

<u><i>Pteropus poliocephalus</i></u> Grey-headed Flying-fox	Vulnerable	Roosting known to occur within area
Ray-finned fishes		
<u><i>Macquaria australasica</i></u> Macquarie Perch	Endangered	Species or species habitat may occur within area
<u><i>Prototroctes maraena</i></u> Australian Grayling	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
<u><i>Caretta caretta</i></u> Loggerhead Turtle	Endangered	Species or species habitat known to occur within area
<u><i>Chelonia mydas</i></u> Green Turtle	Vulnerable	Species or species habitat known to occur within area
<u><i>Dermochelys coriacea</i></u> Leatherback Turtle, Leathery Turtle, Luth	Endangered	Species or species habitat likely to occur within area
<u><i>Eretmochelys imbricata</i></u> Hawksbill Turtle	Vulnerable	Species or species habitat likely to occur within area
<u><i>Hoplocephalus bungaroides</i></u> Broad-headed Snake	Vulnerable	Species or species habitat likely to occur within area
<u><i>Natator depressus</i></u> Flatback Turtle	Vulnerable	Species or species habitat known to occur within area
Sharks		
<u><i>Carcharias taurus</i></u> (east coast population) Grey Nurse Shark (east coast population)	Critically Endangered	Species or species habitat may occur within area
<u><i>Carcharodon carcharias</i></u> Great White Shark	Vulnerable	Species or species habitat may occur within area
<u><i>Galeorhinus galeus</i></u> School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark	Conservation Dependent	Species or species habitat may occur within area
<u><i>Pristis zijsron</i></u> Green Sawfish, Dindagubba, Narrowsnout Sawfish	Vulnerable	Species or species habitat may occur within area
<u><i>Rhincodon typus</i></u> Whale Shark	Vulnerable	Species or species habitat may occur within area
Plants		
<u><i>Acacia bynoeana</i></u> Bynoe's Wattle, Tiny Wattle	Vulnerable	Species or species habitat likely to occur within area
<u><i>Caladenia tessellata</i></u> Thick-lipped Spider-orchid, Daddy Long-legs	Vulnerable	Species or species habitat likely to occur within area
<u><i>Cryptostylis hunteriana</i></u> Leafless Tongue-orchid	Vulnerable	Species or species habitat may occur within area
<u><i>Diuris bracteata</i></u>	Extinct	Species or species habitat may occur within area
<u><i>Eucalyptus camfieldii</i></u> Camfield's Stringybark	Vulnerable	Species or species habitat likely to occur within area
<u><i>Melaleuca biconvexa</i></u> Biconvex Paperbark	Vulnerable	Species or species habitat known to occur within area
<u><i>Melaleuca deanei</i></u> Deane's Melaleuca	Vulnerable	Species or species habitat may occur within area
<u><i>Pimelea curviflora</i></u> var. <i>curviflora</i>	Vulnerable	Species or species habitat may occur within area
<u><i>Prostanthera askania</i></u> Tranquility Mintbush	Endangered	Species or species habitat likely to occur within area
<u><i>Rhizanthella slateri</i></u> Eastern Underground Orchid	Endangered	Species or species habitat may occur within area
<u><i>Syzygium paniculatum</i></u> Magenta Lilly Pilly, Magenta Cherry, Pocket-less Brush Cherry, Scrub Cherry, Creek Lilly Pilly, Brush Cherry	Vulnerable	Species or species habitat likely to occur within area

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Tetratheca glandulosa
Glandular Pink-bell

Migratory Species [[Dataset Information](#)]

Migratory Terrestrial Species

Birds

Haliaeetus leucogaster
White-bellied Sea-Eagle

Hirundapus caudacutus
White-throated Needletail

Merops ornatus
Rainbow Bee-eater

Monarcha melanopsis
Black-faced Monarch

Myiagra cyanoleuca
Satin Flycatcher

Rhipidura rufifrons
Rufous Fantail

Xanthomyza phrygia
Regent Honeyeater

Migratory Wetland Species

Birds

Ardea alba
Great Egret, White Egret

Ardea ibis
Cattle Egret

Charadrius bicinctus
Double-banded Plover

Gallinago hardwickii
Latham's Snipe, Japanese Snipe

Heteroscelus brevipes
Grey-tailed Tattler

Limosa lapponica
Bar-tailed Godwit

Numenius madagascariensis
Eastern Curlew

Numenius minutus
Little Curlew, Little Whimbrel

Numenius phaeopus
Whimbrel

Pluvialis fulva
Pacific Golden Plover

Rostratula benghalensis s. lat.
Painted Snipe

Migratory Marine Birds

Apus pacificus
Fork-tailed Swift

Ardea alba
Great Egret, White Egret

Ardea ibis
Cattle Egret

Calonectris leucomelas
Streaked Shearwater

Diomedea amsterdamensis
Amsterdam Albatross

Vulnerable	Species or species habitat likely to occur within area
Status	Type of Presence
Migratory	Species or species habitat likely to occur within area
Migratory	Species or species habitat may occur within area
Migratory	Species or species habitat may occur within area
Migratory	Breeding may occur within area
Migratory	Breeding likely to occur within area
Migratory	Breeding may occur within area
Migratory	Species or species habitat likely to occur within area
Migratory	Species or species habitat may occur within area
Migratory	Species or species habitat may occur within area
Migratory	Foraging, feeding or related behaviour known to occur within area
Migratory	Foraging, feeding or related behaviour may occur within area
Migratory	Foraging, feeding or related behaviour known to occur within area
Migratory	Foraging, feeding or related behaviour known to occur within area
Migratory	Foraging, feeding or related behaviour known to occur within area
Migratory	Foraging, feeding or related behaviour known to occur within area
Migratory	Species or species habitat may occur within area
Migratory	Species or species habitat may occur within area
Migratory	Species or species habitat may occur within area
Migratory	Species or species habitat may occur within area
Migratory	Species or species habitat may occur within area

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<u><i>Diomedea antipodensis</i></u> Antipodean Albatross	Migratory	Species or species habitat may occur within area
<u><i>Diomedea dabbenena</i></u> Tristan Albatross	Migratory	Foraging, feeding or related behaviour may occur within area
<u><i>Diomedea exulans (sensu lato)</i></u> Wandering Albatross	Migratory	Species or species habitat may occur within area
<u><i>Diomedea gibsoni</i></u> Gibson's Albatross	Migratory	Species or species habitat may occur within area
<u><i>Macronectes giganteus</i></u> Southern Giant-Petrel	Migratory	Species or species habitat may occur within area
<u><i>Macronectes halli</i></u> Northern Giant-Petrel	Migratory	Species or species habitat may occur within area
<u><i>Pterodroma leucoptera leucoptera</i></u> Gould's Petrel	Migratory	Species or species habitat may occur within area
<u><i>Puffinus leucomelas</i></u> Streaked Shearwater	Migratory	Species or species habitat may occur within area
<u><i>Sterna albifrons</i></u> Little Tern	Migratory	Species or species habitat may occur within area
<u><i>Thalassarche bulleri</i></u> Buller's Albatross	Migratory	Species or species habitat may occur within area
<u><i>Thalassarche cauta (sensu stricto)</i></u> Shy Albatross, Tasmanian Shy Albatross	Migratory	Species or species habitat may occur within area
<u><i>Thalassarche impavida</i></u> Campbell Albatross	Migratory	Species or species habitat may occur within area
<u><i>Thalassarche melanophrys</i></u> Black-browed Albatross	Migratory	Species or species habitat may occur within area
<u><i>Thalassarche salvini</i></u> Salvin's Albatross	Migratory	Species or species habitat may occur within area
<u><i>Thalassarche steadi</i></u> White-capped Albatross	Migratory	Species or species habitat may occur within area
Migratory Marine Species		
Mammals		
<u><i>Balaenoptera edeni</i></u> Bryde's Whale	Migratory	Species or species habitat may occur within area
<u><i>Balaenoptera musculus</i></u> Blue Whale	Migratory	Species or species habitat may occur within area
<u><i>Caperea marginata</i></u> Pygmy Right Whale	Migratory	Species or species habitat may occur within area
<u><i>Eubalaena australis</i></u> Southern Right Whale	Migratory	Species or species habitat likely to occur within area
<u><i>Lagenorhynchus obscurus</i></u> Dusky Dolphin	Migratory	Species or species habitat may occur within area
<u><i>Megaptera novaeangliae</i></u> Humpback Whale	Migratory	Species or species habitat known to occur within area
<u><i>Orcinus orca</i></u> Killer Whale, Orca	Migratory	Species or species habitat may occur within area
Reptiles		
<u><i>Caretta caretta</i></u> Loggerhead Turtle	Migratory	Species or species habitat known to occur within area
<u><i>Chelonia mydas</i></u> Green Turtle	Migratory	Species or species habitat known to occur within area
<u><i>Dermochelys coriacea</i></u> Leatherback Turtle, Leathery Turtle, Luth	Migratory	Species or species habitat likely to occur within area
<u><i>Eretmochelys imbricata</i></u> Hawksbill Turtle	Migratory	Species or species habitat likely to occur within area

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Natator depressus
Flatback Turtle

Migratory Species or species habitat known to occur within area

Sharks

Carcharodon carcharias
Great White Shark

Migratory Species or species habitat may occur within area

Rhincodon typus
Whale Shark

Migratory Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

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

Status Type of Presence

Birds

Apus pacificus
Fork-tailed Swift

Listed - overfly marine area Species or species habitat may occur within area

Ardea alba
Great Egret, White Egret

Listed - overfly marine area Species or species habitat may occur within area

Ardea ibis
Cattle Egret

Listed - overfly marine area Species or species habitat may occur within area

Calonectris leucomelas
Streaked Shearwater

Listed Species or species habitat may occur within area

Catharacta skua
Great Skua

Listed Species or species habitat may occur within area

Charadrius bicinctus
Double-banded Plover

Listed - overfly marine area Foraging, feeding or related behaviour known to occur within area

Diomedea amsterdamensis
Amsterdam Albatross

Listed Species or species habitat may occur within area

Diomedea antipodensis
Antipodean Albatross

Listed Species or species habitat may occur within area

Diomedea dabbenena
Tristan Albatross

Listed Foraging, feeding or related behaviour may occur within area

Diomedea exulans (sensu lato)
Wandering Albatross

Listed Species or species habitat may occur within area

Diomedea gibsoni
Gibson's Albatross

Listed Species or species habitat may occur within area

Gallinago hardwickii
Latham's Snipe, Japanese Snipe

Listed - overfly marine area Foraging, feeding or related behaviour may occur within area

Gallinago megala
Swinhoe's Snipe

Listed - overfly marine area Foraging, feeding or related behaviour likely to occur within area

Gallinago stenura
Pin-tailed Snipe

Listed - overfly marine area Foraging, feeding or related behaviour likely to occur within area

Haliaeetus leucogaster
White-bellied Sea-Eagle

Listed Species or species habitat likely to occur within area

Heteroscelus brevipes
Grey-tailed Tattler

Listed Foraging, feeding or related behaviour known to occur within area

Himantopus himantopus
Black-winged Stilt

Listed - overfly Foraging, feeding or related behaviour known to occur within area

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	marine area	
<u><i>Hirundapus caudacutus</i></u> White-throated Needletail	Listed - overfly marine area	Species or species habitat may occur within area
<u><i>Lathamus discolor</i></u> Swift Parrot	Listed - overfly marine area	Species or species habitat likely to occur within area
<u><i>Limosa lapponica</i></u> Bar-tailed Godwit	Listed	Foraging, feeding or related behaviour known to occur within area
<u><i>Macronectes giganteus</i></u> Southern Giant-Petrel	Listed	Species or species habitat may occur within area
<u><i>Macronectes halli</i></u> Northern Giant-Petrel	Listed	Species or species habitat may occur within area
<u><i>Merops ornatus</i></u> Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area
<u><i>Monarcha melanopsis</i></u> Black-faced Monarch	Listed - overfly marine area	Breeding may occur within area
<u><i>Myiagra cyanoleuca</i></u> Satin Flycatcher	Listed - overfly marine area	Breeding likely to occur within area
<u><i>Numenius madagascariensis</i></u> Eastern Curlew	Listed	Foraging, feeding or related behaviour known to occur within area
<u><i>Numenius minutus</i></u> Little Curlew, Little Whimbrel	Listed - overfly marine area	Foraging, feeding or related behaviour likely to occur within area
<u><i>Numenius phaeopus</i></u> Whimbrel	Listed	Foraging, feeding or related behaviour known to occur within area
<u><i>Pluvialis fulva</i></u> Pacific Golden Plover	Listed	Foraging, feeding or related behaviour known to occur within area
<u><i>Rhipidura rufifrons</i></u> Rufous Fantail	Listed - overfly marine area	Breeding may occur within area
<u><i>Rostratula benghalensis s. lat.</i></u> Painted Snipe	Listed - overfly marine area	Species or species habitat may occur within area
<u><i>Sterna albifrons</i></u> Little Tern	Listed	Species or species habitat may occur within area
<u><i>Thalassarche bulleri</i></u> Buller's Albatross	Listed	Species or species habitat may occur within area
<u><i>Thalassarche cauta (sensu stricto)</i></u> Shy Albatross, Tasmanian Shy Albatross	Listed	Species or species habitat may occur within area
<u><i>Thalassarche impavida</i></u> Campbell Albatross	Listed	Species or species habitat may occur within area
<u><i>Thalassarche melanophrys</i></u> Black-browed Albatross	Listed	Species or species habitat may occur within area
<u><i>Thalassarche salvini</i></u> Salvin's Albatross	Listed	Species or species habitat may occur within area

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<i>Thalassarche steadi</i> White-capped Albatross	Listed	Species or species habitat may occur within area
Mammals		
<i>Arctocephalus forsteri</i> New Zealand Fur-seal	Listed	Species or species habitat may occur within area
<i>Arctocephalus pusillus</i> Australian Fur-seal, Australo-African Fur-seal	Listed	Species or species habitat may occur within area
Ray-finned fishes		
<i>Acentronura tentaculata</i> Shortpouch Pygmy Pipehorse	Listed	Species or species habitat may occur within area
<i>Festuculex cinctus</i> Girdled Pipefish	Listed	Species or species habitat may occur within area
<i>Filicampus tigris</i> Tiger Pipefish	Listed	Species or species habitat may occur within area
<i>Heraldia nocturna</i> Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish	Listed	Species or species habitat may occur within area
<i>Hippichthys penicillus</i> Beady Pipefish, Steep-nosed Pipefish	Listed	Species or species habitat may occur within area
<i>Hippocampus abdominalis</i> Bigbelly Seahorse, Eastern Potbelly Seahorse, New Zealand Potbelly Seahorse	Listed	Species or species habitat may occur within area
<i>Hippocampus whitei</i> White's Seahorse, Crowned Seahorse, Sydney Seahorse	Listed	Species or species habitat may occur within area
<i>Histiogamphelus briggsii</i> Crested Pipefish, Briggs' Crested Pipefish, Briggs' Pipefish	Listed	Species or species habitat may occur within area
<i>Lissocampus runa</i> Javelin Pipefish	Listed	Species or species habitat may occur within area
<i>Maroubra perserrata</i> Sawtooth Pipefish	Listed	Species or species habitat may occur within area
<i>Notiocampus ruber</i> Red Pipefish	Listed	Species or species habitat may occur within area
<i>Phyllopteryx taeniolatus</i> Common Seadragon, Weedy Seadragon	Listed	Species or species habitat may occur within area
<i>Solegnathus spinosissimus</i> Spiny Pipehorse, Australian Spiny Pipehorse	Listed	Species or species habitat may occur within area
<i>Solenostomus cyanopterus</i> Robust Ghostpipefish, Blue-finned Ghost Pipefish,	Listed	Species or species habitat may occur within area
<i>Solenostomus paeignius</i> Rough-snout Ghost Pipefish	Listed	Species or species habitat may occur within area
<i>Solenostomus paradoxus</i> Ornate Ghostpipefish, Harlequin Ghost Pipefish, Ornate Ghost Pipefish	Listed	Species or species habitat may occur within area
<i>Stigmatopora argus</i> Spotted Pipefish, Gulf Pipefish	Listed	Species or species habitat may occur within area
<i>Stigmatopora nigra</i> Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish	Listed	Species or species habitat may occur within area
<i>Syngnathoides biaculeatus</i> Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish	Listed	Species or species habitat may occur within area
<i>Trachyrhamphus bicoarctatus</i> Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish	Listed	Species or species habitat may occur within area
<i>Urocampus carinirostris</i> Hairy Pipefish	Listed	Species or species habitat may occur within area

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Vanacampus margaritifer
Mother-of-pearl Pipefish

Listed Species or species habitat may occur within area

Reptiles

Caretta caretta
Loggerhead Turtle

Listed Species or species habitat known to occur within area

Chelonia mydas
Green Turtle

Listed Species or species habitat known to occur within area

Dermochelys coriacea
Leatherback Turtle, Leathery Turtle, Luth

Listed Species or species habitat likely to occur within area

Eretmochelys imbricata
Hawksbill Turtle

Listed Species or species habitat likely to occur within area

Natator depressus
Flatback Turtle

Listed Species or species habitat known to occur within area

Pelamis platurus
Yellow-bellied Seasnake

Listed Species or species habitat may occur within area

Whales and Other Cetaceans [[Dataset Information](#)]

Status Type of Presence

Balaenoptera acutorostrata
Minke Whale

Cetacean Species or species habitat may occur within area

Balaenoptera edeni
Bryde's Whale

Cetacean Species or species habitat may occur within area

Balaenoptera musculus
Blue Whale

Cetacean Species or species habitat may occur within area

Caperea marginata
Pygmy Right Whale

Cetacean Species or species habitat may occur within area

Delphinus delphis
Common Dolphin, Short-beaked Common Dolphin

Cetacean Species or species habitat may occur within area

Eubalaena australis
Southern Right Whale

Cetacean Species or species habitat likely to occur within area

Grampus griseus
Risso's Dolphin, Grampus

Cetacean Species or species habitat may occur within area

Lagenorhynchus obscurus
Dusky Dolphin

Cetacean Species or species habitat may occur within area

Megaptera novaeangliae
Humpback Whale

Cetacean Species or species habitat known to occur within area

Orcinus orca
Killer Whale, Orca

Cetacean Species or species habitat may occur within area

Stenella attenuata
Spotted Dolphin, Pantropical Spotted Dolphin

Cetacean Species or species habitat may occur within area

Tursiops aduncus
Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin

Cetacean Species or species habitat likely to occur within area

Tursiops truncatus s. str.
Bottlenose Dolphin

Cetacean Species or species habitat may occur within area

Commonwealth Lands [[Dataset Information](#)]

Communications, Information Technology and the Arts -
Australian Postal Corporation

Communications, Information Technology and the Arts -
Telstra Corporation Limited

Defence

Defence - Defence Housing Authority

Places on the RNE [[Dataset Information](#)]
Note that not all Indigenous sites may be listed.

Historic

Gosford Courthouse NSW

Holy Cross Catholic Church and Graveyard NSW

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[St Pauls Anglican Church NSW](#)

[The Grange NSW](#)

[Wyoming Cottage and Helys Grave NSW](#)

Indigenous

[Daleys Point Area NSW](#)

Natural

[Bouddi National Park \(1981 boundary\) NSW](#)

[Bouddi National Park Marine Section NSW](#)

[Brisbane Water National Park \(1981 boundary\) NSW](#)

[Rileys Island and Pelican Island Nature Reserves NSW](#)

[Wamberal Lagoon Nature Reserve NSW](#)

Extra Information

State and Territory Reserves [[Dataset Information](#)]

Bouddi National Park, NSW

Brisbane Water National Park, NSW

Cockle Bay Nature Reserve, NSW

Pelican Island Nature Reserve, NSW

Rileys Island Nature Reserve, NSW

Wamberal Lagoon Nature Reserve, NSW

Wambina Nature Reserve, NSW

Wyrabalong National Park, NSW

Regional Forest Agreements [[Dataset Information](#)]

Note that all RFA areas including those still under consideration have been included.

North East NSW RFA, New South Wales

Caveat

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

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

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

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

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

Only selected species covered by the [migratory](#) and [marine](#) provisions of the Act have been mapped.

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](#)

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- 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.

Acknowledgments

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

- New South Wales National Parks and Wildlife Service
- Department of Sustainability and Environment, Victoria
- Department of Primary Industries, Water and Environment, Tasmania
- Department of Environment and Heritage, South Australia Planning SA
- Parks and Wildlife Commission of the Northern Territory
- Environmental Protection Agency, Queensland
- Birds Australia
- Australian Bird and Bat Banding Scheme
- Australian National Wildlife Collection
- Natural history museums of Australia
- 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
- Other groups and individuals

ANUCiM Version 1.8, Centre for Resource and Environmental Studies, Australian National University was used extensively for the production of draft maps of species distribution. Environment Australia is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

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APPENDIX 6

STATE ENVIRONMENTAL PLANNING POLICY No.19 BUSHLAND IN URBAN AREAS ASSESSMENT

STATE ENVIRONMENTAL PLANNING POLICY No.19 BUSHLAND IN URBAN AREAS

This Assessment has been prepared in regard to the Draft Local Environmental Plan for the proposed rezoning of Lot 2 DP 155116, Lots 8 and 9 DP 876102, Lot 202 DP 831864, Lot 4 DP 37914 and Lot 1 DP 3811971 Kings Avenue Terrigal. It is proposed to subdivide the land to create residential building allotments with associated infrastructure such as access, electricity and water. An amount of clearing for bushfire protection may also be required. The proposed development will also provide for a Riparian Zone in the western creekline with retained vegetation that will be managed together with its associated 10 metre vegetated buffer on both sides with a further 10 metre wide bushfire asset protection zone outside the vegetation buffer zone. In addition, an area of bushland approximately 27.28 hectares in size located in the southern parts of the site and adjoining the existing Open Space areas will be retained as bushland and dedicated to Council.

The site is located approximately 3.25km west of Terrigal and 2km south-east of Erina Fair. The site is an irregular shaped land parcel that covers approximately 54 hectares. The subject site is bordered by Kings Avenue to the north with existing residential development further to the north, there is also existing residential development adjoining the site to the south-east and north-west and rural residential development to the south. The south-western boundary of the subject site adjoins the Kincumba Mountain Regional Reserve which forms part of Gosford Council's Coastal Open Space System (COSS). The north-eastern boundary of the site adjoins open space which contains a creekline. At present there is one dwelling on the site located off Belar Avenue adjoining the eastern boundary. Approximate MGA coordinates of the study area are 352500E 6298000N.

The property straddles a ridgeline and has southerly and northerly aspects with several sideslopes associated with two drainage lines on the northern aspect and one on the southern aspect. The elevations within the site range from approximately 20 to 70 metres AHD. Due to the presence of the Kincumba Mountain Regional Reserve which forms part of Gosford Council's Coastal Open Space System (COSS) adjoining the subject site an assessment is required under State Environmental Planning Policy 19 – Bushland in Urban Areas.

The southern 18 hectares of the subject site will be zoned for public open space and will then form part of the larger area of Open Space (COSS) to the west. This assessment has been undertaken due to the presence of the Open Space within and adjoining the subject site. In this regard Clause 9 of SEPP N° 19 States in part that...

"the public authority shall not carry out that development or grant the approval or development consent unless it has taken into account:

- (c) the need to retain any bushland on the land;*
- (d) the effect of the proposed development on bushland zoned or reserved for public open space purposes and, in particular, on the erosion of soils, the siltation of streams and waterways and the spread of weeds and exotic plants within the bushland, and*
- (e) any other matters which, in the opinion of the approving or consent authority, are relevant to the protection and preservation of bushland zoned or reserved for public open space purposes".*

SEPP 19 policy refers to natural bushland in urban areas. For an area to be classified as urban bushland, the site must satisfy Clause 4 points (i), (ii) and (iii) of Circular No. B13.

After detailed inspections of the subject site and the adjoining land zoned as Public Reserve, it was identified that the northern parts of the subject site (approximately 17.38 hectares) are to be developed while the north-western creekline (approximately 1.9 hectares), and the southern parts of the subject site (approximately 27.28 hectares) will be retained.

Approximately 15 hectares of land incorporating the north-western creek Core Riparian Zone (CRZ) and the associated 10 metre wide buffers each side of the CRZ as well as cleared or disturbed land at various locations within the 7(a) conservation zone area will be retained and rehabilitated via weed removal and regeneration.

The 27.28ha area of bushland in the southern parts of the site will be retained and dedicated to Council as part of the local Coastal Open Space System (COSS).

The Reserve adjoining the site is currently vegetated with natural vegetation and is in moderate to good condition. The Reserve is associated with the Kincumba Mountain Regional Reserve which forms part of Gosford Council's Coastal Open Space System (COSS). The vegetation is characterised by a mixed sclerophyllous open forest, which is dominated primarily by *Eucalyptus* species (*E. pilularis* and others) with a dense mid-storey and a variable shrub and groundcover understorey. Under the terms of the SEPP 19 Circular B13 this Public Reserve is considered to satisfy the bushland definition detailed under Clause 4 and is hence required to be assessed in terms of the potential impacts of the proposed adjoining development on this bushland remnant.

The assessment of this Public Reserve in terms of the potential impact of the proposed development is to be completed under consideration of the specific aims of this policy listed in Clause 2 (2) 'a to m'. This assessment is as follows:

(a) to protect the remnants of plant communities which were once characteristic of land now within an urban area.

The proposed development will result in the development of approximately 17.38 hectares of land adjoining the eastern boundary of the Public Reserve. The Open Space is currently vegetated with natural vegetation at all structural levels. The proposed development will dedicate approximately 27.28 hectares adjoining the eastern boundary of the COSS as a further area of Open Space thereby increasing the area occupied by the COSS and other conserved areas by approximately 27.28 hectares. It is considered that the proposed development is likely to result in the following broad impacts to varying levels:

- The increase of edge effects;
- A slight increase in stormwater runoff; and
- A reduction in the occurrence of natural processes such as fire.

At this stage the bushland remnant is in fair to good condition, and has already suffered from edge effects from adjoining residential land and a reduction in natural processes such as fire as a result of the degree of development in the local area. In addition the Open Space land has suffered from some localised incursions of exotic weeds such as *Lantana camara* (Lantana), *Ligustrum sinense* (Small-leaved Privet), *Ligustrum lucidum* (Large-leaved Privet) and *Ochna serrulata* (Mickey Mouse Plant). The proposed development will result in the development of an additional urban interface with this bushland remnant. This will increase the edge effect, however, as the southern extent of the proposed development is located on the upper north facing slopes, and the proposed development in the southern parts of the

development area will incorporate a perimeter road with a cycleway through a managed re-vegetated area. It is expected that this type of development will have a lesser impact than urban development and will provide the space and opportunity to manage the interface with respect to edge effects.

The proposed development will not significantly reduce the natural bushland within the local area as the future proposed dwellings will be located primarily within areas of previously disturbed vegetation. In addition, the areas of riparian vegetation in the north-west of the site will be expanded and rehabilitated to the required 30 metres in total width as required by the NSW Office of Water. Therefore it is considered that the proposed development will have no effect on the existing vegetation connectivity to any other areas of native vegetation.

(b) to retain bushland in parcels of a size and configuration which will enable the existing plant and animal communities to survive in the long term.

The adjoining Kincumba Mountain Regional Reserve occupies in excess of 445 hectares and is adjoined by other areas of native vegetation extending approximately 6km to the south-west to Yattalunga and Green Point. The addition of the southern 18 hectare portion of the subject site will consolidate the vegetated corridor and will add the linkage to the corridor which extends eastwards from the subject site to Terrigal and North Avoca approximately 2.5km away. The proposed development of the site will increase the size and connectivity of this Public Reserve and will enable the existing plant and animal communities to survive in the long term.

(c) to protect rare and endangered flora and fauna species

No threatened flora species were identified within the proposed development site. The following twelve threatened species as listed within the Schedules of the *Threatened Species Conservation Act (1995)* were observed on-site during surveys.

- Little Eagle
- Little Lorikeet
- Powerful Owl
- Sooty Owl
- Yellow-bellied Glider
- Grey-headed Flying-fox
- Eastern Bentwing-bat
- Eastern False Pipistrelle
- Greater Broad-nosed Bat
- Little Bentwing-bat
- Yellow-bellied Sheath-tail-bat
- Eastern Freetail-bat

No endangered populations were identified within the site. One Endangered Ecological Community, Lowland Rainforest, as listed in Schedule 3 of the *TSC Act (1995)*, is present on the subject site. As identified within the flora and fauna assessment report, it was identified that there is potential for a number of threatened fauna species to either forage and / or breed within the site and immediate local area.

It is considered that the potential impact of the proposed development on these threatened species can be minimised by the retention of as much tree canopy as possible, with an effort towards the retention of habitat trees within the site wherever possible. This can be achieved through the appropriate location of the proposed dwellings to minimise the loss of native trees. If the retention of tree hollows is an impractical goal, then it is suggested that these

habitat attributes be replaced by means of introducing suitable nesting boxes on-site or alternatively within the nearby Open Space.

(d) to protect habitats for native flora and fauna

As identified within the flora and fauna assessment report for the proposed development, it was identified that there is potential habitat for a number of threatened fauna species within and adjacent to the subject site including the bushland within the Public Reserve.

It is considered that the potential impact of the proposed development on these flora and fauna issues will be minimised by the retention of a large area of natural bushland and the retention and rehabilitation of the north-western creekline corridor / riparian zone. The protection of flora and fauna habitats can be supplemented through the appropriate location of dwellings and the replacement of hollow bearing trees lost to development in a suitable landscape design. If the habitat or hollow bearing trees require removal due to structural safety issues then it is considered appropriate to replace the hollows with nest boxes within the Open Space areas along the adjacent creekline vegetation corridor and in the adjoining Open Space areas.

Appropriate set backs from the bushland within the Public Reserve should be implemented thereby minimising the effects of the edge effects such as weed invasion, stormwater run-on and nutrient loading this can be achieved through the management of bushfire Asset Protection Zones to enable effective control of weeds. In this respect the separation of the proposed development area from the Open Space is achieved by the required riparian buffers and the additional space outside of the riparian buffers to be managed as bushfire Asset Protection Zones. Landscaping with locally indigenous species within the proposed development area will also aid in the maintenance of the natural flora and fauna values present within the Public Reserve and within the wider local area.

The retention of the southern (27.28ha) portion of the site as well as the managed and rehabilitated north-western creekline and corridor areas on site will assist in maintaining habitat values and will consolidate the connectivity for all native flora and fauna within the local area.

(e) to protect wildlife corridors and vegetation links with other nearby bushland

The adjoining Kincumba Mountain Regional Reserve occupies in excess of 445 hectares and is adjoined by other areas of native vegetation extending approximately 6km to the south-west to Yattalunga and Green Point. The addition of the southern 27.28 hectare portion of the subject site and management of adjacent corridor areas will consolidate the vegetated corridor and will add the linkage to the corridor which extends eastwards from the subject site to Terrigal and North Avoca approximately 2.5km away. The proposed development of the site will increase the size and connectivity of this Public Reserve and will enable the existing plant and animal communities to survive in the long term.

(f) to protect bushland as a natural stabiliser of the soil surface

The current condition of the subject site is reasonably good in relation to its values as a natural stabiliser of the soil surface. Vegetation at the shrub and groundcover strata is generally sufficient to protect the soils from mass movement through erosion.

The condition of the bushland within the Public Reserve is good in terms of its value for stabilising the soil surface. The stability of soils within the Public Reserve will not be altered as a result of the proposed residential subdivision. As the soils within the Public Reserve are upslope from the development area of the site, they will not be impacted by the proposed

development. In addition, the north-western creekline will be managed with respect to erosion control and will incorporate the minimum width vegetated riparian buffers on both sides of the Core Riparian Zone.

(g) to protect bushland for its scenic values, and to retain the unique visual identity of the landscape

The subject site is bordered by Kings Avenue to the north with existing residential development further to the north, there is also existing residential development adjoining the site to the south-east and north-west and rural residential development to the south. The south-western boundary of the subject site adjoins the Kincumba Mountain Regional Reserve which forms part of Gosford Council's Coastal Open Space System (COSS). The north-eastern boundary of the site adjoins open space which contains a creekline.

The proposed residential subdivision is expected to occupy the northern 17.38 hectares of the subject site. The retention of vegetation wherever possible within the site will act as a visual screen and will maintain the visual tree canopy as viewed from adjoining areas. Development will not be undertaken on the ridgetop within the subject site which will maintain the visual amenity of the naturally vegetated skyline.

The subject site and Public Reserve are currently characterised by a tree canopy cover of reasonable density (approximately 30-55% and 65-70% canopy cover respectively). The proposed development will result in the alteration of this canopy cover within the area proposed for development. Tree canopy cover within the Bushland Reserve will not be altered as a result of the proposed development.

(h) to protect significant geological features

The geology of the subject site is characterised by the Erina Soil Landscape. This landscape is underlain by the Terrigal Formation consisting of lithic and quartz sandstone, claystone, sedimentary breccia and conglomerate (Murphy 1992). Topography is undulating to rolling rises on low hills with moderately broad ridges and crests. Soils present within this formation include fine sandy loam, pedal clay loam, brown sandy clay and pedal clay (Murphy 1992).

The subject site and adjoining Public Reserve do not contain any geological features of local and / or regional significance. The geological characteristics of the site and Public Reserve are consistent with the predominant landform features of the local area. The proposed development will have no impact on any significant geological features within the local area.

(i) to protect existing landforms, such as natural drainage lines, watercourses and foreshores

The landforms of the site are consistent with the main topographical features of the local area including slight to moderately steep slopes with few rocky outcrops. Several natural drainage lines are situated within the Reserve. These drainage lines are dependant on the local aspects and mostly run north or southward. It is considered that the proposed development will have no significant influence on the existing landforms within the Public Reserve.

(j) to protect archaeological relics

The Aboriginal Site Survey Report did not identify any archaeological site on the subject site.

The proposed development area has undergone previous disturbances such as past tree, shrub and groundcover removal; regular slashing; grazing by livestock; and moderate to high

levels of weed invasion. It is considered that the presence of archaeological / aboriginal relics within the proposed development area is unlikely.

The Public Reserve and its bushland character will remain undeveloped and principally unaffected by the proposed development. It is considered that this issue does not require further consideration at this time.

(k) to protect the recreational potential of the bushland

The bushland within the Public Reserve is part of the Kincumba Mountain Regional Reserve which forms part of Gosford Council's Coastal Open Space System (COSS). This open space area permits a wide range of recreational activities. Due to the topography and nature of bushland within the Public Reserve, it is considered that the values of this Reserve for recreational activities are most suited to activities such as bushwalking and nature appreciation. It is considered that the proposed development will actually enhance the recreational potential of this Reserve for the public by the dedication of additional reserve areas and facilitate better public access.

(l) to protect the education potential of the bushland

The natural values of this Public Reserve for education purposes are moderately high given the representation of indigenous flora and fauna species and access potential for the public. The proposed development will not alter the potential of the Public Reserve for the purposes of education.

(m) to maintain bushland in locations which are readily accessible to the community

At this stage the Public Reserve adjoins a number of urban interfaces, the proposed development site is among them as it is immediately adjacent to the northern boundary of the Bushland Reserve. The proposed development will result in the creation of an additional urban interface along the northern boundary of the Bushland Reserve but this interface is expected to be of low impact as it is downslope from the bushland and will be comprised of large lots. Existing access to, from and within the Reserve will not be diminished by the proposed development instead it will be enhanced.

(n) to promote the management of bushland in a manner which protects and enhances the quality of the bushland and facilitates public enjoyment of the bushland compatible with conservation

The current management practice for the Public Reserve and its bushland values has resulted in the conservation of the quality of this Reserve and has facilitated the 'enjoyment' of the bushland in a manner 'compatible with conservation'. It is the view of *Conacher Environmental Group* that this status will not change in the advent of additional development within the subject site in close proximity to the northern boundary of this Reserve.

Conclusion

The proposed development will not compromise the values of the adjoining bushland areas in relation to the aims of SEPP No.19.

APPENDIX 7

RIPARIAN, BUFFER ZONE AND PRIVATE CONSERVATION AREAS VEGETATION MANAGEMENT PLAN



RIPARIAN, BUFFER ZONE AND PRIVATE CONSERVATION AREAS VEGETATION MANAGEMENT PLAN

**“PARKSIDE”
KINGS AVENUE
TERRIGAL**

**DECEMBER 2010
(REF: 10134)**

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PREFACE

This Vegetation Management Plan has been prepared by *Conacher Environmental Group* to identify matters in relation to the management of riparian vegetation and private conservation land proposed to be retained, rehabilitated and managed on the site.

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SECTION 1

INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

This Vegetation Management Plan (VMP) provides details on the management of vegetation within riparian areas, buffer zones and private conservation areas during and after the proposed residential subdivision.

Riparian corridors form a transition zone between terrestrial and aquatic environments and perform a range of important environmental functions. Riparian corridors:

- Provide bed and bank stability and reduce bank and channel erosion;
- Protect water quality by trapping sediment, nutrients and other contaminants;
- Provide a diversity of habitat for terrestrial, riparian and aquatic flora and fauna species;
- Provide connectivity between wildlife habitats;
- Allow for conveyance of flood flows and control the direction of flood flows;
- Provide an interface between developments and waterways.

Measures and management strategies for the protection of native riparian vegetation within the site are outlined within this document. These include:

- Proposed weeding activities to be carried out within retained vegetation of the riparian area and buffer zone;
- Proposed regeneration activities to be carried out within and adjacent to retained vegetation;
- Ongoing monitoring and maintenance activities to be carried out within retained vegetation of the site;
- Relevant sediment/erosion control measures.

Private Conservation areas seek to enhance biodiversity connectivity and fauna movement across the site. Proposed biodiversity improvement measures include:

- Weed management;
- Natural regeneration;
- Assisted revegetation;
- Habitat enhancement by additional groundcover and nest boxes.

In preparing this VMP, a number of existing reports have been utilised. Brief details on these are provided below:

1. *Urban Bushland Management Guidelines (Dept. of Planning, 1991)*

The Department of Urban Affairs and Planning's Guidelines for Preparing Management Plans for Urban Bushland have been followed when preparing this management plan. The Urban Bushland Management Guidelines (Dept. of Planning, 1991) contain a number of relevant strategies, which are aimed at maintaining and enhancing native flora and fauna and their habitats.

2. *Landscape and Vegetation Management Policy (Gosford City Council)*

The Gosford City Council's Landscape and Vegetation Management Policy has been adhered to in the preparation of this report.

3. *Guidelines for Controlled Activities – Vegetation Management Plans*

A controlled activity is an activity undertaken within the riparian zone of a water body. The NSW Department of Water and Energy (DWE) has issued guidelines for undertaking Vegetation Management Plans in relation to controlled activities. These guidelines outline the requirements and criteria to be considered within a Vegetation Management Plan. The DWE guidelines were considered and followed when compiling this Vegetation Management Plan.

4. *Guidelines for Controlled Activities – Riparian Corridors*

This guide produced by the NSW Department of Water and Energy (DWE) outlines the various components of a riparian corridor and defines the widths of Riparian corridors based on the stream size or 'order'.

5. *Guidelines for Controlled Activities – Watercourse Crossings*

This guide produced by the NSW Department of Water and Energy (DWE) outlines the various requirements and consideration for watercourse crossings of various designs. The proposed development incorporates two watercourse crossings which are expected to comply with these guidelines.

1.2 PROCEDURE FOR PREPARING VEGETATION MANAGEMENT PLAN

This Vegetation Management Plan has been prepared to address the following matters:

- Protection of retained native vegetation, habitat and other elements of biodiversity within the riparian zone, biodiversity buffer areas and private conservation lands;
- Management of the riparian zone vegetation and buffer zones and private conservation lands;
- Noxious and bushland weed control with follow up weeding and maintenance of bushland and riparian vegetation on site;
- Soil erosion and drainage issues that impact on vegetated areas;
- Site management during construction works including silt fencing and exclusion fencing around native vegetation habitats and natural features.

This VMP is the culmination of detailed site investigations, consultations with the client and incorporation of information as required by Council and state government departments.

The following procedures were implemented during the preparation of the VMP:

- i) Initial project meeting with client to discuss project;
- ii) Site Inspections to locate and identify any significant vegetation and to establish the current condition of the riparian and surrounding vegetation; and

- iii) Consideration of the proposed development to minimise the impact on areas of natural vegetation and enhance current stands of natural vegetation where possible.

The following sections of this VMP identify issues relevant to proposed development and future management of the site in relation to retained vegetation.

1.3 SITE DETAILS

The riparian and buffer areas subject to this Vegetation Management Plan consist of the 7(c2) – Conservation and Scenic Protection zoned land and 7(a) Conservation zone land located in and adjacent to the creeklines within 'Parkside' at Kings Avenue Terrigal and within the corridor areas identified Figure 2.

1.4 PROPOSED DEVELOPMENT

It is proposed to subdivide the land to create residential building allotments with associated infrastructure such as access, electricity and water. The proposed development will also provide for a Riparian Zone with retained vegetation that will be managed together with its associated 10 metre vegetated buffer on both sides with a further 10 metre wide bushfire asset protection zone outside the vegetation buffer zone as shown in Figure 1. Additionally some areas to be privately owned will be managed in accordance with this plan by the community association.

The overall objective of this Vegetation Management Plan is to provide details on how the site can be managed to create a mosaic of vegetation, including trees, shrubs and grass cover within a weed reduced riparian area and adjoining buffer areas and corridor areas.

The areas included within this Vegetation Management Plan will become the responsibility of a combination of the Community body covered under the Community Title Management Statement and the private landholders in the rural residential parts of the site. Figure 2 identifies the approximate areas covering the future community land, private land within the development area and private land not included within the area of proposed works. The works required in the adjoining, but off-site lands 7(a), would require agreement with the adjacent landowner to be undertaken. We understand that mutual consent by adjacent land owners has been formalised.

SECTION 2

VEGETATION MANAGEMENT STRATEGY

2.1 DETAILS ON PROTECTIVE MEASURES AND MANAGEMENT STRATEGIES FOR THE VEGETATION IDENTIFIED WITHIN THE SITE

It is considered that the remaining native vegetation within the subject site provides habitat for native flora and fauna species within the canopy, shrub and groundcover layers. The tree and shrub canopy is visible from nearby roads and forms part of a fragmented drainage line vegetation community.

The subject site has been subjected to past as well as more recent placement of fill material. The whole of the subject site also suffers a high level of weed invasion especially within the riparian zone.

Protective measures recommended within the subject site are:

- A Core Riparian Zone (CRZ) be established based on the order of the watercourse. The watercourse on-site is a First Order watercourse and therefore requires a 10 metre wide CRZ. The actual CRZ proposed is wider than this;
- A Vegetated Buffer (VB) of 10 metres width be established on both sides of the CRZ;
- The establishment of Vegetation Protection Zones which shall include all of the Riparian Zone (CRZ) and Buffer Area (VB) as shown on Figure 1;
- Removal of weeds and invasive species from the Riparian Zone and Buffer Areas;
- Replanting of selected indigenous plant species within riparian buffer zone;
- Natural regeneration of the native vegetation within the Riparian Zone;
- Continued monitoring and maintenance of the condition of the vegetation within the Riparian Zone and Buffer Area;
- Installation of access controlling structures (bollards, fences, retaining walls etc) at strategic locations to prevent unauthorised access and disturbance by vehicles;
- Construction of all watercourse crossings, culverts and creek bank stabilisation works to comply with the DWE guidelines;
- Replanting of vegetation on the road batter adjacent to Kings Avenue to consolidate vegetation connectivity to other offsite areas of creekline vegetation;
- Natural regeneration, weed management and assisted revegetation by replanting native plant species within existing cleared areas identified within the 7(a) conservation zone on private lands.

2.2 DETAILED PROPOSED WEEDING ACTIVITIES TO BE CARRIED OUT WITHIN RETAINED VEGETATION OF THE SITE

The objectives of management actions are to manage natural vegetation and rehabilitate the disturbed vegetation within this site. This will primarily involve the removal of weed infestations, replanting of suitable native species and the ongoing maintenance of disturbed areas. There are currently a number of bush regeneration techniques used in bushland management for the removal of weeds. These include (Buchanan, 1989):

- the Bradley Method of minimal soil disturbance during weed removal;
- clearing and stabilising techniques;
- the use of herbicides;
- the use of fire; and
- biological controls.

The weed removal / bush regeneration technique that is most suitable for this situation is a variation of the Bradley Method. This method identifies that weed removal should be accomplished with minimal disturbance to the soil and surrounding native plants, an ideal situation in areas sensitive to erosion and where native plants can regenerate. The Bradley Method incorporates three basic philosophies:

- Work from areas containing less disturbed native vegetation towards more weed infested areas;
- Minimal disturbance to the soil and surrounding native plants. This is an important aspect especially in this situation as the topography and riparian morphology of the site makes it susceptible to erosion once plant cover has been removed;
- Allow natural native plant regeneration to occur throughout the native plant community. In some cases it may be necessary to assist regeneration by replanting areas of weed removal with locally occurring native species.

It is expected that weed removal within the subject site will be undertaken in accordance with methods described below and in Appendix I.

Exotic species targeted for removal throughout the duration of the management plan are listed in Table 2.1. General management strategies enabling appropriate removal of these species are provided in Appendix I.

TABLE 2.1 EXOTIC SPECIES TARGETED FOR REMOVAL		
On Site	Scientific Name	Common Name
#	<i>Ageratina adenophorum</i>	Crofton Weed
	<i>Bambusa sp.</i>	Bamboo
#	<i>Cirsium vulgare</i>	Spear Thistle
#	<i>Impatiens walleriana</i>	Busy Lizzie
#	<i>Lantana camara</i>	Lantana
#	<i>Ligustrum sinense</i>	Small-leaved Privet
#	<i>Lonicera japonica</i>	Japanese Honeysuckle
	<i>Musa sp.</i>	Banana
#	<i>Nephrolepis cordifolia</i>	Fishbone Fern
#	<i>Nicotiana glauca</i>	Tobacco Bush
#	<i>Paspalum dilatatum</i>	Paspalum
#	<i>Paspalum urvillei</i>	Vasey Grass
#	<i>Cortaderia selloana</i>	Pampas Grass
#	<i>Protasparagus aethiopicum</i>	Asparagus Fern
#	<i>Rubus anglocandicans</i>	Blackberry
#	<i>Senna pendula var. glabrata</i>	Cassia
#	<i>Thunbergia alata</i>	Black-eyed Susan
#	<i>Tradescantia fluminensis</i>	Wandering Jew
#	<i>Zantedeschia aethiopica</i>	White Arum Lily
# = Species observed on site		