Reserve Action Plan
Harold Reid Reserve

2017

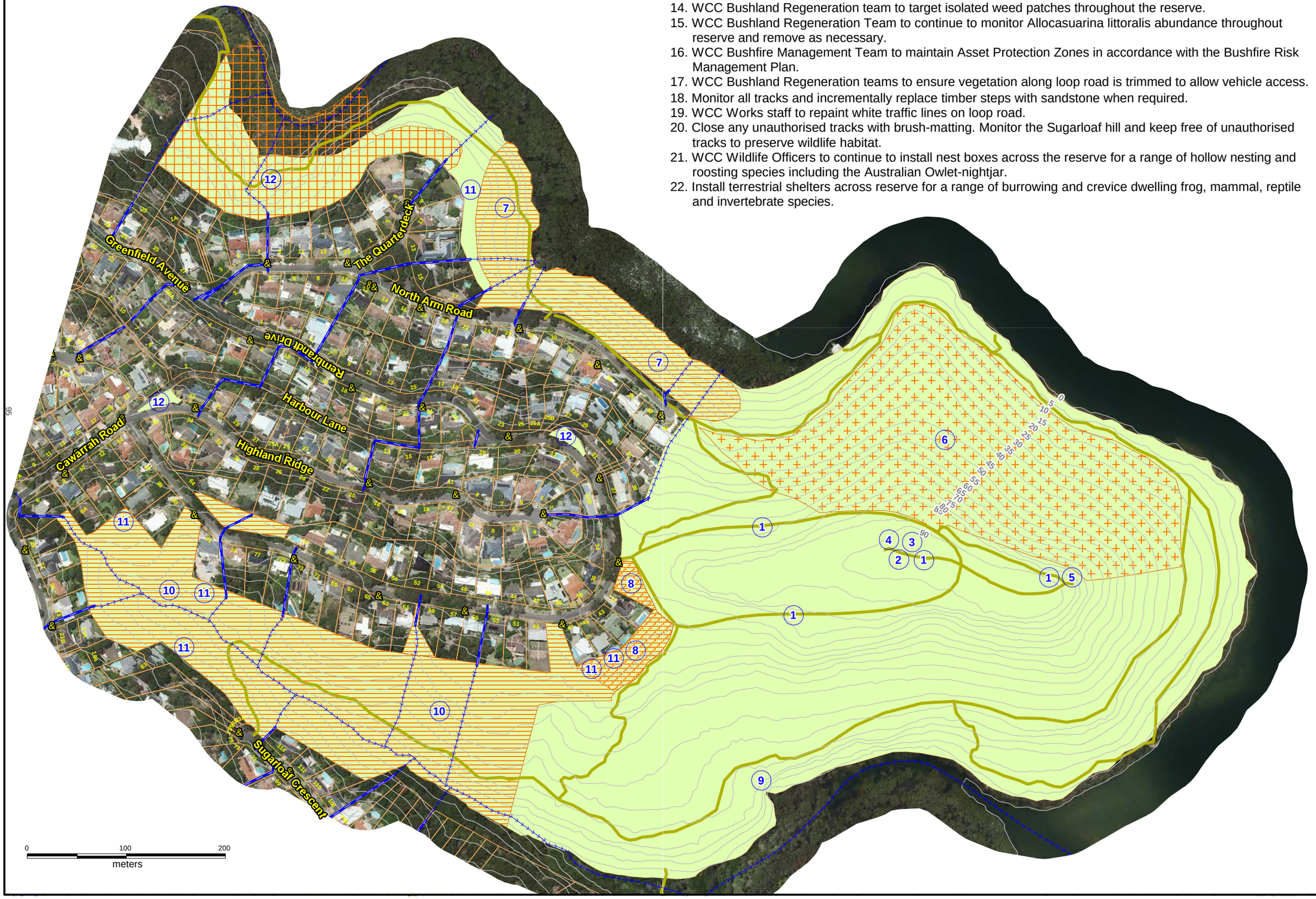
WILLOUGHBY
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Harold Reid Reserve Actions

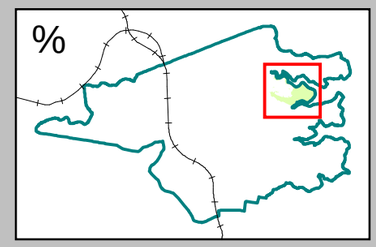
1. WCC Bushland Regeneration Team to weed along loop road, around picnic areas and lookout areas. Ensure native Blady grass (Imperata cylindrica) does not undermine road in sections.
2. Monitor health of large trees around picnic area and protect from damage caused by vehicles and visitors. WCC Bushland Support Team to complete dead wooding. Plant replacement trees when old trees are lost to ensure canopy stays intact.
3. Picnic and barbeque facilities to be gradually upgraded where required.
4. Accessible toilet to be installed. All works are to retain the natural bushland character.
5. Replace existing safety fence at lookout with a design more sympathetic to the site.
6. WCC Bushfire Management Team to complete a prescribed burn. Post fire weeding required after.
7. Bushland Regeneration Contractors to continue with weed management programs.

a. Foreshore Edge – Secondary and maintenance weeding targeting Asparagus Fern and woody weeds.
b. Stormwater Lines – Secondary weeding targeting Arundo Grass, Fishbone Fern, Trad and woody weeds. Also monitor stormwater lines for sediment build up.
c. Road & Property Edge – Secondary and maintenance weeding targeting Fishbone Fern, Senna and woody weeds. Plantings of Lomandra, Dianella and Blady Grass along the nature strip in sections will be completed to help define the reserve edge.

8. WCC Bushland Regeneration teams to continue removal of vines and other exotics at rear of properties 41-47 Rembrandt Dr. Control over-abundant Cissus antarctica behind 41 Rembrandt Dr and remove seedlings from either side of loop road in this area.
9. Informal tracks to Camp Creek and Sugarloaf Creek to be kept for access for bushland regeneration work.
10. Bushland Regeneration Contractors to continue to work in area targeting the removal of Alocasia brisbanensis, Lantana, Camphor Laurel, Bamboo, Ochna, Fishbone Fern, Palm grass, Asparagus Fern, and Trad.
11. Monitor encroachments at 45, 47, 81, 85 Rembrandt Drive, 83 Sugarloaf Crescent, 11 and 13 The Quarterdeck. All consist of lawn and/or garden into the reserve.
12. Bushcare groups to manage sites in accordance with Bushcare Action Plans.
13. Investigate options to install new interpretive signage within the reserve.
14. WCC Bushland Regeneration team to target isolated weed patches throughout the reserve.
15. WCC Bushland Regeneration Team to continue to monitor Allocasuarina littoralis abundance throughout reserve and remove as necessary.
16. WCC Bushfire Management Team to maintain Asset Protection Zones in accordance with the Bushfire Risk Management Plan.
17. WCC Bushland Regeneration teams to ensure vegetation along loop road is trimmed to allow vehicle access.
18. Monitor all tracks and incrementally replace timber steps with sandstone when required.
19. WCC Works staff to repaint white traffic lines on loop road.
20. Close any unauthorised tracks with brush-matting. Monitor the Sugarloaf hill and keep free of unauthorised tracks to preserve wildlife habitat.
21. WCC Wildlife Officers to continue to install nest boxes across the reserve for a range of hollow nesting and roosting species including the Australian Owlet-nightjar.
22. Install terrestrial shelters across reserve for a range of burrowing and crevice dwelling frog, mammal, reptile and invertebrate species.



RESERVE ACTION PLAN
HAROLD REID RESERVE



Plan details

Status:	Final
Prepared by:	S. Hall, S. Tooker
Drawn by:	H. Suba
Date printed:	08/03/2017
Approximate Scale:	1:4000

Legend

- 16 — Property number
- 12 — Action plan activity
- . — Stormwater node
- & — Approximate fire hydrant location
- Power pole
- 35 — 5m contours
- Stormwater network - Underground *
- Stormwater network - Overground / Unknown *
- Bush track / Path *
- Property boundary
- Reserve / bushland
- Council bush regeneration contractors
- BushCare group
- Proposed prescribed burn area
- Council staff regeneration site

* The accuracy of this data is not guaranteed and must be verified prior to use.

The information contained herein has been provided in good faith. Effort has been made to ensure it's accuracy and completeness.

Willoughby City Council does not take any responsibility for errors or omissions nor any loss or damage that may result from the use of this information.

References

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Harold Reid Reserve Action Plan

Reserve Profile

Harold Reid Reserve is a 42.7ha bushland reserve with large areas of intact remnant vegetation located in Middle Cove. It is Willoughby's second largest bushland reserve and connects with the largest, North Arm Reserve forming a continuous habitat link to the north and also to the south with the Castlecrag Northern Escarpment. The western boundary is made up of residential properties, while the north, south and east consist of bushland and/or the shores of Sugarloaf Bay. The reserve is very steep in sections and rises abruptly from the surrounding landscape to a height of 100 metres above sea level, forming a bluff that projects forward in an easterly direction. The northern half of the reserve is located within the Scotts Creek catchment and the southern half within the Sugarloaf Creek catchment, both form part of the larger Middle Harbour catchment.

There is car access to the reserve via a gated entrance and sealed road from the western end off Rembrandt Drive. A loop road leads to a BBQ picnic area and access to a lookout with stunning views overlooking Sugarloaf Bay.

PLANT COMMUNITY: Harold Reid Reserve contains three distinct plant communities and there are also mangroves and a small community of seagrass recorded close by.

The southern section is Coastal Sandstone Gully Forest (S_DSF09) with dominant tree species *Angophora costata*, *Corymbia gummifera*, *Eucalyptus piperita*, and *Eucalyptus sieberi*. The plateau section made up of the loop road, picnic area and lookout is Sydney North Exposed Sandstone Woodland (S_DSF11) with dominant tree species *Banksia serrata, Corymbia gummifera,* and *Eucalyptus haemastoma*. A section in the north is Coastal Enriched Sandstone Dry Forest (S_DSF04) with dominant tree species *Angophora* costata, Corymbia *gummifera,* and *Eucalyptus piperita*.

HABITAT: The eroded parent-rock is primarily Hawkesbury Sandstone extending from sea-level to the highest point in the reserve. The variability in the hardness of the rock has created an abundance of overhangs, rock-shelters and other formations that provides habitat for bats, reptiles and invertebrates.

Estuaries and seagrass beds provide critical habitat and breeding sites for many aquatic species. The foreshores are important resting and feeding sites for migratory birds.

Woodland areas allow terrestrial wildlife connective cover to find safe foraging and breeding sites. Arboreal animals have connective canopies to give them suitable protection and nesting sites. Birds use these areas to nest in and the diversity of plants also offers a wide range of food for honeyeaters and the insects on which our insectivorous species depend.

Gully forest vegetation provides corridors for the safe passage of birds, bats and marsupials.

The reserves also contain drainage areas and rocky foreshores which are high value habitat.

Statement of Significance

Harold Reid Reserve is classified as bushland as defined in State Environmental Planning Policy No 19 (*Vol 1, 1.4), and is protected under State and Commonwealth Legislation (*Vol 1, 1.5.2). It is zoned E2 Environmental Conservation in the Willoughby Local Environment Plan (WLEP) 2012.

The reserve has rich plant biodiversity which forms a critical haven and corridor for native wildlife in an urban landscape. It is also an important recreational area providing solitude, environmental education, extensive walking tracks for health and fitness and access to an undisturbed shoreline.

HABITAT SIGNIFICANCE: The diversity of landscapes provides significant habitat for native wildlife. There is dense canopy, shrub and ground cover layers, mangrove and estuarine habitats, south and north facing steep gully forests and sandstone woodland, rock outcrops and escarpments, fallen trees, branches and leaf litter, all important contributors to the habitat of this reserve. Forests are predominantly *Eucalyptus,* with a number of hollow bearing trees, with some areas of dense *Allocasuarina* species.

Native wildlife includes mammal species unusual to the inner urban interface, such as Swamp Wallabies, Echidnas and Sugar Gliders. Powerful Owls and Micro-bats are often observed. Past controlled burning in areas has contributed to a healthy density and diversity of mid-storey shrubs and grasses that support many species of invertebrates, small birds and reptiles. The estuarine and marine environments that skirt a large part of the reserve provide a protective boundary and are a link for many bird species, including Little Penguins.

ABORIGINAL CULTURAL SIGNIFICANCE: The Camaraygal people were the original inhabitants and occupied the foreshores of Middle Harbour up until the 1850's when Europeans took greater interest in the area's real estate potential. Archaeological surveys in the reserve have recorded 30 sites that range from open middens, rock shelters with deposits, potential habitation sites and isolated stone artefacts.

HISTORIC CULTURAL SIGNIFICANCE: The hill in the reserve became known as 'The Sugarloaf' for its resemblance to handmade sugar piles of the same name.

In 1926 Walter Burley Griffin prepared a plan for residential development of the land, but this never eventuated. Around the late 1950's, Middle Cove peninsula was being developed for residential sub-division and the eastern-most portion, formerly known as Sugarloaf Reserve, was transferred to Willoughby Council in 1960 on the provision that it remain for recreational purposes only. In 1963 Willoughby Council renamed it Harold Reid Reserve in honour of Town Clerk, Harold Reid.

Reserve Impacts

As most of the reserve is a hill on a peninsula, much of it is protected from direct impacts from urbanisation. However impacts are found at boundaries with private properties and include weed infestation, increased moisture and nutrient loads, and illegal dumping of garden waste and building material.

A boatshed exists within the reserve on the northern shoreline facing northwest to Scotts Creek.

Dumping is known to occur around the loop road and in the picnic area.

Several properties encroach into the reserve.

ENCROACHMENTS: 45, 47, 81, 85 Rembrandt Drive, 83 Sugarloaf Crescent, 11 and 13 The Quarterdeck.

Wildlife Habitat Issues

Harold Reid is a Wildlife Protection Zone (Category 2) that strictly forbids the presence of domestic cats and limits dogs to on-leash on tracks only. A number of feral cats have been living in and around the reserve for some years.

The fox baiting program will continue in the area.

Other threats to wildlife habitats include removal of dead wood, standing or otherwise, removal of bush-rock, disturbance of vegetation and illegal walking tracks from private property into the reserve.

Achievements

Track improvements, particularly at the Sugarloaf Crescent entrance and also throughout the reserve have been completed, including the incremental replacement of old wood steps with new sandstone.

Armouring of several stormwater lines and resurfacing work has reduced erosion events.

Rubbish from stormwater has been cleaned in mangrove areas.

A prescribed burn was completed in June 2014 around the lookout area.

Extensive weed removal work adjacent to house boundaries and along Camp Creek has increased native vegetation cover.

Bushcare groups and contractors have made significant gains to reduce weed cover below North Arm Road.

Bushland furniture has been maintained and upgraded in areas.

Bushland Management Goals – Harold Reid Reserve

The following aims from the Urban Bushland Plan of Management 2014 are priory objectives in Harold Reid Reserve:

4.1a Aim: Increase community understanding of bushland values and management.
5.4b Aim: To maintain the integrity of bushland reserves through the reduction of encroachments and other boundary impacts.
6.1b Aim: Maintain and, where appropriate, enhance diverse native plant communities and species across lands within the Willoughby Local Government Area.
6.3b Aim: To implement weed control programs which are based on regeneration and restoration principles and which increase the bushland resilience to further weed infestation.
7.1b Aim: To implement a strategic hazard reduction program.

General Principles and Actions – All Bushland Reserves

a. Bush regeneration is a long term process that requires staged weed removal to ensure establishment of native plant communities. Work should proceed from good to degraded areas with techniques that encourage regeneration, including flame weeding, rather than spraying herbicide.
b. If possible, all weed refuse and natural debris to be composted or retained on-site.
c. When natural regeneration is deemed inadequate, supplementary plantings to mimic local plant communities and landscapes will be used with local provenance species.
d. Standing dead trees and forest litter (including logs and branches) to be retained for wildlife habitat unless deemed a risk to public safety.
e. Monitor, maintain and enhance vegetation connectivity for wildlife habitat within the reserve and reserve networks.
f. *Phytophthera cinnamomi* (a root rot pathogen) is listed as a key threatening process in NSW and has been identified as a threat to a number of species. Bushland workers are to use hygiene protocols to minimise risk.
g. Report and record all reserve encroachments. Monitor for tree vandalism and/or removal within the reserve and report to Council Compliance for appropriate action.
h. Continue to monitor wildlife habitat requirements and supplement where necessary.
i. Monitor feral animal activity and implement appropriate management actions where necessary.
j. Bushfire management will be achieved through implementation of a strategic hazard reduction program consistent with the Bushfire Risk Management Plan.
k. Species diversity will be encouraged through an ecological burn program.
l. Monitor and protect cultural and Aboriginal heritage sites within the reserve at all times. Bushland staff to notify Aboriginal Heritage Office prior to each burn to identify sites and implement protection measures and post-fire survey.
m. This reserve has a valuable role as an educational resource. Preserve natural features used for educational purposes and continue to inform the community of bushland issues through on-site educational activities and signage. Maintain appropriate signage.
n. Formal tracks to be regularly maintained and informal tracks to be closed to prevent damage to habitat and to impede access of feral animals, unless used for access by bushland management workers.
o. Establish photo points to monitor the progress of reserve management actions.
p. Reserve Action Plan progress to be reviewed annually and updated after five years.

Native Plant List for Harold Reid Reserve

SELAGINELLACEAE	*Cassuarina glauca*	*Ficus rubiginosa*	STERCULIACEAE
Selaginella uliginosa	CONVOLVULACEAE	MYRSINACEAE	*Lasiopetalum ferrugineum*
CONIFERS	*Dichondra repens*	*Rapanea variabilis*	STYLIDIACEAE
CUPRESSACEAE	CUNONIACEAE	MYRTACEAE	*Stylidium graminifolium*
Callitris rhomboidea	*Callicoma serratifolia*	*Acmena smithii*	*Stylidium laricifolium*
PODOCARPACEAE	*Ceratopetalum gummiferum*	*Angophora bakeri*	*Stylidium lineare*
Podocarpus elatus	DILLENIACEAE	*Angophora costata*	*Stylidium productum*
Podocarpus spinulosus	*Hibbertia empetrifolia*	*Angophora hispida*	THYMELIACEAE
FORK FERNS	*Hibbertia linearis*	*Backhousia myrtifolia*	*Pimelea linifolia*
PSILOTACEAE	ELAEOCARPACEAE	*Eucalyptus gummifera*	TREMANDRACEAE
Psilotum nudum	*Elaeocarpus reticulatus*	*Eucalyptus haemastoma*	*Tetratheca ericifolia*
FERNS	EPACRIDACEAE	*Eucalyptus piperita*	VERBENACEAE
ADIANTACEAE	*Epacris longiflora*	*Eucalyptus punctata*	*Avicennia marina*
Adiantum aethiopicum	*Epacris microphylla*	*Eucalyptus resinifera*	*Chloanthes stoechadis*
ASPLENIACEAE	*Epacris pulchella*	*Eucalyptus sieberi*	*Hybanthus vernonii*
Asplenium australasicum	*Leucopogon amplexicaulis*	*Kunzea ambigua*	*Viola hederacea*
Asplenium flabellifolium	*Leucopogon ericoides*	*Leptospermum arachnoides*	VITACEAE
BLECHNACEAE	*Leucopogon microphyllus*	*Lpolygalifolium*	*Cayratia clematidea*
Blechnum ambiguum	*Monotoca scoparia*	*Leptospermum trinervium*	*Cissus hypoglauca*
Blechnum cartilagineum	*Styphelia longifolia*	OLACACEAE	**MONOCOTS**
CYATHEACEAE	*Styphelia tubiflora*	*Tristaniopsis laurina*	COMMELINACEAE
Cyathea australis	*Woollsia pungens*	OLEACEAE	*Commelina cyanea*
Cyathea cooperi	EUPHORBIACEAE	*Notelaea longifolia*	CYPERACEAE
DAVALLIACEAE	*Breynia oblongifolia*	*Notelaea venosa*	*Caustis flexuosa*
Davallia pyxida	*Glochidion ferdinandi*	OXALIDACEAE	*Caustis pentandra*
DENNSTAEDTIACEAE	*Micrantheum ericoides*	*Oxalis corniculata*	*Gahnia melanocarpa*
Histiopteris incisa	*Omalanthus populifolius*	PITTOSPORACEAE	*Lepidosperma elatius*
Hypolepis muelleri	*Phyllanthus gastroemii*	*Billardiera scandens*	*Lepidosperma laterale*
Pteridium esculentum	*Phyllanthus hirtellus*	*Pittosporum undulatum*	*Lepidosperma limicola*
DICKSONIACEAE	*Poranthera microphylla*	POLYGALACEAE	*Schoenus melanostachys*
Calochlaena dubia	*Ricinocarpos pinifolius*	*Comesperma ericinum*	*Schoenus turbinatus*
GLEICHENIACEAE	FABACEAE FABOIDEAE	PRIMULACEAE	IRIDACEAE
Gleichenia dicarpa	*Bossiaea ensata*	*Samolus repens*	*Patersonia glabrata*
Gleichenia microphylla	*Bossiaea heterophylla*	PROTEACEAE	*Patersonia sericea*
Gleichenia rupestris	*Bossiaea scolopendria*	*Banksia ericifolia*	JUNCACEAE
Gleichenia lobatus	*Desmodium varians*	*Banksia integrifolia*	*Juncus kraussii*
LINDSAEACEAE	*Dillwynia retorta*	*Banksia marginata*	LILIACEAE
Lindsaea linearis	*Glycine clandestina*	*Banksia oblongifolia*	*Blandfordia nobilis*
Lindsaea microphylla	*Gompholobium glabratum*	*Banksia serrata*	*Burchardia umbellata*
POLYPODIACEAE	*Gompholobium latifolium*	*Banksia spinulosa*	*Dianella caerulea*
Platycerium bifurcatum	*Hardenbergia violacea*	*Conospermum longifolium*	*Thysanotus tuberosus*
Pyrrosia rupestris	*Hovea linearis*	*Grevillea buxifolia*	*Tricoryne elatior*
PTERIDACEAE	*Hovea purpurea*	*Grevillea linearifolia*	LOMANDRACEAE
Pteris tremula	*Kennedia rubicunda*	*Grevillea sericea*	*Lomandra glauca*
SCHIZAEACEAE	*Mirbelia rubiifolia*	*Grevillea speciosa*	*Lomandra gracilis*
Schizaea bifida	*Phyllota phylicoides*	*Hakea dactyloides*	*Lomandra longifolia*
Schizaea dichotoma	*Platylobium formosum*	*Hakea gibbosa*	*Lomandra obliqua*
DICOTS	*Pultenaea daphnoides*	*Hakea sericea*	ORCHIDACEAE
AIZOACEAE	*Pultenaea elliptica*	*Hakea teretifolia*	*Acianthus fornicatus*
Pseuderanthemum variabile	*Pultenaea flexilis*	*Isopogon anethifolius*	*Cryptostylis erecta*
APIACEAE	*Pultenaea polifolia*	*Lambertia formosa*	*Dipodium punctatum*
Alternanthera denticulata	*Pultenaea stipularis*	*Lomatia myrcoides*	*Pterostylis nutans*
Actinotus helianthi	*Viminaria juncea*	*Lomatia silaifolia*	POACEAE
Actinotus minor	FABACEAE-MIMOSOIDEAE	*Persoonia lanceolata*	*Aristida vagans*
Apium graveolens	*Acacia ulicifolia*	*Persoonia levis*	*Echinopogon caespitosus*
Centella asiatica	*Acacia linifolia*	*Persoonia pinifolia*	*Entolasia marginata*
Platysace lineariifolia	*Acacia longifolia*	*Petrophile pulchella*	*Entolasia stricta*
Xanthosia pilosa	*Acacia myrtifolia*	*Telopea speciosissima*	*Eragrostis trachycarpa*
Xanthosia tridentata	*Acacia parramattensis*	*Xylomelum pyriforme*	*Imperata cylindrica*
ARALIACEAE	*Acacia suaveolens*	RANUNICULACEAE	*Microlaena stipoides*
Polyscias sambucifolia	*Acacia terminalis*	*Clematis aristata*	*Notodanthonia longifolia*
ASCLEPIADACEAE	GERANIACEAE	RHAMNACEAE	*Oplismenus imbecillis*
Marsdenia suaveolens	*Geranium homeanum*	*Pomaderris ferruginea*	*Oplismenus aemulus*
ASTERACEAE	GOODENIACEAE	*Pomaderris intermedia*	*Panicum effusum*
Aster subulatus	*Dampiera stricta*	*Pomaderris lanigera*	*Panicum simile*
Cassinia denticulata	*Goodenia bellidifolia*	RUBIACEAE	*Paspalum aversum*
Cotula coronopifolia	*Goodenia heterophylla*	*Opercularia aspera*	*Sporobolus virginicus*
Ozothamnus diosmifolium	*Scaevola ramosissima*	*Pomax umbellata*	*Stipa pubescens*
BAUERACEAE	HALORAGACEAE	RUTACEAE	*Tetrarrhena juncea*
Bauera rubioides	*Gonocarpus teucrioides*	*Boronia ledifolia*	*Themeda australis*
BIGNONIACEAE	*Haloragis heterophylla*	*Boronia pinnata*	RESTIONACEAE
Pandorea pandorana	LAMIACEAE	*Crowea saligna*	*Empodisma minus*
CAMPANULACEAE	*Hemigenia pupurea*	*Phebalium dentatum*	*Lepyrodia scariosa*
Wahlenbergia gracilis	LOBELIACEAE	*Phebalium squamulosum*	SMILACACEAE
CASSYTHACEAE	*Lobelia elata*	*Zieria pilosa*	*Smilax australis*
Cassytha glabella	*Pratia purpurascens*	*Zieria smithii*	*Smilax glyciphylla*
CASUARINACEAE	LOGANIACEAE	SAPINDACEAE	XANTHORRHOEACEAE
Allocasuarina distyla	*Logania albiflora*	*Dodonaea triquetra*	*Xanthorrhoea arborea*
Allocasuarina littoralis	*Mitrasacme polymorpha*	SCROPHULARIACEAE	*Xanthorrhoea media*
A.littoralis x distyla	MORACEAE	*Veronica plebeia*	