



Telopea Master Plan

Flora and Fauna Assessment

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Abbreviations

Abbreviation	Description
BGHF	Blue Gum High Forest
DCP	Development Control Plan
DotEE	Department of the Environment and Energy
DPI	Department of Primary Industries
EEC	Endangered Ecological Community
ELA	Eco Logical Australia Pty Ltd.
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Environment Protection Biodiversity Conservation Act 1999</i>
FFA	Flora and Fauna Assessment
FM Act	<i>Fisheries Management Act 1994</i>
LaHC	Land and Housing Corporation
LCA	Local Control Authority
LEP	Local Environmental Plan
LGA	Local Government Area
MNES	Matters of National Environmental Significance
NM Act	<i>Noxious Weeds Act 1993</i>
OEH	Office of Environment and Heritage
SEPP	State Environmental Planning Policy
TEC	Threatened Ecological Community
TSC Act	<i>NSW Threatened Species Conservation Act 1995</i>
WM Act	<i>Water Management Act 2000</i>

Executive summary

Eco Logical Australia (ELA) Pty Ltd was commissioned by Land and Housing Corporation (LaHC) to report on flora and fauna constraints for the proposed rezoning of the Telopea Master Plan area (hereafter referred to as the 'subject site') in Telopea in Sydney's central west. The redevelopment of the subject site will provide for additional housing and commercial development and a gateway to public transport links, through implementation of the Master Plan. The subject site is currently used predominately for residential buildings ranging from single buildings to apartment blocks, with a small retail area.

The purpose of this assessment was to first identify the key biodiversity constraints of the subject site and to provide recommendations on how those could be appropriately considered in the planning, rezoning and ultimately, future urban development and then to report on how these constraints are addressed within the Master Plan.

A key consideration in this process was the identification of threatened species, ecological communities and/or their habitat listed under the NSW *Threatened Species Conservation Act 1995* (TSC Act) and / or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The subject site is approximately 62 hectares in size.

This assessment has been based on the Telopea Master Plan (**Figure 2**) and information provided by Urbis and LaHC.

A field survey was conducted on 13th January and 3rd March 2016 during which two native vegetation communities were identified within the study area:

- Blue Gum High Forest in the Sydney Basin Bioregion (BGHF) - critically endangered ecological community listed under the *Threatened Species Conservation Act 1999* (TSC Act). This vegetation community is listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act); however the BGHF within the Master Plan area does not meet the listing criteria.
- Alluvial Woodland (a subset of River-flat eucalypt forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions) - endangered ecological community under the TSC Act

Remaining vegetation across the site is comprised of planted native trees, gardens and exotic vegetation.

The Telopea Master Plan does not propose the removal of any threatened ecological community vegetation. Townhouse development, which provides for lower density development than elsewhere, is proposed in the vicinity of this vegetation which will mitigate the impacts of the overall increased residential development in the Master Plan area.

No threatened flora or fauna species listed under the TSC Act or EPBC Act were recorded during the site inspection, and given the highly disturbed nature of the study area it is unlikely that any threatened flora would occur.

Native Habitat Corridors within the Parramatta River Catchment is mapped across the northern area of the Master Plan area. This area includes many mature trees which provide foraging and roosting habitat for a number of threatened fauna species including the Powerful Owl (*Ninox strenua*) and the Grey-headed Flying Fox (*Pteropus poliocephalus*). The retention of these trees has been addressed in the Master Plan, which proposes the retention of mature street trees as an objective and also proposes an

increase in the urban canopy as part of any development. Future development applications will include a landscape plan that will outline details of the existing tree retention and of additional trees to be planted.

1 Introduction

Eco Logical Australia (ELA) was commissioned by Urbis to undertake a constraints assessment for the development of the Telopea Master Plan (hereafter referred to as the 'subject site') located in the suburb of Telopea. Following preparation of this Master Plan, LaHC has commissioned ELA to prepare a Flora and Fauna Assessment report to support the developed Master Plan and rezoning.

Redevelopment into higher density residential areas with additional commercial and community development is proposed across sections of the subject site through the Master Plan process.

This assessment has been based on the Telopea Master Plan dated February 2017 (**Figure 2**).

1.1 Study area

The subject site (**Figure 1**) and study area are located in Parramatta Local Government Area (LGA). The subject site covers approximately 62 ha and is bounded by Addison Road and the railway line in the north-west, Brand Street and residences in Moffatts Drive in the east and Moffatts Drive and Kissing Point Road in the south. Adjacent to the subject site, in the east and south, is native vegetation located within the riparian zone of the upper reaches of The Ponds Creek. A small area of this riparian zone is located within the south west of the subject site in Sturt Park. Land use in the subject site is primarily residential with a small central commercial area and several passive recreational parks.

1.2 Description of the project

The project proposes to restructure the site, introducing higher density residential development, improved access and community facilities, and retail areas. Mature trees within the streetscape are to be retained as a key feature of the Master Plan and residential density is lowest in areas adjacent to native bushland and riparian zones. Enhancement of Sturt Park is proposed. The proposed Master Plan is shown in **Figure 2**.

1.3 Key terms

The following terminology has been used in this report:

Subject site ('site'): the area of direct impact and proposed rezoning, shown in **Figure 1**.

Study area: the area surveyed for the proposal including those areas likely to be directly or indirectly affected by the proposal

Region: 5 km radius around the study area.

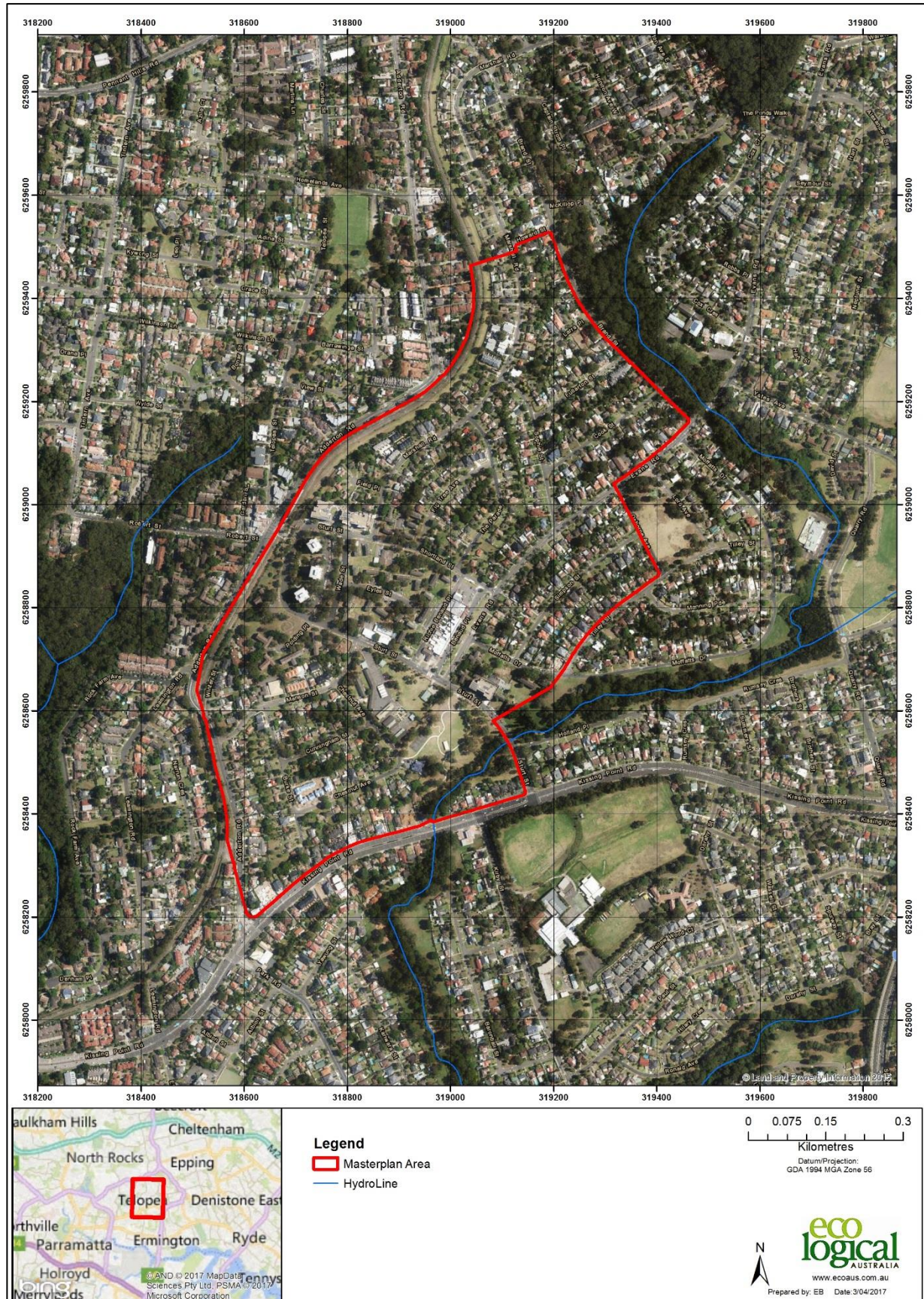


Figure 1: Teloepa Master Plan subject site and regional context



Figure 2: Teloopa Master Plan (Urbis 2017)

2 Statutory planning framework

2.1 Overview

A substantial array of legislation, policies and guidelines apply to the ecological assessment, planning and management of biodiversity values within the subject site. The following sections provide an overview of the relevance of the legislation and policy to this report and identifies the stages when the legislation applies.

2.2 *Environment Protection Biodiversity Conservation Act 1999*

The EPBC Act is Commonwealth legislation that deals with Matters of National Environmental Significance (MNES). Impacts to MNES are assessed through application of a Significance Assessment. Where a development or activity has the potential to have a significant impact on a MNES, a referral is made to the Department of the Environment (DotEE). The Department determines whether the activity can proceed with no further assessment by the Commonwealth, or whether it will be a controlled action for which an Environmental Impact Assessment must be supplied. The Act also allows for Strategic Assessments which assess a policy, plan or program rather than individual developments.

2.3 *Environmental Planning and Assessment Act 1979*

The *Environmental Planning and Assessment Act 1979* (EP&A Act) is the principal planning legislation for NSW, providing a framework for the overall environmental planning and assessment of development proposals. The EP&A Act places a duty on the determining authority to adequately address a range of environmental matters including maintenance of biodiversity and the likely impact to threatened species, populations or ecological communities (under the TSC Act – refer below).

2.4 *Threatened Species Conservation Act 1999*

The TSC Act, as amended, aims to protect and encourage the recovery of threatened species, populations and communities listed under the Act. The interactions between the TSC Act and the EP&A Act requires consideration of whether a development (Part 4 of the EP&A Act), or an activity (Part 5 of the EP&A Act), is likely to significantly affect threatened species, populations, ecological communities or their habitats in accordance Section 5A of the EP&A Act (Assessments of Significance). Submission of a Species Impact Statement is required where a significant impact is considered likely to occur for threatened species, populations and/or ecological communities listed under the TSC Act.

2.5 *Noxious Weeds Act 1993*

The main objectives of *Noxious Weeds Act 1993* (NW Act) are to reduce and monitor the impact of weeds within NSW to protect the state from negative impacts on the economy, community and environment from weeds. The Minister for Regional Infrastructure and Services together with the Minister for Primary Industries is responsible for the declaration of noxious weeds, the assignment of an appropriate noxious class and identification of controls and management for all noxious weeds. The Act is also responsible for the prevention of new weeds establishing, restricting the spread of existing significant weeds and reducing the extent of these weeds. The Act provides for the effective monitoring and reporting of weed management in NSW. Noxious weeds were identified within the study area.

2.6 Water Management Act 2000

The WM Act aims to provide for the sustainable and integrated management of the water sources of NSW for the benefit of both present and future generations. If proposed works (as defined under the EP&A Act) are to be carried out within 40 m of the top of bank of a river (i.e. upon 'waterfront land') a controlled activity approval will be required by the Department of Primary Industries (DPI) Water.

2.7 State Environmental Planning Policy No. 19 – Bushland in Urban Areas

The aims of this State Environmental Planning Policy (SEPP) include: protect the remnants of plant communities which were once characteristic of land now within an urban area; protect habitats for native flora and fauna, and; protect wildlife corridors and vegetation links with other nearby bushland. The SEPP applies to bushland on land that is zoned or reserved for open space.

2.8 Parramatta Local Environmental Plan 2011

General aims of the Parramatta Local Environmental Plan (LEP) 2011 include: to encourage a range of development, including housing, employment and recreation; to foster environmental, economic, social and physical wellbeing so that Parramatta develops as an integrated, balanced and sustainable city; to identify, conserve and promote Parramatta's natural and cultural heritage as the framework for its identity, prosperity, liveability and social development; to minimise risk to the community in areas subject to environmental hazards, particularly flooding and bushfire, by restricting development in sensitive areas; and, to protect and enhance the natural environment, including areas of remnant bushland in Parramatta, by incorporating principles of ecologically sustainable development into land use controls.

2.9 Parramatta City Council Development Control Plan 2008

The Parramatta City Council Development Control Plan (DCP) 2008 works in conjunction with the Parramatta LEP 2011 to: ensure that development contributes to the quality of the natural and built environments; encourage development that contributes to the quality of the public domain; ensure that development is economically, environmentally and socially sustainable; ensure future development has consideration for the needs of all members of the community; ensure development positively responds to the qualities of the site and its context; and, ensure development positively responds to the character of the surrounding area.

The subject site is within the Telopea Precinct, which identifies that:

Stands of mature trees that contribute to the quality of the landscape will be protected where possible or replaced in the redevelopment of sites.

Once approved, the Telopea Master plan will be incorporated into the Parramatta City Council Development Control Plan.

3 Methods

3.1 Literature review

A desktop review of the available literature was conducted using the following sources:

- BioNet (Atlas of NSW Wildlife) database search (5 km) for threatened species, populations and ecological communities listed under the TSC Act (OEH 2016a)
- EPBC Act Protected Matters Search Tool (5 km) for threatened and migratory species, populations and ecological communities listed under the Commonwealth EPBC Act (DotEE 2016a&b)
- FM Act threatened species search (DPI 2016)
- OEH Threatened Species Profiles (OEH 2016b)
- aerial mapping and vegetation mapping (Sydney Metro CMA 2013) to assess the extent of vegetation including mapped threatened ecological communities (TECs) listed under the TSC Act and / or EPBC Act.
- Parramatta River Catchment Native Habitat Corridors mapping (Parramatta City Council)

3.1.1 Likelihood of occurrence

Species from the Atlas of NSW Wildlife search were used as a basis for determining the threatened species and populations that may occur within the study area ('subject species'). Likelihood of occurrences for threatened species, endangered populations and communities in the study area were then made based on location of database records, the likely presence or absence of suitable habitat in the study area, and knowledge of the species' ecology, to limit the list of threatened species to potentially 'affected species' (those that were defined as "yes", "likely" or having "potential" to occur in the study area – see below).

Five terms for the likelihood of occurrence of species are used in this report, as defined below:

- "yes" = the species was or has been observed in the study area;
- "likely" = a medium to high probability that a species uses the study area;
- "potential" = suitable habitat for a species occurs in the study area, but there is insufficient information to categorise the species as likely to occur, or unlikely to occur;
- "unlikely" = a very low to low probability that a species uses the study area; and
- "no" = habitat in the study area and in its vicinity is unsuitable for the species.

Note that assessments for the likelihood of occurrence were made both prior to and following field survey. The pre-survey assessments were performed to determine which species were potentially 'affected species', and hence focus effort for the field survey. The post-survey assessments to determine final 'affected species' were made after observing the available habitat in the study area.

3.1.2 Vegetation mapping

Current aerial mapping was compared with historic aerials from 1930, 1951, 1970, 1986 and 2007 (Parsons Brinkerhoff 2009) to determine remnant vegetation, as opposed to more recently planted. Much of the site has been cleared of most trees and native vegetation during periods of use as agricultural land and orchards.

3.2 Site inspection

Two site inspections were conducted by ecologist Toni Frecker on 13th January and 3rd March 2016. Site inspections occurred over approximately eight hours and involved both traverses on foot through vegetation in the south and east of the study area and survey by car in those areas with urban vegetation.

The survey aimed to:

- validate the extent and quality of native vegetation including threatened ecological communities (TECs)
- identify the presence of threatened species or populations or their habitat
- identify any noxious weeds.

Weather conditions during the survey were sunny and clear (**Table 1**).

Table 1: Weather conditions during the site inspection

Date	Temperature (°C)		Max wind speed (km/h)	Rainfall (mm)
	Minimum	Maximum		
11 January 2016	18	30	7	0
3 March 2016	18	33	4	0

Weather observations were taken from www.bom.gov.au Parramatta North (Masons Drive) (066142)

3.3 Survey limitations

This assessment was not intended to provide an inventory of all species present across the site but instead an overall assessment of the ecological values of the site with particular emphasis on threatened species, endangered ecological communities and key fauna habitat features. It is important to note that some species may not have been detected on the site during the inspection as they may be cryptic or seasonal and only detectable during flowering or during breeding. In this case the likelihood of their occurrence on site has been assessed based on the presence of potential habitat.

Additionally in the urban areas within the subject site, the identification of both species and habitat was limited to distant observation, or desktop mapping due to access constraints.

The field survey was undertaken using hand-held GPS units. It is noted that these units can have errors in accuracy of approximately 20 m (subject to availability of satellites on the day).

4 Results

4.1 Literature review

Database searches identified 25 threatened flora species and 37 threatened fauna species listed under the TSC and / or EPBC Acts, within the locality (**Appendix A**).

Pomaderris prunifolia (Plum-leaf Pomaderris) has previously been recorded within the subject site within Sturt Park. Other species recorded in proximity to the site (OEH 2016a) include:

- *Acacia pubescens* (Downy Wattle)
- *Ninox strenua* (Powerful Owl)
- *Ninox connivens* (Barking Owl)
- *Pteropus poliocephalus* (Grey-headed Flying Fox)
- *Miniopterus schreibersii oceanensis* (Eastern Bent-wing Bat)

Those fauna with the potential to utilise the subject site are likely to do so only periodically, and primarily for foraging. Mature trees within the subject site provide good foraging habitat for threatened fauna.

4.2 Vegetation communities

Three vegetation communities were validated within the study area and the subject site as listed below:

- Blue Gum High Forest in the Sydney Basin Bioregion (BGHF) - critically endangered ecological community listed under both the *TSC Act* and the *EPBC Act*.
- Alluvial Woodland (a subset of River-flat eucalypt forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions) - endangered ecological community
- Urban native/exotic

These vegetation communities are mapped in **Figure 5**.

4.2.1 Blue Gum High Forest

The site is bordered on the eastern boundary by The Rapanea Community Forest which contains BGHF. This vegetation meets the listing criteria for both the *TSC Act* and the *EPBC Act* as a critically endangered ecological community (CEEC).

The areas of BGHF within the site are assumed to be in moderate condition due to the lack of understorey species. A detailed survey of these areas has not been undertaken due to access constraints as the vegetation community is represented by mature trees in the backyards of residential buildings. These areas are individually less than 0.5 ha and separated from the Rapanea Community Forest by Brand Street, and as such do not meet the listing criteria for the *EPBC Act*; however these BGHF patches are listed as a CEEC under the *TSC Act*.

Canopy species identified within this vegetation community include *Eucalyptus saligna* (Sydney Blue Gum), *Eucalyptus paniculata* (Grey Ironbark) and *Eucalyptus globoides* (White Stringybark).

4.2.2 Alluvial Woodland

Alluvial Woodland recorded in the south of the site is also in low to moderate condition with high weed infestations in some sections and others under-scrubbed. It is located in Sturt Park and species include *Melaleuca styphelioides* (Prickly-leaved tea Tree), *Syncarpia glomulifera* (Turpentine), *Angophora*

floribunda (Rough-barked Apple) and *Callistemon salignus* (Willow Bottlebrush). *Lantana camara* (Lantana) is common within the understorey.

4.2.3 Urban native / exotic

Areas of urban native/exotic vegetation contained native species such as *Syncarpia glomulifera* (Turpentine), *Eucalyptus grandis* (Flooded Gum) and *Ficus rubiginosa* (Port Jackson Fig). It is likely that most of these were planted, although a small number of trees in the east of the site may be remnants of the Sydney Turpentine Ironbark vegetation community that would most likely have originally been found within the master plan area. The mix of urban and exotic trees does not however meet the definition of an EEC.

4.3 Flora

A total of 47 flora species were identified within the study area during the site inspection. However many of these were only located within the Rapanea Community Forest outside the subject site. Those species identified within the study area include 37 native and 10 exotic species (**Appendix B**). This is not an exhaustive list of species present within the subject site but include those identified during the site inspection.

4.3.1 Threatened flora

No threatened flora species listed under the TSC Act or EPBC Act were recorded during the site inspection and given the highly disturbed nature of the study area, it is unlikely that any threatened flora would occur.

4.3.2 Noxious weeds

10 exotic species were recorded within the study area, three of which are listed as noxious weeds with the Parramatta Local Control Authority (LCA). The noxious weeds present and their management class are presented in **Table 2**.

Table 2: Noxious weeds (Parramatta Local Control Authority)

Species name	Common name	Noxious Weed Class*
<i>Anredera cordifolia</i>	Madeira Vine	Class 4
<i>Lantana camara</i>	Lantana	Class 4
<i>Senecio madagascariensis</i>	Fireweed	Class 4

*Class 4 - The growth of the plant must be managed in a manner that continuously inhibits the ability of the plant to spread

4.4 Fauna and fauna habitat

Four fauna species were recorded during the site inspection. (**Appendix B**).

4.4.1 Threatened fauna habitat

Hollow bearing trees were mainly found in the vicinity of the riparian areas. The hollows can provide habitat for a range of fauna including common species such small mammals and threatened species such as the Powerful Owl. These hollows also provide potential habitat for the food sources of threatened species such as the Powerful Owl.

Additional hollow-bearing trees may exist within the vegetation between houses, however these may still only provide limited habitat.

4.4.2 Threatened fauna

No threatened fauna were recorded during the site inspection.

Hollows may provide roosting habitat for microbats including the *Mormopterus norfolkensis* (Eastern Freetail-bat) and *Scoteanax rueppellii* (Greater Broad-nosed Bat). Several hollows were recorded within the subject site, but within park areas which will not be impacted by the Master Plan (**Figure 5**).

Pteropus poliocephalus (Grey-headed Flying-fox) is likely to use the subject site for foraging, including vegetation within the proposed increased residential density areas; however the Master Plan proposes to maintain mature trees in the street verges. The Parramatta DCP, under which any development will be assessed, states that:

Stands of mature trees that contribute to the quality of the landscape will be protected where possible or replaced in the redevelopment of sites.

4.4.3 Corridors

Parramatta Council has identified sections of the study area as Native Habitat Corridors within the Parramatta River Catchment, including both riparian corridor in fair to good condition along the southern and western boundaries and urban landscape corridor in the northern half of the study area. The Master Plan proposes to maintain the tree canopy by retaining mature trees within the street verges.

4.4.4 Biodiversity constraints to master planning

Constraints to the master planning process are identified in **Table 3**.

Table 3: Constraints

Classification	Features
High	<ul style="list-style-type: none"> Endangered Ecological Community – either listed under TSC Act or EPBC Act;
Medium to Low (mapped)	<ul style="list-style-type: none"> Parramatta River Catchment Native habitat Corridors
Medium to Low (not mapped)	<ul style="list-style-type: none"> Mature urban native vegetation including street trees Mature exotic trees which may provide threatened fauna foraging or roosting habitat; particularly for Grey-headed Flying Fox and Powerful Owl. Additional mature trees within back yards which are part of the BGHF vegetation community

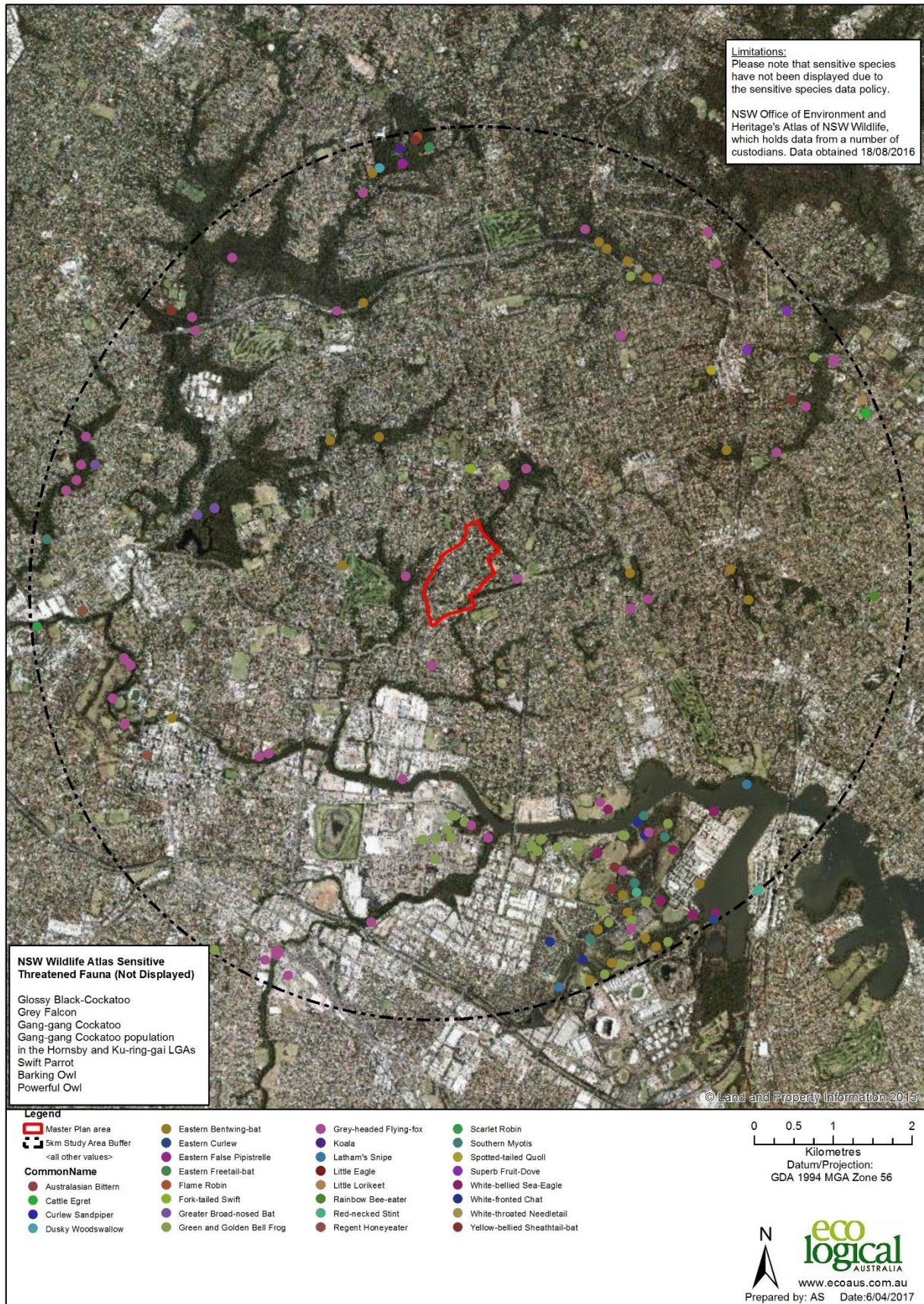


Figure 3: Threatened fauna within the study area

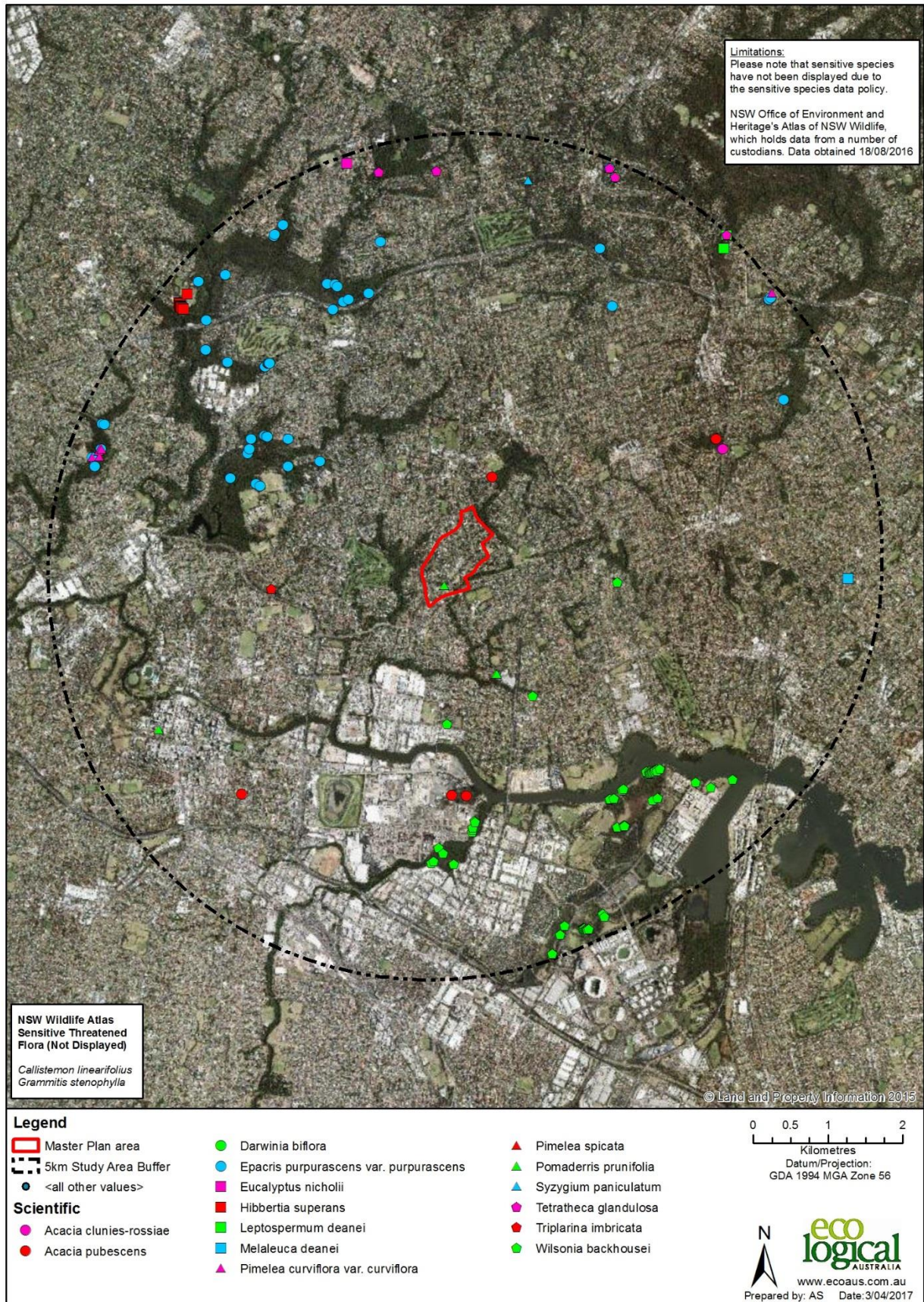


Figure 4: Threatened flora within the study area



Figure 5: Vegetation communities and hollow-bearing trees within the study area



Figure 6: Ecological constraints

5 Impact Assessment

5.1 Direct Impacts

An assessment of likely impacts from the proposal has been included below. A summary of the likely impacts is outlined below:

- Removal of primarily planted, native and exotic urban vegetation
- Removal of potential foraging habitat for a number of bird and bat species

Based on the Master Plan, the majority of potential habitat for threatened species will be avoided by the retention of mature street trees and lower density development proposed for the north east where the more mature canopy is present in residential blocks.

The Master Plan also proposes that:

any future development will seek to increase the tree canopy by preserving, replacing and planting new trees to maintain the urban landscape corridor. (Urbis 2017).

And future development applications will include a landscape plan that will outline the existing tree retention and additional trees to be planted.

5.2 Indirect Impacts

The proposed works may result in indirect impacts that could include:

- Impact of increased development adjacent to Rapanea Community Forest.
- Increased sediment, erosion and nutrient flow to riparian zones.

Townhouse development is proposed in the vicinity of Rapanea Community Forest which will not result in an increase in impact compared to the current zoning. Mitigation measures have been provided in **Section 6** to help avoid development impacts and should be reviewed to ensure their continued relevance at the DA stage.

6 Recommendations

To prevent indirect impacts from the proposal on vegetation communities and habitat for threatened species adjacent to the subject site during development, a number of mitigation measures are likely to be required. These are likely to include the following and should be refined at the DA stage of the project:

- Any enhancement of Sturt Park should be undertaken using native species characteristic of Alluvial Woodland and using local native provenance where possible
- The boundaries of impact areas should be clearly delineated using fences or similar means to prevent encroachment of the works into the surrounding bushland and riparian areas
- Tree protection measures including root management works should be implemented to ensure the survival of mature trees where possible
- Installation of sediment and runoff control measures to prevent runoff entering adjacent riparian areas and watercourses
- Areas proposed for disturbance where noxious weeds are present should be managed according to the weed class.

7 Conclusions

Two EEC's listed under the TSC Act; BGHF and RFEF, were recorded within the subject site. Based on the Master Plan (**Figure 5**), any impact to these vegetation communities will require further assessment at the development application stage; however the proposed development in the vicinity of these vegetation communities is generally a lower density, providing better opportunities for vegetation retention than elsewhere on site. No threatened flora or fauna were recorded within the study area and it is unlikely that any threatened flora would occur.

Potential foraging habitat for a small number of threatened fauna species may be impacted by development under the proposed rezoning; however the Master Plan proposes that mature trees be retained where possible. A formal impact assessment at the Development Application stage of development within the Master Plan area should be prepared and include the preparation of relevant Assessments of Significance (7 Part Tests) in accordance with the EP&A Act and Significance Assessments under the EPBC Act.

Based on the Master Plan and information provided, our indicative conclusion is that it is unlikely that the proposal would have a significant impact on threatened species and ecological communities. However, this must be determined by application of the seven-part test at the development application stage, which would assess the potential impact of the final footprint on relevant threatened species and ecological communities.

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Appendix A Likelihood of Occurrence

An assessment of likelihood of occurrence was made for threatened and migratory species identified from the database search. This assessment applies to the impact assessment area only, that is, the study area. Five terms for the likelihood of occurrence of species are used in this report. This assessment was based on database or other records, presence or absence of suitable habitat, features of the proposal site, results of the field survey and professional judgement. The terms for likelihood of occurrence are defined below:

- “known” = 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 categorise 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.

FAUNA

Scientific Name	Common Name	TSC Status	EPBC Status	Habitat Associations	Likelihood of Occurrence
Frogs					
<i>Heleioporus australiacus</i>	Giant Burrowing Frog	V	V	Heath, woodland and open dry sclerophyll forest on a variety of soil types except those that are clay based.	No Suitable habitat not present within site
<i>Litoria aurea</i>	Green and Golden Bell Frog	E1	V	Marshes, dams and stream-sides, particularly those containing <i>Typha</i> spp. (bullrushes) or <i>Eleocharis</i> spp. (spikerushes). Some populations occur in highly disturbed areas.	No Suitable habitat not present within site
<i>Mixophyes balbus</i>	Stuttering Frog	E1	V	Rainforest and wet, tall open forest in the foothills and escarpment on the eastern side of the Great Dividing Range.	No Suitable habitat not present within site

Scientific Name	Common Name	TSC Status	EPBC Status	Habitat Associations	Likelihood of Occurrence
Birds					
<i>Anthochaera phrygia</i>	Regent Honeyeater	E	E & M	Associated with temperate eucalypt woodland and open forest including forest edges, wooded farmland and urban areas with mature eucalypts, and riparian forests of River Oak (<i>C. cunninghamiana</i>) (Garnett 1993). It primarily feeds on nectar from box and ironbark eucalypts and occasionally from Banksia's and mistletoes (NPWS 1995). It is reliant on locally abundant nectar sources with different flowering times to provide reliable supply of nectar (Environment Australia 2000).	Potential Highly mobile species
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	E	Permanent freshwater wetlands with tall, dense vegetation, particularly Typha spp. (bullrushes) and Eleocharis spp. (spikerushes).	No Suitable habitat not present within site
<i>Calidris ferruginea</i>	Curlew Sandpiper	E	-	Littoral and estuarine habitats, including intertidal mudflats, non-tidal swamps, lakes and lagoons on the coast and sometimes inland.	No Suitable habitat not present within site
<i>Calidris tenuirostris</i>	Great Knot	V	-	Intertidal mudflats or sandflats, including inlets, bays, harbours, estuaries and lagoons.	No Suitable habitat not present within site
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	V		During summer it is found in dense, tall, wet forests of mountains and gullies, alpine woodlands (Morcombe 2004). In winter they occur at lower altitudes in drier more open forests and woodlands, particularly box-ironbark assemblages (Shields & Chrome 1992). They sometimes inhabit woodland, farms and suburbs in autumn/winter (Simpson & Day 2004).	Potential Highly mobile species
<i>Calyptrorhynchus lathamii</i>	Glossy Black-Cockatoo	V	-	Open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur.	Unlikely Suitable habitat unlikely to be present within site
<i>Dasyornis brachypterus</i>	Eastern Bristlebird	E1	E	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.	No Suitable habitat not present within site

Scientific Name	Common Name	TSC Status	EPBC Status	Habitat Associations	Likelihood of Occurrence
<i>Epthianura albifrons</i>	White-fronted Chat	V		Endemic to Australia, in particular southern regions of Australia (OEH 2012). In NSW it occupies temperate to arid habitats from foothills to 1000 m altitude (OEH 2012). In NSW the White-fronted Chat occurs in open habitats near the coast in close proximity to waterways including estuaries, saltmarsh or marshy wetlands (NSW SC 2009).	No Suitable habitat not present within site
<i>Glossopsitta pusilla</i>	Little Lorikeet	V		Dry, open eucalypt forests and woodlands, including remnant woodland patches and roadside vegetation.	No Suitable habitat not present within site
<i>Grantiella picta</i>	Painted Honeyeater	V		Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests.	No Suitable habitat not present within site
<i>Hieraaetus morphnoides</i>	Little Eagle	V		Utilises open eucalypt, she-oak and acacia forest, woodland or open woodland. Uses tall trees for nesting, with a large stick nest being built. Lays eggs in spring, and young fledge in early summer. Preys on birds, reptiles and mammals, and occasionally feeds on large insects or carrion.	No Suitable habitat not present within site
<i>Lathamus discolor</i>	Swift Parrot	E	E	Breeds in Tasmania between September and January. Migrates to mainland in autumn, where it forages on profuse flowering Eucalypts (Blakers et al. 1984; Schodde and Tidemann 1986; Forshaw and Cooper 1981). Hence, in this region, autumn and winter flowering eucalypts are important for this species. Favoured feed trees include winter flowering species such as Swamp Mahogany (<i>Eucalyptus robusta</i>), Spotted Gum (<i>Corymbia maculata</i>), Red Bloodwood (<i>C. gummifera</i>), Mugga Ironbark (<i>E. sideroxylon</i>), and White Box (<i>E. albens</i>) (DECC 2007).	Potential Suitable foraging habitat may be present on site. Highly mobile species
<i>Limosa limosa</i>	Black-tailed Godwit	V	-	Usually sheltered bays, estuaries and lagoons with large intertidal mudflats and/or sandflats. Further inland, it can also be found around muddy lakes and swamps.	No Suitable habitat not present within site
<i>Ninox connivens</i>	Barking Owl	V		Associated with a variety of habitats such as savanna woodland, open eucalypt forests, wetland and riverine forest. The habitat is typically dominated by Eucalypts (often Redgum species), however often dominated by Melaleuca species in the tropics (DECC 2007). It usually roosts in dense foliage in large trees such as <i>Allocasuarina cunninghamiana</i> , other Casuarina and Allocasuarina, eucalypts, Angophora, Acacia and rainforest species from streamside gallery forests (NPWS 2003). It usually nests near	Potential Suitable habitat may be present in the vicinity of the site

Scientific Name	Common Name	TSC Status	EPBC Status	Habitat Associations	Likelihood of Occurrence
				watercourses or wetlands (NPWS 2003) in large tree hollows with entrances averaging 2-29 metres above ground, depending on the forest or woodland structure and the canopy height (Debus 1997).	
<i>Ninox strenua</i>	Powerful Owl	V		Powerful Owls are associated with a wide range of wet and dry forest types with a high density of prey, such as arboreal mammals, large birds and flying foxes (Environment Australia 2000, Debus & Chafer 1994). Large trees with hollows at least 0.5m deep are required for shelter and breeding (Environment Australia 2000). Has been recorded approximately 1 km from the proposed sewer lines.	Potential Suitable foraging habitat may be present in the site
<i>Petroica boodang</i>	Scarlet Robin	V		Occurs from the coast to the inland slopes in NSW. After breeding (July-Jan), some disperse to the lower valleys and plains of the tablelands and slopes, and may appear as far west as the eastern edges of the inland plains in autumn and winter. Primarily resides in dry eucalypt forests and woodlands, with usually open and grassy understorey, with scattered shrubs. Abundant logs and fallen timber are important habitat components. In autumn and winter may live in open grassy woodlands, grasslands or grazed paddocks with scattered trees, and may join mixed flocks of small insectivorous birds. .	No Suitable habitat not present within site
<i>Petroica phoenicea</i>	Flame Robin	V		Flame Robins are found in a broad coastal band around the south-east corner of the Australian mainland, from southern Queensland to just west of the South Australian border. The species is also found in Tasmania. Flame Robins prefer forests and woodlands up to about 1800 m above sea level.	No Suitable habitat not present within site
<i>Ptilinopus superbus</i>	Superb Fruit-Dove	V		Rainforest and closed forests. May also forage in eucalypt or acacia woodland where there are fruit-bearing trees.	No Suitable habitat not present within site
<i>Xenus cinereus</i>	Terek Sandpiper	V	-	Mudbanks and sandbanks near mangroves, rocky pools and reefs, and occasionally up to 10 km inland around brackish pools.	No Suitable habitat not present within site

Scientific Name	Common Name	TSC Status	EPBC Status	Habitat Associations	Likelihood of Occurrence
Migratory species					
<i>Apus pacificus</i>	Fork-tailed Swift	-	M	Sometimes travels with Needletails. Varied habitat with a possible tendency to more arid areas but also over coasts and urban areas (Simpson & Day 1999).	Potential Highly mobile species.
<i>Ardea alba</i>	Great Egret	-	M	Occurs in a range of wetland habitats, including swamps and marshes; margins of rivers and lakes; damp or flooded grasslands, pastures or agricultural lands; reservoirs; sewage treatment ponds; drainage channels; salt pans and salt lakes; salt marshes; estuarine mudflats, tidal streams; mangrove swamps; coastal lagoons; and offshore reefs (DoE 2014). It usually frequents shallow waters. It forages in a wide range of wet and dry habitats including permanent and ephemeral freshwaters, wet pasture and estuarine mangroves and mudflats.	No Suitable habitat not present within the site
<i>Ardea ibis</i>	Cattle Egret	-	M	Cattle Egrets forage on pasture, marsh, grassy road verges, rain puddles and croplands, but not usually in the open water of streams or lakes and they avoid marine environments (McKilligan, 2005). Some individuals stay close to the natal heronry from one nesting season to the next, but the majority leave the district in autumn and return the next spring. Cattle Egrets are likely to spend the winter dispersed along the coastal plain (McKilligan, 2005).	Potential Highly mobile species.
<i>Gallinago hardwickii</i>	Latham's Snipe	-	M	A variety of permanent and ephemeral wetlands, preferring open fresh water wetlands with nearby cover (Marchant and Higgins 1999). Occupies a variety of vegetation around wetlands (Marchant and Higgins 1999) including wetland grasses and open wooded swamps (Simpson and Day 1999). They can also occur in various sites close to humans or human activity (e.g. near roads, railways, airfields, commercial or industrial complexes) (Frith et al. 1977; Naarding 1983).	Unlikely Suitable habitat unlikely to be present within the site
<i>Hirundapus caudacutus</i>	White-throated Needletail	-	M	Forages aerially over a variety of habitats usually over coastal and mountain areas, most likely with a preference for wooded areas (Simpson & Day 1999). Has been observed roosting in dense foliage of canopy trees, and may seek refuge in tree hollows in inclement weather (Marchant & Higgins 1993).	Unlikely Suitable habitat unlikely to be present

Scientific Name	Common Name	TSC Status	EPBC Status	Habitat Associations	Likelihood of Occurrence
<i>Merops ornatus</i>	Rainbow Bee-eater	-	M	Resident in coastal and subcostal northern Australia; regular breeding migrant in southern Australia, usually arriving Sept-Oct, departing Feb-Mar. Occurs in open country, chiefly at suitable breeding places in areas of sandy or loamy soil: sand-ridges, riverbanks, road-cuttings, sand-pits, occasionally coastal cliffs (<i>ibid</i>). Nest is a chamber at the end of a burrow, up to 1.6 m long, tunneled in flat or sloping ground, sandy back or cutting (<i>ibid</i>).	Unlikely Suitable habitat unlikely to be present
<i>Monarcha melanopsis</i>	Black-faced Monarch	-	M	Rainforest and eucalypt forests, feeding in tangled understorey (Blakers et al. 1984).	Unlikely Suitable habitat unlikely to be present
<i>Myiagra cyanoleuca</i>	Satin Flycatcher	-	M	Wetter, denser forest, often at high elevations (Simpson & Day 2004).	Unlikely Suitable habitat unlikely to be present.
<i>Rhipidura rufifrons</i>	Rufous Fantail	-	M	It is a summer breeding migrant to southeastern Australia (Morcombe, 2004). It is found in rainforest, dense wet eucalypt and monsoon forests, paperbark and mangrove swamps and riverside vegetation (Morcombe, 2004). Open country may be used by the Rufous Fantail during migration (Morcombe, 2004).	Unlikely Suitable habitat unlikely to be present
<i>Xanthomyza phrygia</i>	Regent Honeyeater	E	E, M	SEE DIURNAL BIRDS ABOVE	SEE DIURNAL BIRDS ABOVE
Invertebrates					
<i>Pommerhelix duralensis</i>	Dural Land Snail		E1	The Dural Land Snail is endemic to NSW and is confined to the northwest fringes of the Cumberland Plain. The snail has a strong preference for dry shale-influenced transitional landscapes.	No Suitable habitat not present within the site
Mammals (excluding bats)					
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V	E	Rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline.	No Suitable habitat not present within the site

Scientific Name	Common Name	TSC Status	EPBC Status	Habitat Associations	Likelihood of Occurrence
<i>Isodon obesulus</i> <i>obesulus</i>	Southern Brown Bandicoot (eastern)	E	E	Heath or open forest with a heathy understorey on sandy or friable soils.	No Suitable habitat not present within the site
<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby	E	V	Rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges.	No Suitable habitat not present within the site
<i>Phascolarctos cinereus</i>	Koala	V	V	Associated with both wet and dry Eucalypt forest and woodland that contains a canopy cover of approximately 10 to 70% (Reed et al. 1990), with acceptable Eucalypt food trees. Some preferred Eucalyptus species are: <i>Eucalyptus tereticornis</i> , <i>E. punctata</i> , <i>E. cypellocarpa</i> and <i>E. viminalis</i> .	Unlikely Suitable habitat unlikely to be present
<i>Pseudomys novaehollandiae</i>	New Holland Mouse	-	V	A small burrowing native rodent with a fragmented distribution across Tasmania, Victoria, New South Wales and Queensland. Inhabits open heathlands, open woodlands with a heathland understorey and vegetated sand dunes. A social animal, living predominantly in burrows shared with other individuals. The home range of the New Holland Mouse ranges from 0.44 ha to 1.4 ha and the species peaks in abundance during early to mid-stages of vegetation succession typically induced by fire (DoE 2014).	No Suitable habitat not present within the site
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V	Inhabits a wide range of habitats including rainforest, mangroves, paperbark forests, wet and dry sclerophyll forests and cultivated areas (Churchill 1998, Eby 1998). Camps are often located in gullies, typically close to water, in vegetation with a dense canopy (Churchill 1998).	Potential Suitable foraging habitat may be present in the site
Bats					
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V	V	The Large-eared Pied Bat has been recorded in a variety of habitats, including dry sclerophyll forests, woodland, sub-alpine woodland, edges of rainforests and wet sclerophyll forests (Churchill 1998; DECC 2007). This species roosts in caves, rock overhangs and disused mine shafts and as such is usually associated with rock outcrops and cliff faces (Churchill 1998; DECC 2007).	No Suitable habitat not present within the site
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	V		Prefers moist habitats with trees taller than 20m (DECC 2007). Roosts in tree hollows but has also been found roosting in buildings or under loose bark (DECC 2007).	Potential Suitable habitat may be present in the site

Scientific Name	Common Name	TSC Status	EPBC Status	Habitat Associations	Likelihood of Occurrence
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	V		Associated with a range of habitats such as rainforest, wet and dry sclerophyll forest, monsoon forest, open woodland, paperbark forests and open grassland (Churchill 1998). It forages above and below the tree canopy on small insects (AMBS 1995 and Dwyer 1995). Will utilise caves, old mines, and stormwater channels, under bridges and occasionally buildings for shelter (Environment Australia 2000 and Dwyer 1995).	Potential Suitable habitat may be present in the site
<i>Mormopterus norfolkensis</i>	Eastern Freetail-bat	V		Most records of this species are from dry eucalypt forest and woodland east of the Great Dividing Range (Churchill 1998). Individuals have, however, been recorded flying low over a rocky river in rainforest and wet sclerophyll forest and foraging in clearings at forest edges (Environment Australia 2000; Allison & Hoyer 1998). Primarily roosts in hollows or behind loose bark in mature eucalypts, but have been observed roosting in the roof of a hut (Environment Australia 2000; Allison & Hoyer 1998).	Potential Suitable habitat may be present in the site
<i>Myotis macropus</i>	Southern Myotis	V		Foraging habitat is waterbodies (including streams, or lakes or reservoirs) and fringing areas of vegetation up to 20m.	Unlikely Suitable habitat unlikely to be present
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheathtail-bat	V		Almost all habitats, including wet and dry sclerophyll forest, open woodland, open country, mallee, rainforests, heathland and waterbodies.	Unlikely Suitable habitat unlikely to be present
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V		Woodland, moist and dry eucalypt forest and rainforest.	Potential Suitable habitat may be present in the site
Reptiles					
<i>Hoplocephalus bungaroides</i>	Broad-headed Snake	E1	V	Dry and wet sclerophyll forests, riverine forests, coastal heath swamps, rocky outcrops, heaths, grassy woodlands.	No, no suitable habitat

* TSC Act: E1 = Endangered, E2 = Endangered Population, E4 = Extinct, E4A = Critically Endangered, V = Vulnerable; EPBC Act: Bonn = Listed migratory species under Bonn Convention, CD = Conservation Dependent, CE = Critically Endangered, E = Endangered, V = Vulnerable, X = Extinct; FM Act: E1 = Endangered, E2 = Endangered Population, E4 = Extinct, E4A = Critically Endangered, V = Vulnerable

**Note: Some marine and migratory species have been excluded from this Likelihood of Occurrence analysis

FLORA

Scientific Name	Common Name	TSC Status	EPBC Status	Habitat	Likelihood of Occurrence
<i>Acacia bynoeana</i>	Bynoe's Wattle	E1	V	<i>Acacia bynoeana</i> is found in central eastern NSW, from the Hunter District (Morisset) south to the Southern Highlands and west to the Blue Mountains, and has recently been found in the Colymea and Parma Creek areas west of Nowra. It is found in heath and dry sclerophyll forest, typically on a sand or sandy clay substrate, often with ironstone gravels (OEH 2014a).	No Suitable habitat not present
<i>Acacia clunies-rossiae</i>	Kanangra Wattle	V		<i>Acacia pubescens</i> occurs on the NSW Central Coast in Western Sydney, mainly in the Bankstown-Fairfield-Rookwood area and the Pitt Town area, with outliers occurring at Barden Ridge, Oakdale and Mountain Lagoon. It is associated with Cumberland Plains Woodlands, Shale / Gravel Forest and Shale / Sandstone Transition Forest growing on clay soils, often with ironstone gravel (NPWS 1997; Benson and McDougall 1996).	No Suitable habitat not present
<i>Acacia pubescens</i>	Downy Wattle	V	V	Open woodland and forest, including Cooks River/Castlereagh Ironbark Forest, Shale/Gravel Transition Forest and Cumberland Plain Woodland. Occurs on alluviums, shales and at the intergrade between shales and sandstones.	Potential Suitable habitat may be present
<i>Allocasuarina glareicola</i>		E1	E	<i>Allocasuarina glareicola</i> is primarily restricted to the Richmond district on the north-west Cumberland Plain, with an outlier population found at Voyager Point. It grows in Castlereagh woodland on lateritic soil (OEH 2014).	No Suitable habitat not present
<i>Asterolasia elegans</i>		E1	E	Hawkesbury sandstone. Found in sheltered forests on mid- to lower slopes and valleys.	No Suitable habitat not present
<i>Callistemon linearifolius</i>	Netted Bottle Brush	V		<i>Callistemon linearifolius</i> has been recorded from the Georges River to Hawkesbury River in the Sydney area, and north to the Nelson Bay area of NSW, growing in dry sclerophyll forest (OEH 2014a). For the Sydney area, recent records are limited to the Hornsby Plateau area near the Hawkesbury River (OEH 2014a).	No Suitable habitat not present

Scientific Name	Common Name	TSC Status	EPBC Status	Habitat	Likelihood of Occurrence
<i>Cryptostylis hunteriana</i>	Leafless Tongue Orchid	V	V	It is known from a range of vegetation communities including swamp-heath and woodland (OEH 2014a). The larger populations typically occur in woodland dominated by <i>Eucalyptus sclerophylla</i> (Scribbly Gum), <i>E. sieberi</i> (Silvertop Ash), <i>Corymbia gummifera</i> (Red Bloodwood) and <i>Allocasuarina littoralis</i> (Black Sheoak); where it appears to prefer open areas in the understorey of this community and is often found in association with the Large Tongue Orchid (<i>C. subulata</i>) and the Tartan Tongue Orchid (<i>C. erecta</i>) (OEH 2014a).	No Suitable habitat not present
<i>Darwinia biflora</i>		V	V	Woodland, open forest or scrub-heath on the edges of weathered shale-capped ridges, where these intergrade with Hawkesbury Sandstone.	No Suitable habitat not present
<i>Epacris purpurascens</i> var. <i>purpurascens</i>		V		Sclerophyll forest, scrubs and swamps. Most habitats have a strong shale soil influence.	No Suitable habitat not present
<i>Eucalyptus nicholii</i>	Narrow-leaved Black Peppermint	V	V	<i>Eucalyptus nicholii</i> naturally occurs in the New England Tablelands of NSW, where it occurs from Nundle to north of Tenterfield. Grows in dry grassy woodland, on shallow and infertile soils, mainly on granite (DECC 2005). This species is widely planted as an urban street tree and in gardens but is quite rare in the wild (DECC 2005). Plantings undertaken for horticultural and aesthetic purposes are not considered threatened species under the TSC Act.	No Suitable habitat not present
<i>Genoplesium baueri</i>	Bauer's Midge Orchid	E1	E	Dry sclerophyll forest and moss gardens over sandstone.	No Suitable habitat not present
<i>Grammitis stenophylla</i>	Narrow-leaf Finger Fern	E1		In NSW, <i>Grammitis stenophylla</i> has been found on the south, central and north coasts, and as far west as Mount Kaputar National Park near Narrabri, in moist places, usually near streams, on rocks or in trees, in rainforest and moist eucalypt forest.	No Suitable habitat not present
<i>Hibbertia superans</i>		E1		Open woodland and heathland, and appears to prefer open disturbed areas.	No Suitable habitat not present

Scientific Name	Common Name	TSC Status	EPBC Status	Habitat	Likelihood of Occurrence
<i>Leptospermum deanei</i>		V	V	Woodland, riparian scrub and open forest on lower hill slopes or near creeks, on sand or sandy alluvial soil.	No Suitable habitat not present
<i>Melaleuca biconvexa</i>	Biconvex Paperbark	V	V	<i>Melaleuca biconvexa</i> occurs in coastal districts and adjacent tablelands from Jervis Bay north to the Port Macquarie district. It grows in damp places often near streams (OEH 2014a)	Unlikely Suitable habitat unlikely to be present
<i>Melaleuca deanei</i>	Deane's Paperbark	V	V	Heath on sandstone.	No Suitable habitat not present
<i>Pimelea curviflora</i> var. <i>curviflora</i>		V	V	Woodland, mostly on shaley/lateritic soils over sandstone and shale/sandstone transition soils on ridgetops and upper slopes.	No Suitable habitat not present
<i>Pimelea spicata</i>	Spiked Rice-flower	E1	E	Well-structured clay soils. <i>Eucalyptus moluccana</i> (Grey Box) communities and in areas of ironbark on the Cumberland Plain. Coast Banksia open woodland or coastal grassland in the Illawarra."	No Suitable habitat not present
<i>Pomaderris prunifolia</i>	P. prunifolia in the Parramatta, Auburn, Strathfield and Bankstown Local Government Areas	E2		At Rydalmere it occurs among grass species on sandstone near a creek.	Recorded NSW Wildlife Atlas data record within site
<i>Pterostylis saxicola</i>	Sydney Plains Greenhood	E1	E	Small pockets of shallow soil in depressions on sandstone rock shelves above cliff lines, adjacent to sclerophyll forest or woodland on shale/sandstone transition soils or shale soils.	No Suitable habitat not present

Scientific Name	Common Name	TSC Status	EPBC Status	Habitat	Likelihood of Occurrence
<i>Syzygium paniculatum</i>	Magenta Lilly Pilly	E1	V	This species occupies a narrow coastal area between Bulahdelah and Conjola State Forests in NSW. On the Central Coast, it occurs on Quaternary gravels, sands, silts and clays, in riparian gallery rainforests and remnant littoral rainforest communities. In the Ourimbah Creek valley, <i>S. paniculatum</i> occurs within gallery rainforest with <i>Alphitonia excelsa</i> , <i>Acmena smithii</i> , <i>Cryptocarya glaucescens</i> , <i>Toona ciliata</i> , <i>Syzygium oleosum</i> with emergent <i>Eucalyptus saligna</i> . At Wyrabalong NP, <i>S. paniculatum</i> occurs in littoral rainforest as a co-dominant with <i>Ficus fraseri</i> , <i>Syzygium oleosum</i> , <i>Acmena smithii</i> , <i>Cassine australe</i> , and <i>Endiandra sieberi</i> .	Unlikely Suitable habitat unlikely to be present
<i>Tetratheca glandulosa</i>		V		Heath, scrub, woodlands and open forest on upper-slopes and mid-slope sandstone benches. Soils generally shallow, consisting of a yellow, clayey/sandy loam."	No Suitable habitat not present
<i>Thesium australe</i>	Austral Toadflax	V	V	Grassland on coastal headlands or grassland and grassy woodland away from the coast.	No Suitable habitat not present
<i>Triplarina imbricata</i>	Creek Triplarina	E1	E	Along watercourses in low open forest with <i>Tristanopsis laurina</i> (Water Gum).	Potential Suitable habitat may be present in the site
<i>Wilsonia backhousei</i>	Narrow-leafed Wilsonia	V		Margins of salt marshes and lakes.	No Suitable habitat not present

*TSC Act: E1 = Endangered, E2 = Endangered Population, E4 = Extinct, E4A = Critically Endangered, V = Vulnerable; EPBC Act: Bonn = Listed migratory species under Bonn Convention, CD = Conservation Dependent, CE = Critically Endangered, E = Endangered, V = Vulnerable, X = Extinct

Appendix B Flora and Fauna Species List

Flora

Family	Species name	Common name
Fabaceae	<i>Acacia implexa</i>	Hickory Wattle
Fabaceae	<i>Acacia longifolia</i>	Sydney Golden Wattle-
Casuarinaceae	<i>Allocasuarina torulosa</i>	Forest Oak
Myrtaceae	<i>Angophora costata</i>	Sydney Red Gum
Myrtaceae	<i>Angophora floribunda</i>	Rough-barked Apple
Basellaceae	<i>Anredera cordifolia</i> *	Madeira Vine
Phyllanthaceae	<i>Breynia oblongifolia</i>	Coffee Bush
Myrtaceae	<i>Callistemon salignus</i>	Willow Bottlebrush
Vitaceae	<i>Cayratia clematidea</i>	Slender Grape
Ranunculaceae	<i>Clematis aristata</i>	Traveller's Joy
Lamiaceae	<i>Clerodendrum tomentosa</i>	Downy Chance
Commelinaceae	<i>Commelina</i> sp.	-
Phormiaceae	<i>Dianella</i> sp.	-
Chenopodiaceae	<i>Einadia</i> spp.	
Poaceae	<i>Ehrharta</i> sp*	-
Myrtaceae	<i>Eucalyptus acmenoides</i>	White Mahogany
Myrtaceae	<i>Eucalyptus cinerea</i> ^	Argyle Apple
Myrtaceae	<i>Eucalyptus crebra</i>	Narrow-leaved Ironbark
Myrtaceae	<i>Eucalyptus globoidea</i>	White Stringybark
Myrtaceae	<i>Eucalyptus grandis</i> ^	Flooded Gum
Myrtaceae	<i>Eucalyptus paniculata</i>	Grey Ironbark
Myrtaceae	<i>Eucalyptus pilularis</i>	Blackbutt
Myrtaceae	<i>Eucalyptus punctata</i>	Grey Gum
Myrtaceae	<i>Eucalyptus saligna</i>	Sydney Blue Gum
Asparagaceae	<i>Eustrephus latifolius</i>	Wombat Berry
Moraceae	<i>Ficus rubiginosa</i>	Port Jackson Fig
Geraniaceae	<i>Geranium homeanum</i>	Northern Cranesbill
Phyllanthaceae	<i>Glochidion ferdinandi</i>	Cheese Tree
Fabaceae	<i>Glycine tabacina</i>	-

Family	Species name	Common name
Proteaceae	<i>Hakea sericea</i>	Needle Bush
Poaceae	<i>Pennisetum clandestinum</i> *	Kikuyu
Verbenaceae	<i>Lantana camara</i> *	Lantana
Lomandraceae	<i>Lomandra glauca</i>	Pale Mat-rush
Myrtaceae	<i>Melaleuca styphelioides</i>	Prickly-leaved Paperbark
Meliaceae	<i>Melia azedarach</i>	White Cedar
Poaceae	<i>Microlaena stipoides</i>	Weeping Grass
Poaceae	<i>Oplismenus</i> sp.	-
Poaceae	<i>Paspalum dilatatum</i> *	Paspalum
Pittosporaceae	<i>Pittosporum undulatum</i>	Native Daphne
Salicaceae	<i>Populus</i> sp.*	Poplar
Acanthaceae	<i>Pseuderanthemum variable</i>	Pastel Flower
Dennstaedtiaceae	<i>Pteridium esculentum</i>	Common Bracken
Myrsinaceae	<i>Rapanea howittiana</i>	Brush Muttonwood
Asteraceae	<i>Senecio madagascariensis</i> *	Fireweed
Fabaceae	<i>Senna glabrata</i> *	Senna
Myrtaceae	<i>Syncarpia glomulifera</i>	Turpentine
Commelinaceae	<i>Tradescantia fluminensis</i>	Trad
Ulmaceae	<i>Trema tomentosa</i>	Native Peach

* Introduced; ^ planted

Fauna

Family	Species name	Common name
Agamidae	<i>Intellagama lesueui</i>	Eastern Water Dragon
Artamidae	<i>Cracticus tibicen</i>	Australian Magpie
Halcyonidae	<i>Dacelo novaeguineae</i>	Eastern Laughing Kookaburra
Meliphagidae	<i>Manorina melanocephala</i>	Noisy Minor
Psittacidae	<i>Trichoglossus haematodus</i>	Rainbow Lorikeet



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