforest trees and vines. Also forage in cultivated gardens and fruit crops.		yes	None	yes	no	No		No
Aves	Columbidae	*Ptilinopus magnificus*	Wompoo Fruit-Dove	V		In NSW, occurs south along coast and coastal ranges to the Hunter River.	Rainforest, low-elevation moist eucalypt forest and brush box forests.	Feeds on a diverse range of tree and vine fruits and is locally nomadic - following ripening fruit. The nest is a flimsy platform of sticks on a thin branch or a palm frond, often over water, usually 3 - 10 m above the ground. Breeds in spring and early summer.		yes	None	yes	no	No		No
Aves	Columbidae	*Ptilinopus regina*	Rose-crowned Fruit-Dove	V		In NSW, found on coast and ranges north from Newcastle. Vagrants are occasionally found further south to Victoria.	Sub-tropical and dry rainforest, moist eucalypt forest and swamp forest, where fruit is plentiful.	They feed entirely on fruit from vines, shrubs, large trees and palms, and are thought to be locally nomadic as they follow the ripening of fruits. Some populations are migratory in response to food availability - numbers in north-east NSW increase during spring and summer then decline in April or May.		yes	None	yes	no	No		No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Aves	Columbidae	*Ptilinopus superbus*	Superb Fruit-Dove	V		Principally from north-eastern Qld to north-eastern NSW. Further south, it is confined to pockets of suitable habitat, and occurs as far south as Moruya.	Rainforest and closed forests. May also forage in eucalypt or acacia woodland where there are fruit-bearing trees.	Forages high in the canopy, eating the fruits of many tree species such as figs and palms. Part of the population is migratory or nomadic. At least some of the population, particularly young birds, moves south through Sydney, especially in autumn. Breeding takes place from September to January. The nest is a structure of fine interlocked forked twigs and is usually 5-30 metres up in rainforest and rainforest edge tree and shrub species.		yes	None	yes	no	No		No
Aves	Dicruridae	*Rhipidura rufifrons*	Rufous Fantail		M	Coastal and near coastal districts of northern and eastern Australia, including on and east of the Great Divide in NSW.	Wet sclerophyll forests, subtropical and temperate rainforests. Sometimes drier sclerophyll forests and woodlands.	The southern subspecies *Rhipidura rufifrons rufifrons* is migratory, being virtually absent from south-east Australia in winter. Departure from the breeding areas is usually March to early April, most moving to coastal lowlands and off-shore islands in south-east Queensland, north to Cape York Peninsula and Torres Strait Island. Birds arrive back in south-east Australia mostly in September to November, and breed September to February.		yes	None	yes	no	No		No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Mammalia	Vespertilionidae	*Scoteanax rueppellii*	Greater Broad-nosed Bat	V		Both sides of the great divide, from the Atherton Tableland in Qld to north-eastern Victoria, mainly along river systems and gullies. In NSW it is widespread on the New England Tablelands.	Woodland, moist and dry eucalypt forest and rainforest.	Usually roosts in tree hollows but has also been found in buildings. Forages after sunset along creek and river corridors for beetles and other large, slow-flying insects; this species has been known to eat other bat species. Little is known of its reproductive cycle, however single young is born in January; prior to birth, females congregate at maternity sites located in suitable trees.		yes	None	yes	no	No		No
Aves	Tytonidae	*Tyto novaehollandiae*	Masked Owl	V		Recorded over approximately 90% of NSW, excluding the most arid north-western corner. Most abundant on the coast but extends to the western plains.	Dry eucalypt forests and woodlands from sea level to 1100 m.	Often hunts along the edges of forests, including roadsides. The typical diet consists of tree-dwelling and ground mammals, especially rats. Pairs have a large home-range of 500 to 1000 hectares. Roosts and breeds in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting.		yes	None	yes	no	No		No
Aves	Tytonidae	*Tyto tenebricosa*	Sooty Owl	V		Occupies the easternmost one-eighth of NSW, occurring on the coast, coastal escarpment and eastern tablelands.	Dry rainforest, subtropical and warm temperate rainforest, as well as moist eucalypt forests.	Roosts by day in the hollow of a tall forest tree or in heavy vegetation; hunts by night for small ground mammals or tree-dwelling mammals such as the *Pseudocheirus peregrinus* (Common Ringtail Possum) or *Petaurus breviceps* (Sugar Glider). Nests in very large tree-hollows.		yes	None	yes	no	No		No

Class	Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Distribution	Habitat	Ecology	Synonyms	Distribution overlaps (yes/no)	Habitat quality present (good, marginal, none)	Species known to occur in region (yes/no)	Species known to occur on site (yes/no)	Likelihood of occurrence	Habitat on site directly or indirectly impacted (Yes/No)	Impact Assessment Required
Mammalia	Vespertilionidae	*Vespadelus troughtoni*	Eastern Cave Bat	V		Found in a broad band on both sides of the Great Dividing Range south to Kempsey, with records from the New England Tablelands and the upper north coast of NSW. The western limit appears to be the Warrumbungle Range, and there is a single record from southern NSW, east of the ACT.	Dry open forest and woodland, near cliffs or rocky overhangs, cliff-lines in wet eucalypt forest and rainforest.	A cave-roosting species; has been recorded roosting in disused mine workings, occasionally in colonies of up to 500 individuals. Little is understood of its feeding or breeding requirements or behaviour.		yes	None	yes	no	No		No

ecological AUSTRALIA
A TETRA TECH COMPANY

1300 646 131
www.ecoaus.com.au