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Jane Street and Mulgoa Road Infrastructure Upgrade

Review of Environmental Factors

Appendix N – Biodiversity Assessment

October 2016

11 August 2016

Leah Howell
Senior Consultant | Environment and Sustainability
Arup
Level 10 201 Kent Street
Sydney NSW 2000

Via email: Leah.Howell@arup.com

Dear Leah,

Re: Biodiversity Assessment Letter for Jane Street Extension, Penrith, NSW

This letter contains a Flora and Fauna Assessment of the above works in accordance with the brief received from Arup on behalf of NSW Roads and Maritime Services (Roads and Maritime). It has been prepared to identify any likely ecological constraints or significant impacts to threatened species, populations or ecological communities that might occur as a result of the proposed works. The letter was originally finalised in May 2016 but has been updated to address the 100% final design of the project since it became available.

Proposed Works

Roads and Maritime is currently investigating options for alleviating congestion in the vicinity of Jane Street and Mulgoa Road, Penrith. A Preliminary Environmental Investigation (PEI) has already been completed and a Review of Environmental Factors (REF) is currently under preparation in association with the design refinement process. Widening and intersection upgrades are proposed along with a temporary construction compound.

Site Description

The site is located at Penrith and encompasses the existing Castlereagh Road between Museum Drive and Union Road, plus intersections with Jane Street (Great Western Highway) and High Street (Great Western Highway). Some upgrade works are also proposed along the western end of High Street (Great Western Highway) until it meets Peach Tree Creek. In this location the main vegetation consists of remnant individual trees mixed with urban street and park planting. Peach Tree Creek contains disturbed riparian vegetation. The area surrounding the site primarily consists of intensive urban development such as Penrith City Centre, industrial areas and extensive parklands.

Figure 1 provides an aerial photo overview of the proposed works.

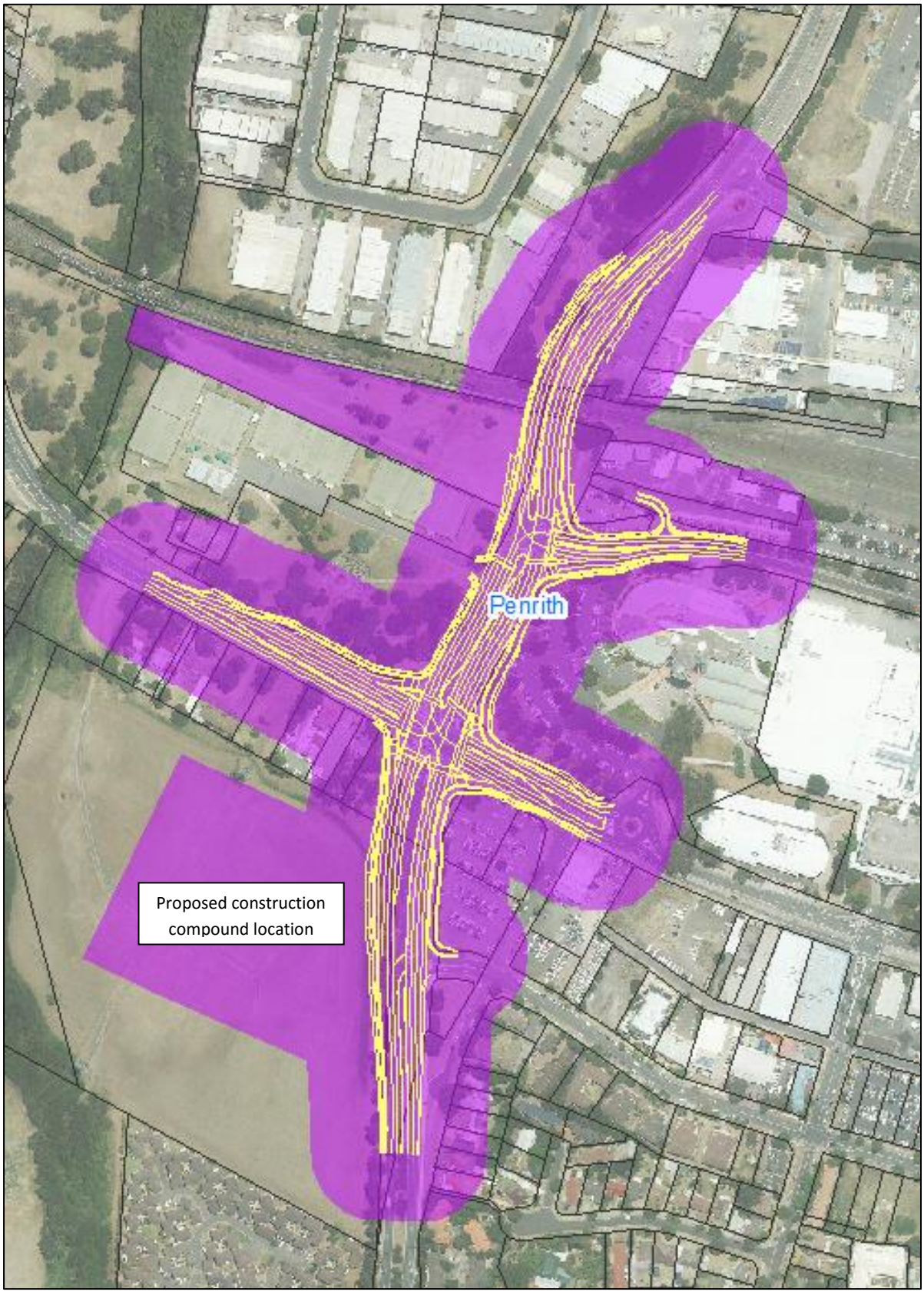


Figure 1: Aerial photo overview of the proposed upgrade works.

Legislative Context

EPBC Act 1999

The primary objective of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) is to 'provide for the protection of the environment, especially those aspects of the environment that are Matters of National Environmental Significance' (Matters of NES). Environmental approvals under the EPBC Act may be required for an 'action' that is likely to have a significant impact on Matters of NES being:

- World Heritage Areas;
- National Heritage Places;
- Ramsar wetlands of international importance;
- Nationally listed threatened species and ecological communities;
- Listed migratory species;
- Commonwealth marine areas;
- Nuclear actions;
- Great Barrier Reef Marine Park; and
- A water resource in relation to coal seam gas development and large coal mining development.

Of potential relevance to the site are Matters of NES which include nationally listed threatened species, ecological communities and listed migratory species. Where there is the potential for a proposal to have a significant impact on any Matter of NES a Referral under the EPBC Act is submitted to The Department of the Environment (DoE) for approval.

TSC Act 1995

The Threatened Species Conservation Act 1995 (TSC Act) aims to protect and encourage the recovery of threatened species, populations and communities listed under the Act. The TSC Act is integrated with the EP&A Act and 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 and ecological communities or their habitat.

The potential impact of the proposed works on any threatened species, populations or communities is assessed using Assessments of Significance under Section 5A of the EP&A Act (also known as a seven-part test). If the impacts are found to be 'significant', a Species Impact Statement (SIS) and concurrence from the Director General of the Office of Environment and Heritage (OEH) is required.

Other relevant Acts

The Fisheries Management Act 1994 and Water Management Act 2000 have also been considered as part of this assessment, where relevant. Consideration of SEPP 44 – Koala Habitat Protection has also occurred.

Desktop Assessment

Searches of the NSW and Commonwealth databases were undertaken and the results are included in Appendix 2. The databases reviewed consisted of:

- NSW BioNet - http://www.bionet.nsw.gov.au; and
- Commonwealth Department of the Environment Protected Matters search tool.

No threatened species records were located within the study area. This is likely due to the highly urbanised nature and lack of true remnant native habitats.

A review of the Native Vegetation Maps of the Cumberland Plain (NSW NPWS 2002) revealed that the entire study area is mapped as not containing any intact or disturbed remnant vegetation. Downslope and downstream of the existing railway, a remnant of Alluvial Woodland is mapped as occurring, leading north towards the Nepean River.

Flora and Fauna Survey

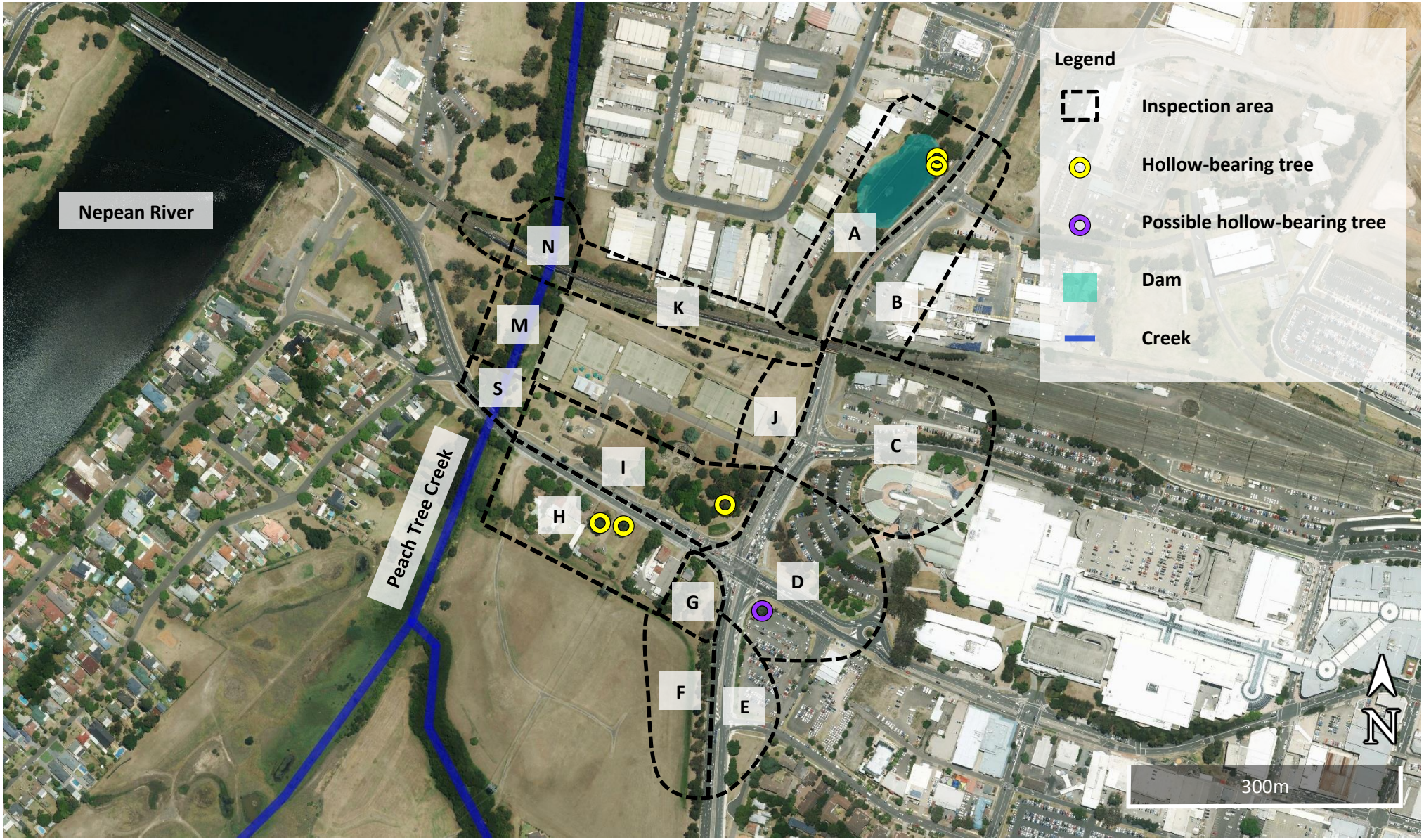
The field work component of this report was conducted in accordance with National Parks and Wildlife Act 1974 (NP&W Act) Section 132 (c) Scientific Licence (SL100772). The licence permits the undertaking of biodiversity assessments, Species Impacts Statements, ecological surveys and abiotic sampling as part of flora and fauna survey work.

The primary guideline that guides ecological survey in NSW are the Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities Working Draft (DEC 2004). The Roads and Maritime Services *Environmental Impact Assessment Practice Note: Biodiversity Assessment* was also considered. Review of these guidelines indicates that for an impact that is likely to impact highly urbanised areas, a modified survey methodology is appropriate.

It was determined that an initial site inspection and recording of ecological characteristics would be an appropriate approach to determine whether additional detailed surveys (such as trapping, night work etc.) were warranted. It was determined following this site inspection that additional surveys were not warranted. This was because the vegetation to be impacted directly by the proposed works was primarily exotic or planted and unlikely to form significant habitat for threatened species and did not comprise a threatened ecological community. The small area to be impacted also justified a reduced survey effort in this instance.

The survey was undertaken by Nicholas Everitt (Ecologist) on 15 September 2015.

Refer to Figure 2 for the biodiversity survey locations.



Map Title:	Jane Street Penrith – Site Inspection							**Date:**	21 Oct 2015
Location:	Penrith, NSW	**Author/ Reviewer:**	AT/NE	**Version No:**	V01	**Map/ DWG No:**	**1** of **1**	**Job Ref:**	11229

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The survey included the following:

- Ecological inspection of the study area, including breaking the terrestrial inspection area into Areas A – K and the riparian areas of Peach Tree Creek into Areas N (north), M (middle) and S (south) as shown in Figure 2;
- Inspection of the understorey vegetation to be impacted by the proposed works;
- Recording general flora species observed within the proposed works area, and targeting the potential occurrence of any threatened flora;
- Observations of any signs indicating the presence of fauna species;
- Recording all fauna observed during the inspection;
- Targeting the presence of all threatened fauna, including Koala habitat;
- Recording habitat characteristics throughout the inspection area, including if any hollow-bearing trees were present;
- Inspection of under bridge areas for any roosting fauna such as microbats;
- Observation of the existing drainage situation and how the proposed works might impact Peach Tree Creek (and subsequently the Nepean River); and
- Description of the riparian environments within Peach Tree Creek in consideration of the Aquatic Habitat description requirements of the Roads and Maritime Services *Environmental Impact Assessment Practice Note: Biodiversity Assessment.*

Results

Section A

This section is located on the western side of Castlereagh Road between the intersections of Jane Street and Museum Drive.

Flora

The vegetation consisted of scattered trees, garden beds, managed parkland grasses and some semi-aquatic and aquatic vegetation fringing a large dam at the northern end. The tree species throughout Section A included mostly native species such as *Eucalyptus tereticornis* (Forest Red Gum), *Eucalyptus botryoides* (Bangalay), *Corymbia maculata* (Spotted Gum), *Casuarina cunninghamiana* (River She-oak) and *Melaleuca linariifolia* (Flax-leaved Paperbark) as well as a mixture of exotic tree species. The southern end contained mostly no understorey, apart from some garden plantings with a managed grassland dominated by *Pennisetum clandestinum* (Kikuyu). The northern end contained a very sparse understorey including some *Bursaria spinosa* (Blackthorn) and a mixture of exotic species.

The dam contained mostly open water with *Juncus acutus* subsp. *acutus* (Spiny Rush) forming clumps and fringing vegetation in limited areas. Mostly the dam did not contain any significant fringing vegetation.

Plate 1 provides a photo of the dam areas.

Plate 1 – Looking south at the dam in the northern end of Section A.

Fauna

One (1) bird species, *Anas superciliosa* (Pacific Black Duck) was recorded in the dam during the survey.

Habitat

Two (2) hollow-bearing trees were observed on the northern side of the dam including:

- Hollow-bearing tree 1; *Eucalytpus botryoides* (Bangalay) – Height: 25m; DBH (Diameter at Breast Height): 1.3m; hollows: 2 small (<10cm) trunk hollows; and
- Hollow-bearing tree 2; *Eucalyptus botryoides* (Bangalay) – Height: 20m; DBH: 1m; hollows: a split trunk & 1 small (<10cm) branch hollow.

These hollow-bearing trees provide potential nesting and roosting habitat for a range of fauna species, such as birds, micro-bats and arboreal mammals. No other hollow-bearing trees or nests were observed within Section A. The dam is likely to contain active nests of common aquatic bird species such as the Pacific Black Duck, although none were observed. Flowering trees provide some foraging habitat for a range of fauna species, such as arboreal mammals, bats and birds.

A visual assessment of the dam water recorded some discolouration and, combined with an odour, indicated that a moderate level of nutrient runoff is being captured by the dam and that the quality of the water is not likely to be high.

Section B

This section is located on the eastern side of Castlereagh Road between the intersections of Museum Drive and Jane Street.

Flora

The vegetation consisted of garden beds and roadside weeds consisting of mostly exotic shrubs and small trees, such as *Ligustrum lucidum* (Large-leaved Privet) and *Olea europaea* subsp. *cuspidata* (African Olive) as well as *Jacaranda mimosifolia* (Jacaranda) and the native shrub *Bursaria spinosa* (Blackthorn). The ground cover is partly managed and is dominated by *Pennisetum clandestinum* (Kikuyu). One (1) specimen of *Corymbia maculata* (Spotted Gum) was also observed in a garden bed.

Plate 2 below provides a visual indication of this area.

Plate 2 – Looking south at typical roadside vegetation in Section B.

Fauna

No fauna was observed within this section during the survey.

Habitat

No hollow-bearing trees or nests were observed within Section B. Flowering trees provide minor foraging habitat for a range of fauna species, such as arboreal mammals, bats and birds.

Section C

This section is located around Jane Street and its intersection with the eastern side of Castlereagh Road.

Flora

The vegetation consisted of garden beds containing scattered shrubs and lines of planted street trees including *Eucalyptus microcorys* (Tallowwood) and some smaller areas of *Jacaranda mimosifolia* (Jacaranda). The ground cover outside the garden beds contains managed areas of mostly *Pennisetum clandestinum* (Kikuyu).

Plate 3 shows the landscaped vegetation in this area.

Plate 3 – Looking east along Jane Street in Section C from intersection with Castlereagh Road.

Fauna

No fauna was observed within this section during the survey.

Habitat

No hollow-bearing trees or nests were observed within Section C. Flowering trees provide minor foraging habitat for a range of fauna species, such as arboreal mammals, bats and birds.

Section D

This section is located around High Street and its intersection with the eastern side of Castlereagh Road.

Flora

The vegetation on the northern side of High Street is similar to Section C and consists of garden beds containing scattered shrubs and lines of street trees including *Eucalyptus microcorys* (Tallowwood), an unknown Eucalypt species (similar to *Eucalyptus sieberi* - Silvertop Ash) and some smaller areas of *Jacaranda mimosifolia* (Jacaranda). The ground cover outside the garden beds contains managed areas of mostly *Pennisetum clandestinum* (Kikuyu).

The vegetation on the southern side of High Street contains a line of *Syagrus romanzoffiana* (Cocos Palm) and a large specimen of *Castanospermum australe* (Black Bean) on the corner within the car yard.

Fauna

No fauna was observed within this section during the survey.

Habitat

No hollow-bearing trees or nests were observed within section D. However it is likely that the large specimen of Black Bean within the car yard on the corner of High Street and Castlereagh Road may contain hollows suitable for nesting and roosting fauna, although this could not be confirmed as the tree was located on private property. Flowering and fleshy-fruited trees provide minor foraging habitat for a range of fauna species, such as arboreal mammals, bats and birds.

Section E

This section is located south of High Street, along the eastern side of Castlereagh Road. Note that due to the 100% final design being expanded to include more of the adjoining residential backyards, that expanded area was not inspected on the ground. However, EPS is highly confident this area would not contain any additional important habitat for threatened species or communities.

Flora

The vegetation consisted of lines of street trees with a managed ground cover of mostly *Pennisetum clandestinum* (Kikuyu). Figs (*Ficus sp.*) occur north of Union Road and *Platanus x acerifolia* (London Planetree) to the south of Union Road.

Fauna

No fauna was observed within this section during the survey.

Habitat

No hollow-bearing trees or nests were observed within Section E. Flowering and fleshy-fruited trees provide minor foraging habitat for a range of fauna species, such as arboreal mammals, bats and birds.

Section F

This section is located on the eastern side of Castlereagh Road between Union Road and High Street. Note that due to the 100% final design being expanded further south and west to include more of the adjoining open mown fields for a construction compound and lengthened roadworks, that area was not inspected on the ground. However, EPS is highly confident this area would not contain any additional important habitat for threatened species or communities.

Flora

The vegetation consisted of mostly planted native trees including, *Eucalyptus sideroxylon* (Mugga Ironbark), *Corymbia maculata* (Spotted Gum), *Eucalyptus tereticornis* (Forest Red Gum) and *Eucalyptus microcorys* (Tallowwood) with a managed ground cover dominated by *Pennisetum clandestinum* (Kikuyu).

A small constructed open drain running along the western side of the street trees also contained a mixture of weeds, semi-aquatic and aquatic vegetation. It appears this drain has been constructed for drainage of the adjoining mown fields.

Fauna

No fauna was observed within this section during the survey.

Habitat

No hollow-bearing trees or nests were observed within Section F. Flowering trees provide minor foraging habitat for a range of fauna species, such as arboreal mammals, bats and birds. The small drain is likely to provide suitable habitat for common amphibian species as well as a range of other common fauna.

Section G

This section is located on the south-west corner of Castlereagh Road and High Street.

Flora

The vegetation consisted of scattered exotic trees with a managed ground cover dominated by *Pennisetum clandestinum* (Kikuyu) and some dense areas of shrub and ground cover weeds including, *Ligustrum lucidum* (Large-leaved Privet) and *Tradescantia fluminensis* (Wandering Creeper).

Fauna

No fauna was observed within this section during the survey.

Habitat

No hollow-bearing trees or nests were observed within this section. Flowering trees and shrubs provide some limited foraging habitat for a range of fauna species, such as arboreal mammals, bats and birds. The dense areas of shrubs may also provide protective habitat for a range of common fauna species.

Section H

This section is located along the southern side of High Street, between Peach Tree Creek and Castlereagh Road.

Flora

The vegetation consisted of native and exotic trees and gardens within private land, with a managed ground cover dominated by *Pennisetum clandestinum* (Kikuyu). The tree species included, *Cinnamomum camphora* (Camphor Laurel) and *Eucalyptus botryoides* (Bangalay).

Fauna

No fauna was observed within this section during the survey.

Habitat

Two (2) hollow-bearing trees were observed within the front yard of 680 High Street, the estimated details of which included:

- Hollow-bearing tree 3; *Eucalytpus botryoides* (Bangalay) – Height: 27m; DBH: 1m; hollows: 1 medium (10-30cm) trunk hollow; &
- Hollow-bearing tree 4; *Eucalyptus botryoides* (Bangalay) – Height: 10m; DBH: 0.7m; hollows: 1 small (<10cm) branch & 1 small (<10cm) trunk hollow.

These hollow-bearing trees provide potential nesting and roosting habitat for a range of fauna species, such as birds, micro-bats and arboreal mammals. No other hollow-bearing trees or nests were observed within this section. Flowering trees and shrubs provide some foraging habitat for a range of fauna species, such as arboreal mammals, bats and birds.

Section I

This section is located along the northern side of High Street, between Peach Tree Creek and Castlereagh Road.

Flora

The vegetation consisted of a parkland with garden beds and a mixture of native and exotic trees including, *Eucalyptus sideroxylon* (Mugga Ironbark), *Corymbia maculata* (Spotted Gum), *Eucalyptus botryoides* (Bangalay), *Cinnamomum camphora* (Camphor Laurel), *Jacaranda mimosifolia* (Jacaranda) and *Ficus macrophylla* (Morton Bay Fig) with a managed ground cover dominated by *Pennisetum clandestinum* (Kikuyu).

Fauna

No fauna was observed within this section during the survey.

Habitat

One (1) hollow-bearing tree was observed within this section. The details included:

- Hollow-bearing tree 5; *Corymbia maculata* (Spotted Gum) – Height: 28m; DBH: 1.5m; hollows: 1 medium (10-30cm) trunk hollow, approximately 2.5m above the ground).

This hollow-bearing tree provides potential nesting and roosting habitat for a range of fauna species, such as birds, micro-bats and arboreal mammals. Wear observed around the entrance of this hollow indicates that it is likely to be in use. A hollow of this size and close to the ground in a parkland would most likely be utilised by common possum species such as *Trichosurus vulpecula* (Common Brushtail Possum), though no evidence (such as scats) of a specific inhabiting species was observed. No other hollow-bearing trees or nests were observed within this section. Flowering trees and shrubs provide some foraging habitat for a range of fauna species, such as arboreal mammals, bats and birds.

Section J

This section is located between High Street and the railway line on the west side of Castlereagh Road.

Flora

The vegetation consisted of three (3) specimens of *Eucalyptus tereticornis* (Forest Red Gum) with a managed ground cover dominated by *Pennisetum clandestinum* (Kikuyu).

Fauna

No fauna was observed within this section during the survey.

Habitat

No hollow-bearing trees or nests were observed within this section. Flowering trees provide some foraging habitat for a range of fauna species, such as arboreal mammals, bats and birds.

Section K

This section is located along the railway line between Castlereagh Road in the east, to the western side of Peach Tree Creek. The majority of the areas along the northern side of the railway line were not accessible due to being private land.

Flora

The vegetation consisted of scattered trees and managed grassland dominated by *Pennisetum clandestinum* (Kikuyu) with some areas denser shrubs including *Bursaria spinosa* (Blackthorn) within garden beds along the edge of the railway line. A variety of weed species were also observed along the southern side of the railway line, including *Lantana camara* (Lantana).

Fauna

No fauna was observed within this section during the survey.

Habitat

No hollow-bearing trees or nests were observed within this section. Flowering trees provide some foraging habitat for a range of fauna species, such as arboreal mammals, bats and birds.

Peach Tree Creek

Flora

Peach Tree Creek contains very dense areas of mostly exotic trees and shrubs forming approximately 3-4m of vegetation on each bank adjoined by managed grassland. Some of the exotic tree, shrub and groundcover species observed included, *Cinnamomum camphora* (Camphor Laurel), *Ligustrum lucidum* (Large-leaved Privet), *Ligustrum sinense* (Small-leaved Privet), *Pennisetum clandestinum* (Kikuyu) and *Tradescantia fluminensis* (Wandering Creeper).

An area of the creek on the southern side of the railway contained a dense area of emergent aquatic vegetation dominated by *Typha orientalis* (Broadleaf Cumbungi).

Plate 4 shows a typical representation of Peach Tree Creek and the dominant exotic vegetation.

Plate 4 – Looking south along Peach Tree Creek (between High Street & the railway crossing).

Fauna

No fauna was observed within this section during the survey.

Habitat

The riparian areas of Peach Tree Creek were assessed in three locations, N (north), M (middle) and S (south) as shown in Figure 2. The riparian assessment results are summarised below in Table 1.

Table 1: Riparian Assessment of Peach Tree Creek

Assessment Criteria	North	Mid	South	South end (above weir)
Dimensions of waterway (m)	8	6	6	4
Depth of water (cm)	30-50	>100	50	30
Flow characteristics	Slow.	No flow.	No flow.	Moderate flow.
Bed substrate	Mud.	Not visible.	Not visible.	Mud.
Habitat features	Eroded banks. Some emergent vegetation.	Eroded banks. No emergent vegetation.	Eroded banks. No emergent vegetation.	Eroded banks. No emergent vegetation.
Existing infrastructure or barriers to fish movement	No. Large weir present approximately 30m to the north.	No.	Yes. Small weir present.	Yes. Small weir present.
Visual assessment of water quality	Brown colour. Moderate quality.	Brown colour. Low-moderate quality.	Brown colour. Low-moderate quality.	Brown colour. Low-moderate quality.

Flowering trees and shrubs may provide some foraging habitat for a range of fauna species, such as arboreal mammals, bats and birds. No hollow-bearing trees were observed along the banks of the creek. The aquatic areas of Peach Tree Creek may provide potential foraging habitat for a variety of fauna species, such as aquatic birds and common reptiles as well as potential breeding and foraging habitat for common amphibians. Dense areas of shrubs may also provide some protective and nesting habitat for a range of fauna species.

Discussion and Impact Assessment

The subject site consists of primarily planted trees and gardens throughout roadsides, parklands and open cleared spaces. While individual trees might be remnant species that might have naturally occurred in the area, no semblance of structured native vegetation communities persists within the study area. It is considered that no endangered ecological communities under the TSC Act or EPBC Act occur within the areas likely to be impacted by the project.

Five (5) hollow-bearing trees were observed within the subject site, none of which are likely to be removed as part of this project.

The areas of aquatic habitat including, the dam in Section A, the drain in Section F and Peach Tree Creek are considered to provide some potential breeding and foraging habitat for fauna species, however these areas are unlikely to be substantially or significantly impacted by the proposal.

As outlined previously, it was determined that due to the relatively small area to be impacted by the project works, combined with the disturbed and predominantly exotic vegetation of the site, that additional field investigations were not necessary.

No threatened species, populations or ecological communities were considered likely to substantially rely on the habitats provided by the site, particularly given the highly urbanised nature of the area.

Consideration of whether further detailed impact assessment was necessary was undertaken. A 7 part test has been completed for micro-bat species which have some potential to forage throughout the site (refer to Appendix 1) and could possibly utilise the identified tree hollows. No detailed 7 part test of other fauna species or EPBC Act assessment is considered warranted due to the limited nature of impacts and the disturbed and exotic nature of the vegetation.

Conclusions and Recommendations

It is considered that the proposed works are unlikely to significantly impact any threatened species, populations or ecological communities as listed under the EPBC Act, TSC Act or Fisheries Management Act. The site is considered likely only to primarily provide habitat for common species of fauna adapted to highly urbanised environments.

It is considered that a Referral to the Department of the Environment under the EPBC Act is not required.

It is considered that a Species Impact Statement under the TSC Act is not required.

The following recommendations should be considered for implementation:

- The vegetation disturbance should be restricted to the smallest area possible;
- Removed exotic vegetation should be disposed of off-site at an approved location for exotic vegetation disposal;
- Appropriate erosion and sediment erosion control mechanisms should be implemented during construction, particularly to avoid impacts to the receiving waters of Peach Tree Creek and the dam; and
- Any exposed soil surfaces post-construction should be revegetated preferably with native species, where such planting does not impede the function of the drainage works.

If you require any further information, please contact the undersigned on 4981 1600.

Yours Sincerely,

Toby Lambert
Principal Ecologist

Appendix 1 – 7 part test

Consideration of the effects of the proposed development under the guidelines of Section 5A of the *Environmental Planning and Assessment Act 1979 (EPA Act 1979)* for threatened species, populations and / or ecological communities considered to have a greater than moderate likelihood of occurrence are given below.

The following threatened micro-bat species have been considered:

- *Mormopterus norfolkensis* Eastern Freetail-bat
- *Falsistrellus tasmaniensis* Eastern False Pipistrelle
- *Miniopterus schreibersii oceanensis* Eastern Bentwing-bat
- *Myotis macropus* Southern Myotis
- *Scoteanax rueppellii* Greater Broad-nosed Bat
- *Chalinolobus dwyeri* Large-eared Pied Bat

No substantial native habitat is considered to be provided for any other threatened species, populations or endangered ecological communities.

Seven - part tests - factors of assessment

The potential impacts of this proposal on threatened species, populations and ecological communities considered likely to occur within the subject site at some stage are considered below.

(a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction

Mormopterus norfolkensis Eastern Freetail-bat

It is considered that the subject site may provide potential habitat for *M.norfolkensis*. Five (5) hollow-bearing trees observed throughout the subject site, outside of the direct impact area, may provide potential roosting habitat for this species. All hollow-bearing trees will be retained as part of this proposal. The railway bridge crossings over both Castlereagh Road and Peach Tree Creek were inspected and no roosting bats or suitable structures for roosting bats were observed. The proposal will remove a small area of potential foraging habitat available to this species. As such the proposal is not considered likely to have an adverse effect on the life cycle of these species such that a viable local population will be placed at risk of extinction.

Falsistrellus tasmaniensis Eastern False Pipistrelle

It is considered that the subject site may provide marginal potential habitat for *F.tasmaniensis*. Five (5) hollow-bearing trees observed throughout the subject site, outside of the direct impact area, may provide potential roosting habitat for this species. All hollow-bearing trees will be retained as part of this proposal. The railway bridge crossings over both Castlereagh Road and Peach Tree Creek were inspected and no roosting bats or suitable structures for roosting bats were observed. The proposal will remove a small area of potential foraging habitat available to this species. As such the proposal is not considered likely to have an adverse effect on the life cycle of these species such that a viable local population will be placed at risk of extinction.

Miniopterus schreibersii oceanensis Eastern Bentwing-bat

It is considered that the subject site may provide marginal potential habitat for *M.schreibersii oceanensis*. No caves or suitable roosting structures were observed within the subject site. The railway bridge crossings over both Castlereagh Road and Peach Tree Creek were inspected and no roosting bats or suitable structures for roosting bats were observed. The proposal will remove a small area of potential foraging habitat available to this species. As such the proposal is not considered likely to have an adverse effect on the life cycle of these species such that a viable local population will be placed at risk of extinction.

Myotis macropus Southern Myotis

It is considered that the subject site may provide potential habitat for *M.macropus*. Five (5) hollow-bearing trees observed throughout the subject site, outside of the direct impact area, may provide potential roosting habitat for this species. All hollow-bearing trees will be retained as part of this proposal. The railway bridge crossings over both Castlereagh Road and Peach Tree Creek were inspected and no roosting bats or suitable structures for roosting bats were observed. Dense areas of foliage along Peach Tree Creek may potential roosting habitat for this species, however these areas are also outside the direct impact area.

Peach Tree Creek may also provide potential foraging habitat for this species, however the proposal is unlikely to have any indirect impact upon creek habitats.

The proposal will remove a small area of potential foraging habitat available to this species. As such the proposal is not considered likely to have an adverse effect on the life cycle of these species such that a viable local population will be placed at risk of extinction.

Scoteanax rueppellii Greater Broad-nosed Bat

It is considered that the subject site may provide potential habitat for *S.rueppellii*. Five (5) hollow-bearing trees observed throughout the subject site, outside of the direct impact area, may provide potential roosting habitat for this species. All hollow-bearing trees will be retained as part of this proposal. The railway bridge crossings over both Castlereagh Road and Peach Tree Creek were inspected and no roosting bats or suitable structures for roosting bats were observed. The proposal will remove a small area of potential foraging habitat available to this species. As such the proposal is not considered likely to have an adverse effect on the life cycle of these species such that a viable local population will be placed at risk of extinction.

Chalinolobus dwyeri Large-eared Pied Bat

It is considered that the subject site may provide potential foraging habitat for *C.dwyeri*. No caves or suitable roosting structures including Fairy Martin nests were observed within the subject site. The railway bridge crossings over both Castlereagh Road and Peach Tree Creek were inspected and no roosting bats or suitable structures for roosting bats were observed. The proposal will remove a small area of potential foraging habitat available to this species. As such the proposal is not considered likely to have an adverse effect on the life cycle of these species such that a viable local population will be placed at risk of extinction.

(b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction

No endangered populations likely to occur within the subject site.

(c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction

The vegetation throughout the subject site consists of mostly planted trees throughout parklands and roadsides areas and is not considered to be characteristic of any endangered ecological community.

(d) in relation to the habitat of a threatened species, population or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and

The proposal may require the removal of some planted roadside trees although no hollow-bearing trees or nesting habitats.

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

The proposal will impact upon immediate roadside areas, along the edges of existing road, containing some trees with no understorey or significant habitat features. Therefore the proposal is unlikely to fragment or isolate any areas of habitat.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality

Five (5) hollow-bearing trees were observed throughout the subject site. These may provide potential roosting habitat for micro-bat species, however all of these hollow-bearing trees will be retained as

part of this proposal. The railway bridge crossings over both Castlereagh Road and Peach Tree Creek were inspected and no roosting bats or suitable structures for roosting bats were observed.

(e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly)

The subject site is not located near any declared areas of critical habitat

(f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan

The proposal will remove individual trees, most of which are planted or exotic, and as such this contradicts recovery strategies for each threatened species to a minor degree. However, key habitat features such as hollow-bearing trees will be retained as part of this proposal.

(g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process

The proposal may increase the operation of the following key threatening processes:

- Clearing of vegetation;
- Removal of dead wood and dead trees;
- Invasion of native plant communities by African Olive *Olea europaea* L. subsp. *cuspidata*;
- Invasion, establishment and spread of Lantana (*Lantana camara* L. sens. Lat); &
- Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants.

Specimens of African Olive were observed along the roadside in the northern end of Section B and Lantana was observed in Section K. The proposal will remove only planted roadside and parkland trees and will not remove any areas of remnant native vegetation and is therefore unlikely to significantly increase the impact of these key threatening processes.

Appendix 2 - NSW and Commonwealth Database Searches

Data from the BioNet Atlas of NSW Wildlife website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1Â°; ^^ rounded to 0.01Â°). Copyright the State of NSW through the Office of Environment and Heritage. Search criteria : Licensed Report of all Valid Records of Threatened (listed on TSC Act 1995) or Commonwealth listed Entities in selected area [North: -33.69 West: 150.63 East: 150.73 South: -33.79] returned a total of 231 records of 41 species.
Report generated on 9/10/2015 9:28 AM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Animalia	Amphibia	Myobatrachidae	3116	*Pseudophryne australis*		Red-crowned Toadlet	V,P		5	
Animalia	Amphibia	Hylidae	3166	*Litoria aurea*		Green and Golden Bell Frog	E1,P	V	1	
Animalia	Aves	Anatidae	0214	*Stictonetta naevosa*		Freckled Duck	V,P		2	
Animalia	Aves	Accipitridae	0218	*Circus assimilis*		Spotted Harrier	V,P		1	
Animalia	Aves	Accipitridae	0225	*Hieraaetus morphnoides*		Little Eagle	V,P		2	
Animalia	Aves	Accipitridae	0230	*Lophoictinia isura*		Square-tailed Kite	V,P,3		1	
Animalia	Aves	Cacatuidae	0268	*Callocephalon fimbriatum*		Gang-gang Cockatoo	V,P,3		5	
Animalia	Aves	Cacatuidae	0265	*^^Calyptorhynchus lathami*		Glossy Black-Cockatoo	V,P,2		4	
Animalia	Aves	Psittacidae	0260	*Glossopsitta pusilla*		Little Lorikeet	V,P		1	
Animalia	Aves	Psittacidae	0309	*Lathamus discolor*		Swift Parrot	E1,P,3	E	7	
Animalia	Aves	Psittacidae	0302	*Neophema pulchella*		Turquoise Parrot	V,P,3		2	
Animalia	Aves	Strigidae	0248	*Ninox strenua*		Powerful Owl	V,P,3		5	
Animalia	Aves	Tytonidae	0250	*Tyto novaehollandiae*		Masked Owl	V,P,3		2	
Animalia	Aves	Tytonidae	9924	*Tyto tenebricosa*		Sooty Owl	V,P,3		1	
Animalia	Aves	Acanthizidae	0504	*Chthonicola sagittata*		Speckled Warbler	V,P		1	
Animalia	Aves	Meliphagidae	0603	*Anthochaera phrygia*		Regent Honeyeater	E4A,P	CE	1	

Animalia	Aves	Neosittidae	0549	*Daphoenositta chrysoptera*	Varied Sittella	V,P		11	
Animalia	Aves	Petroicidae	0382	*Petroica phoenicea*	Flame Robin	V,P		1	
Animalia	Aves	Estrildidae	0652	*Stagonopleura guttata*	Diamond Firetail	V,P		1	
Animalia	Mammalia	Dasyuridae	1008	*Dasyurus maculatus*	Spotted-tailed Quoll	V,P	E	7	
Animalia	Mammalia	Phascolarctidae	1162	*Phascolarctos cinereus*	Koala	V,P	V	10	
Animalia	Mammalia	Burramyidae	1150	*Cercartetus nanus*	Eastern Pygmy-possum	V,P		1	
Animalia	Mammalia	Petauridae	1136	*Petaurus australis*	Yellow-bellied Glider	V,P		3	
Animalia	Mammalia	Petauridae	1137	*Petaurus norfolcensis*	Squirrel Glider	V,P		1	
Animalia	Mammalia	Pteropodidae	1280	*Pteropus poliocephalus*	Grey-headed Flying-fox	V,P	V	24	
Animalia	Mammalia	Molossidae	1329	*Mormopterus norfolkensis*	Eastern Freetail-bat	V,P		3	
Animalia	Mammalia	Vespertilionidae	1372	*Falsistrellus tasmaniensis*	Eastern False Pipistrelle	V,P		3	
Animalia	Mammalia	Vespertilionidae	1834	*Miniopterus schreibersii oceanensis*	Eastern Bentwing-bat	V,P		15	
Animalia	Mammalia	Vespertilionidae	1357	*Myotis macropus*	Southern Myotis	V,P		8	
Animalia	Mammalia	Vespertilionidae	1361	*Scoteanax rueppellii*	Greater Broad-nosed Bat	V,P		4	
Animalia	Gastropoda	Camaenidae	I006	*Meridolum corneovirens*	Cumberland Plain Land Snail	E1		10	

Plantae	Flora	Apocynaceae	10896	*Marsdenia viridiflora subsp. viridiflora*	Marsdenia viridiflora R. Br. subsp. viridiflora population in the Bankstown, Blacktown, Camden, Campbelltown, Fairfield, Holroyd, Liverpool and Penrith local government areas	E2		1	
Plantae	Flora	Fabaceae (Faboideae)	2853	*Dillwynia tenuifolia*		V,P		17	
Plantae	Flora	Fabaceae (Faboideae)	3007	*Pultenaea parviflora*		E1,P	V	14	
Plantae	Flora	Fabaceae (Mimosoideae)	3728	*Acacia bynoeana*	Bynoe's Wattle	E1,P	V	7	
Plantae	Flora	Myrtaceae	4274	*Micromyrtus minutiflora*		E1,P	V	9	
Plantae	Flora	Orchidaceae	9615	*^^Pterostylis saxicola*	Sydney Plains Greenhood	E1,P,2	E	1	
Plantae	Flora	Proteaceae	10917	*Grevillea juniperina subsp. juniperina*	Juniper-leaved Grevillea	V,P		14	
Plantae	Flora	Proteaceae	5458	*Persoonia hirsuta*	Hairy Geebung	E1,P,3	E	1	
Plantae	Flora	Proteaceae	5467	*Persoonia nutans*	Nodding Geebung	E1,P	E	22	
Plantae	Flora	Thymelaeaceae	6190	*Pimelea spicata*	Spiked Rice-flower	E1,P	E	2	

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Report generated on 9/10/2015 9:30 AM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Community				*Agnes Banks Woodland in the Sydney Basin Bioregion*		Agnes Banks Woodland in the Sydney Basin Bioregion	E4B		K	
Community				*Blue Gum High Forest in the Sydney Basin Bioregion*		Blue Gum High Forest in the Sydney Basin Bioregion	E4B	CE	K	
Community				*Blue Mountains Basalt Forest in the Sydney Basin Bioregion*		Blue Mountains Basalt Forest in the Sydney Basin Bioregion	E3		K	
Community				*Blue Mountains Shale Cap Forest in the Sydney Basin Bioregion*		Blue Mountains Shale Cap Forest in the Sydney Basin Bioregion	E3	CE	K	
Community				*Blue Mountains Swamps in the Sydney Basin Bioregion*		Blue Mountains Swamps in the Sydney Basin Bioregion	V2	E	K	
Community				*Castlereagh Scribbly Gum Woodland in the Sydney Basin Bioregion*		Castlereagh Scribbly Gum Woodland in the Sydney Basin Bioregion	V2	E	K	
Community				*Castlereagh Swamp Woodland Community*		Castlereagh Swamp Woodland Community	E3		K	

Community	*Cooks River/Castlereagh Ironbark Forest in the Sydney Basin Bioregion*	Cooks River/Castlereagh Ironbark Forest in the Sydney Basin Bioregion	E3	CE	K	
Community	*Cumberland Plain Woodland in the Sydney Basin Bioregion*	Cumberland Plain Woodland in the Sydney Basin Bioregion	E4B	CE	K	
Community	*Elderslie Banksia Scrub Forest in the Sydney Basin Bioregion*	Elderslie Banksia Scrub Forest in the Sydney Basin Bioregion	E4B		K	
Community	*Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*	Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3		K	
Community	*Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions*	Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	E3	E	K	
Community	*Newnes Plateau Shrub Swamp in the Sydney Basin Bioregion*	Newnes Plateau Shrub Swamp in the Sydney Basin Bioregion	E3	E	K	

Community	*River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*	River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3		K	
Community	*Shale Gravel Transition Forest in the Sydney Basin Bioregion*	Shale Gravel Transition Forest in the Sydney Basin Bioregion	E3	CE	K	
Community	*Shale Sandstone Transition Forest in the Sydney Basin Bioregion*	Shale Sandstone Transition Forest in the Sydney Basin Bioregion	E4B	CE	K	
Community	*Southern Sydney sheltered forest on transitional sandstone soils in the Sydney Basin Bioregion*	Southern Sydney sheltered forest on transitional sandstone soils in the Sydney Basin Bioregion	E3		K	
Community	*Sun Valley Cabbage Gum Forest in the Sydney Basin Bioregion*	Sun Valley Cabbage Gum Forest in the Sydney Basin Bioregion	E4B		K	
Community	*Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3		K	

Community	*Western Sydney Dry Rainforest in the Sydney Basin Bioregion*	Western Sydney Dry Rainforest in the Sydney Basin Bioregion	E3	CE	K	
Community	*White Box Yellow Box Blakelyâ€™s Red Gum Woodland*	White Box Yellow Box Blakelyâ€™s Red Gum Woodland	E3	CE	K	

Data from the BioNet Atlas of NSW Wildlife website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1Â°; ^^ rounded to 0.01Â°). Copyright the State of NSW through the Office of Environment and Heritage. Search criteria : Licensed Report of all Valid Records of Threatened (listed on TSC Act 1995) or Commonwealth listed Threats in selected area [North: -33.69 West: 150.63 East: 150.73 South: -33.79] returned 0 records for 35 species.
Report generated on 9/10/2015 9:33 AM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Threat				*Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners Manorina melanocephala*		Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners Manorina melanocephala	KTP	KTP	P	
Threat				*Alteration of habitat following subsidence due to longwall mining*		Alteration of habitat following subsidence due to longwall mining	KTP		P	
Threat				*Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands*		Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands	KTP		P	
Threat				*Anthropogenic Climate Change*		Anthropogenic Climate Change	KTP	KTP	P	
Threat				*Bushrock removal*		Bushrock removal	KTP		P	
Threat				*Clearing of native vegetation*		Clearing of native vegetation	KTP	KTP	P	

Threat	*Competition and grazing by the feral European Rabbit, Oryctolagus cuniculus (L.)*	Competition and grazing by the feral European Rabbit, Oryctolagus cuniculus (L.)	KTP	KTP	P	
Threat	*Competition and habitat degradation by Feral Goats, Capra hircus Linnaeus 1758*	Competition and habitat degradation by Feral Goats, Capra hircus Linnaeus 1758	KTP	KTP	P	
Threat	*Competition from feral honey bees, Apis mellifera L.*	Competition from feral honey bees, Apis mellifera L.	KTP		P	
Threat	*Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners*	Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners	KTP		P	
Threat	*Herbivory and environmental degradation caused by feral deer*	Herbivory and environmental degradation caused by feral deer	KTP		P	
Threat	*High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition*	High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition	KTP		P	

Threat	*Importation of Red Imported Fire Ants Solenopsis invicta Buren 1972*	Importation of Red Imported Fire Ants Solenopsis invicta Buren 1972	KTP	KTP	P	
Threat	*Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations*	Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations	KTP	KTP	P	
Threat	*Infection of frogs by amphibian chytrid causing the disease chytridiomycosis*	Infection of frogs by amphibian chytrid causing the disease chytridiomycosis	KTP	KTP	P	
Threat	*Infection of native plants by Phytophthora cinnamomi*	Infection of native plants by Phytophthora cinnamomi	KTP	KTP	P	
Threat	*Introduction and establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae*	Introduction and establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae	KTP		P	
Threat	*Introduction of the Large Earth Bumblebee Bombus terrestris (L.)*	Introduction of the Large Earth Bumblebee Bombus terrestris (L.)	KTP		P	

Threat	*Invasion and establishment of exotic vines and scramblers*	Invasion and establishment of exotic vines and scramblers	KTP		P	
Threat	*Invasion and establishment of Scotch Broom (Cytisus scoparius)*	Invasion and establishment of Scotch Broom (Cytisus scoparius)	KTP		P	
Threat	*Invasion and establishment of the Cane Toad (Bufo marinus)*	Invasion and establishment of the Cane Toad (Bufo marinus)	KTP	KTP	P	
Threat	*Invasion of native plant communities by African Olive Olea europaea subsp. cuspidata (Wall. ex G. Don) Cif.*	Invasion of native plant communities by African Olive Olea europaea subsp. cuspidata (Wall. ex G. Don) Cif.	KTP		P	
Threat	*Invasion of native plant communities by Chrysanthemoides monilifera*	Invasion of native plant communities by Chrysanthemoides monilifera	KTP		P	
Threat	*Invasion of native plant communities by exotic perennial grasses*	Invasion of native plant communities by exotic perennial grasses	KTP		P	
Threat	*Invasion of the Yellow Crazy Ant, Anoplolepis gracilipes (Fr. Smith) into NSW*	Invasion of the Yellow Crazy Ant, Anoplolepis gracilipes (Fr. Smith) into NSW	KTP		P	

Threat	*Invasion, establishment and spread of Lantana (Lantana camara L. sens. Lat)*	Invasion, establishment and spread of Lantana (Lantana camara L. sens. Lat)	KTP		P	
Threat	*Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants*	Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	KTP	KTP	P	
Threat	*Loss of Hollow-bearing Trees*	Loss of Hollow-bearing Trees	KTP		P	
Threat	*Loss or degradation (or both) of sites used for hill-topping by butterflies*	Loss or degradation (or both) of sites used for hill-topping by butterflies	KTP		P	
Threat	*Predation and hybridisation by Feral Dogs, Canis lupus familiaris*	Predation and hybridisation by Feral Dogs, Canis lupus familiaris	KTP		P	
Threat	*Predation by Gambusia holbrooki Girard, 1859 (Plague Minnow or Mosquito Fish)*	Predation by Gambusia holbrooki Girard, 1859 (Plague Minnow or Mosquito Fish)	KTP		P	
Threat	*Predation by the European Red Fox Vulpes Vulpes (Linnaeus, 1758)*	Predation by the European Red Fox Vulpes Vulpes (Linnaeus, 1758)	KTP	KTP	P	

Threat	*Predation by the Feral Cat Felis catus (Linnaeus, 1758)*	Predation by the Feral Cat Felis catus (Linnaeus, 1758)	KTP	KTP	P	
Threat	*Predation, habitat degradation, competition and disease transmission by Feral Pigs, Sus scrofa Linnaeus 1758*	Predation, habitat degradation, competition and disease transmission by Feral Pigs, Sus scrofa Linnaeus 1758	KTP	KTP	P	
Threat	*Removal of dead wood and dead trees*	Removal of dead wood and dead trees	KTP		P	

Australian Government

Department of the Environment

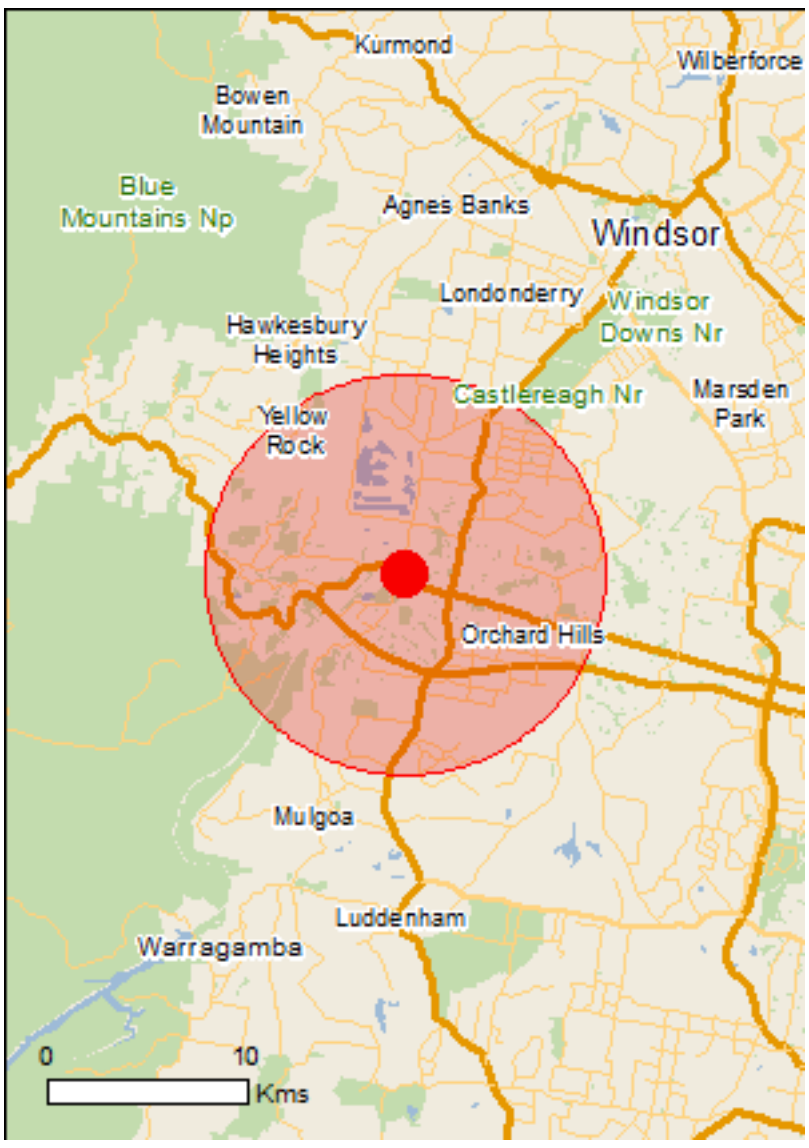
EPBC Act Protected Matters Report

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

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

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 09/10/15 09:38:35



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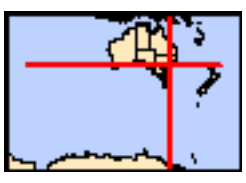
Coordinates

Buffer: 10.0Km



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	1
National Heritage Places:	1
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	8
Listed Threatened Species:	43
Listed Migratory Species:	13

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Land:	15
Commonwealth Heritage Places:	1
Listed Marine Species:	15
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

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

State and Territory Reserves:	5
Regional Forest Agreements:	None
Invasive Species:	52
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

World Heritage Properties [Resource Information]

Name	State	Status
The Greater Blue Mountains Area	NSW	Declared property

National Heritage Properties [Resource Information]

Name	State	Status
Natural		
The Greater Blue Mountains Area	NSW	Listed place

Listed Threatened Ecological Communities [Resource Information]

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

Name	Status	Type of Presence
Castlereagh Scribbly Gum and Agnes Banks Woodlands of the Sydney Basin Bioregion	Endangered	Community likely to occur within area
Cooks River/Castlereagh Ironbark Forest of the Sydney Basin Bioregion	Critically Endangered	Community likely to occur within area
Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest	Critically Endangered	Community likely to occur within area
Shale Sandstone Transition Forest of the Sydney Basin Bioregion	Critically Endangered	Community likely to occur within area
Temperate Highland Peat Swamps on Sandstone	Endangered	Community known to occur within area
Turpentine-Ironbark Forest in the Sydney Basin Bioregion	Critically Endangered	Community likely to occur within area
Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion	Endangered	Community likely to occur within area
Western Sydney Dry Rainforest and Moist Woodland on Shale	Critically Endangered	Community likely to occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat may occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area
Lathamus discolor Swift Parrot [744]	Endangered	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
Fish		
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area
Prototroctes maraena Australian Grayling [26179]	Vulnerable	Species or species habitat likely to occur within area
Frogs		
Heleioporus australiacus Giant Burrowing Frog [1973]	Vulnerable	Species or species habitat likely to occur within area
Litoria aurea Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat likely to occur within area
Litoria littlejohni Littlejohn's Tree Frog, Heath Frog [64733]	Vulnerable	Species or species habitat may occur within area
Mixophyes balbus Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat likely to occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat known to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat may occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area
Other		
Pommerhelix duralensis Dural Land Snail [85268]	Endangered	Species or species habitat known to occur within area
Plants		
Acacia bynoeana Bynoe's Wattle, Tiny Wattle [8575]	Vulnerable	Species or species habitat likely to occur within area
Acacia gordonii [5031]	Endangered	Species or species habitat likely to occur within area
Allocasuarina glareicola [21932]	Endangered	Migration route known to occur within area
Asterolasia elegans [56780]	Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area
Cynanchum elegans White-flowered Wax Plant [12533]	Endangered	Species or species habitat likely to occur within area
Genoplesium baueri Yellow Gnat-orchid [7528]	Endangered	Species or species habitat may occur within area
Haloragis exalata subsp. exalata Wingless Raspwort, Square Raspwort [24636]	Vulnerable	Species or species habitat may occur within area
Melaleuca deanei Deane's Melaleuca [5818]	Vulnerable	Species or species habitat likely to occur within area
Micromyrtus minutiflora [11485]	Vulnerable	Species or species habitat likely to occur within area
Pelargonium sp. Striatellum (G.W.Carr 10345) Omeo Stork's-bill [84065]	Endangered	Species or species habitat likely to occur within area
Persoonia hirsuta Hairy Persoonia [19006]	Endangered	Species or species habitat likely to occur within area
Persoonia nutans Nodding Geebung [18119]	Endangered	Species or species habitat likely to occur within area
Pimelea curviflora var. curviflora [4182]	Vulnerable	Species or species habitat may occur within area
Pimelea spicata Spiked Rice-flower [20834]	Endangered	Species or species habitat known to occur within area
Pomaderris brunnea Rufous Pomaderris [16845]	Vulnerable	Species or species habitat likely to occur within area
Pterostylis gibbosa Illawarra Greenhood, Rufa Greenhood, Pouched Greenhood [4562]	Endangered	Species or species habitat may occur within area
Pterostylis saxicola Sydney Plains Greenhood [64537]	Endangered	Species or species habitat likely to occur within area
Pultenaea glabra Smooth Bush-pea, Swamp Bush-pea [11887]	Vulnerable	Species or species habitat likely to occur within area
Pultenaea parviflora [19380]	Vulnerable	Species or species habitat likely to occur within area
Rhizanthella slateri Eastern Underground Orchid [11768]	Endangered	Species or species habitat may occur within area
Thelymitra kangaloonica Kangaloon Sun Orchid [81861]	Critically Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
Thesium australe		
Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area
Reptiles		
Hoplocephalus bungaroides		
Broad-headed Snake [1182]	Vulnerable	Species or species habitat likely to occur within area

Listed Migratory Species [Resource Information]

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

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus		
Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus		
White-throated Needletail [682]		Species or species habitat known to occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis		
Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus		
Spectacled Monarch [610]		Species or species habitat may occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat likely to occur within area
Myiagra cyanoleuca		
Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons		
Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Pandion haliaetus		
Osprey [952]		Species or species habitat known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

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

Name
Commonwealth Land -
Commonwealth Land - Airservices Australia
Commonwealth Land - Australian Postal Commission
Commonwealth Land - Australian Postal Corporation
Commonwealth Land - Australian Telecommunications Commission
Commonwealth Land - Defence Housing Authority
Commonwealth Land - Defence Service Homes Corporation
Commonwealth Land - Director of War Service Homes
Commonwealth Land - Telstra Corporation Limited
Defence - 1CAD ORCHARD HILLS KINGSWOOD
Defence - AIR HEADQUARTERS AUSTRALIA - GLENBROOK
Defence - AIRTC ST MARYS
Defence - PENRITH DEPOT (Army Stores)
Defence - RANMME (DEOH)
Defence - SIGNAL STRS DEPOT-KINGSWOOD

Commonwealth Heritage Places [Resource Information]

Name	State	Status
Natural		
Orchard Hills Cumberland Plain Woodland	NSW	Listed place

Listed Marine Species [Resource Information]

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

Name	Threatened	Type of Presence
Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Endangered	Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Blue Mountains	NSW
Castlereagh	NSW
Mulgoa	NSW
Wianamatta	NSW
Yellomundee	NSW

Invasive Species [Resource Information]

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

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Alauda arvensis Skylark [656]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Carduelis chloris European Greenfinch [404]		Species or species

Name	Status	Type of Presence
		habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Pycnonotus jocosus Red-whiskered Bulbul [631]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Alternanthera philoxeroides Alligator Weed [11620]		Species or species habitat likely to occur within area
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Asparagus plumosus Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Cytisus scoparius Broom, English Broom, Scotch Broom, Common Broom, Scottish Broom, Spanish Broom [5934]		Species or species habitat likely to occur within area
Dolichandra unguis-cati Cat's Claw Vine, Yellow Trumpet Vine, Cat's Claw Creeper, Funnel Creeper [85119]		Species or species habitat likely to occur within area
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Nassella neesiana Chilean Needle grass [67699]		Species or species habitat likely to occur

Name	Status	Type of Presence within area
Nassella trichotoma Serrated Tussock, Yass River Tussock, Yass Tussock, Nassella Tussock (NZ) [18884]		Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Protasparagus densiflorus Asparagus Fern, Plume Asparagus [5015]		Species or species habitat likely to occur within area
Protasparagus plumosus Climbing Asparagus-fern, Ferny Asparagus [11747]		Species or species habitat likely to occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Ulex europaeus Gorse, Furze [7693]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area

Caveat

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

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

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

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

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

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

- migratory and
- marine

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

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

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

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

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

Coordinates

-33.74967 150.69142

Acknowledgements

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

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Parks and Wildlife Commission NT, Northern Territory Government
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Atherton and Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Other groups and individuals

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

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

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