

## Metro North East Region

# Draft Regional Pest Management Strategy

### Part B: 2012-2015



This plan should be cited as follows:

Office of Environment and Heritage. (2011). Draft Metro North East Regional Pest Management Strategy Part B: 2012-2015. OEH, Sydney, NSW

For further information contact:  
Regional Operations Coordinator  
Metro North East Region  
Metropolitan Branch  
National Parks and Wildlife Service  
Office of Environment and Heritage  
Department of Premier and Cabinet  
PO Box 3031  
Asquith NSW 2077  
NSW 2077  
Telephone: 02 9457 8900

The New South Wales National Parks and Wildlife Service (NPWS) is part of the Office of Environment and Heritage (OEH). Throughout this strategy, references to NPWS should be taken to mean the NPWS carrying out functions on behalf of the Director General of the Department of Premier and Cabinet, and the Minister for the Environment.

© Copyright Office of Environment and Heritage on behalf of State of NSW

With the exception of photographs, the Office of Environment and Heritage and State of NSW are pleased to allow this material to be reproduced in whole or in part for educational and non-commercial use, provided the meaning is unchanged and its source, publisher and authorship are acknowledged. Specific permission is required for the reproduction of photographs (OEH copyright).]

Published by:  
Office of Environment and Heritage  
59–61 Goulburn Street, Sydney, NSW 2000  
PO Box A290, Sydney South, NSW 1232

**Report pollution and environmental incidents**

Environment Line: 131 555 (NSW only) or [info@environment.nsw.gov.au](mailto:info@environment.nsw.gov.au)

See also [www.environment.nsw.gov.au/pollution](http://www.environment.nsw.gov.au/pollution)

Phone: (02) 9995 5000 (switchboard)  
Phone: 131 555 (environment information and publications requests)  
Phone: 1300 361 967 (national parks, climate change and energy efficiency information and publications requests)  
Fax: (02) 9995 5999  
TTY: (02) 9211 4723  
Email: [info@environment.nsw.gov.au](mailto:info@environment.nsw.gov.au)  
Website: [www.environment.nsw.gov.au](http://www.environment.nsw.gov.au)

ISBN 978 1 74293 406 8  
OEH 2011/0894  
December 2011

# **Contents**

<b>Summary</b>	<b>iv</b>
<b>Acronyms</b>	<b>v</b>
<b>1. Introduction</b>	<b>1</b>
<b>2. Regional overview</b>	<b>1</b>
<b>3. Regional map</b>	<b>5</b>
<b>4. Regional prioritisation</b>	<b>6</b>
<b>5. Table of prioritised regional pest programs</b>	<b>8</b>
<b>6. Consultation</b>	<b>83</b>
<b>7. Pest species overviews</b>	<b>85</b>
<b>8. Pest distribution tables</b>	<b>102</b>
<b>9. Appendices</b>	<b>109</b>

## Summary

The Metro North East Region of the National Parks and Wildlife Service covers the north easterly quarter of the Sydney basin from Botany Bay to Broken Bay and inland from Wolli Creek in the south to Wisemans Ferry on the Hawkesbury River. The Region includes a significant portion of the remaining natural landscape of the Sydney basin including some of the best known conservation reserves and cultural heritage in the state.

At just over 37,000 hectares Metro North East Region is responsible for the smallest land area of reserve of any region in NSW. However, the characteristics of the region and the location of the region's reserves within, or immediately adjacent to, the urban centre of Sydney means that they are subject to a complex planning environment and suite of management priorities.

A number of pest species are present in Metro North East Region and their impacts can be observed in all reserves. Many common pests are widespread here and because Sydney is an import, transport, business and commercial hub it is a point of invasion for new pest species in NSW and Australia.

This strategy provides framework to prioritise specific pest management programs, the table of prioritised regional pest programs ranks sites according to their impact to key park values primarily biodiversity, cultural heritage and recreational and landscape amenity. The table can be cross referenced with pest species overviews as a regional level of assessment of pest programs. Further prioritisation will be afforded by the preparation of whole of park landscape management plans and site specific management plans. These priorities will be included in Regional Operations Plans (ROPs) and implemented through the Assets Maintenance System (AMS) and are reportable against the Key Performance Indicators defined in Part A section 6.

## Acronyms

The following acronyms are used throughout this document.

Acronym	Expanded Text
AMS	Asset Maintenance System
BPWW	Biodiversity Priorities for Widespread Weeds
BMAD	Bell miner associated dieback
CAP	Catchment Action Plan
CCHD	Country Cultural Heritage Division (OEH)
CMA	Catchment Management Authority
KPI	Key Performance Indicator
KTP	Key Threatening Process under the TSC Act
LHPA	Livestock Health and Pest Authority
MER	Natural Resource Management Monitoring, Evaluation and Reporting
MNER	Metro North East Region (of NPWS)
NPW Act	<i>National Parks and Wildlife Act 1974</i>
NPWS	NSW National Parks and Wildlife Service
NRM	Natural Resource Management
NSW	New South Wales
OEH	Office of Environment and Heritage
PAS	Priorities Action Statement
PMP	Park Management Program
POM	Plan of Management
PWG	Parks and Wildlife Group, the internal name within OEH for NPWS
PWIS	Pest and Weed Information System
RLP Act	<i>Rural Lands Protection Act 1998</i>
ROP	Regional Operations Plan
RPMS	Regional Pest Management Strategy
SOP	Standard Operating Procedure

TAP	Threat Abatement Plan
TSC Act	<i>Threatened Species Conservation Act 1995</i>

The following terms are used in this document

<b>Term</b>	<b>Definition</b>
Cut and paint	A bush regeneration technique, cutting with tools and painting with herbicide
Splatter Gun	A tool and method for applying herbicide using a cattle drench, herbicide is sprayed, droplet size is larger than foliar spraying



# 1. Introduction

Pest management within the Office of Environment and Heritage (OEH) is guided by two core planning instruments:

- *NSW 2021 – A Plan to Make NSW Number One* sets out performance targets, including a specific priority action within *Goal 22 Protect Our Natural Environment* which is to *address core pest control in National Parks through the delivery of NPWS Regional Pest Management Strategies and improve educational programs and visitor access.*
- The *NSW Invasive Species Plan* provides specific goals, objectives and actions in relation to Invasive Species management.

This document is Part B of the Metro North East Region Pest Management Strategy and contains the regionally specific components of the strategy including the Region's prioritised pest programs.

Part A of the strategy provides the broader planning framework for the management of pests by NPWS. It documents the corporate environment, legislation and policy context and describes the logic used for identifying, prioritising and monitoring pest management programs. It also establishes Service-wide pest management goals, objectives and actions.

This Part B describes the local circumstances within the Region and applies the Part A framework to prioritise specific pest management programs. These priorities will be included in Regional Operations Plans (ROPs) and implemented through the Asset Maintenance System (AMS). It also broadly identifies pest distribution and associated impacts across the Region.

## 2. Regional overview

Metro North East Region comprises 7 National Parks, 9 Nature Reserves, 3 Historic Sites, 4 Regional Parks, 1 Aboriginal Area, and 1 State Conservation Area in the north eastern part of Sydney that lies between Botany Bay in the south, Broken Bay in the north, and inland north west to Wisemans Ferry (see 3. regional map). Newington Nature Reserve is currently managed by Cumberland South Area a part of the Metropolitan South West Region and pest control is carried out under a MOU with the Sydney Olympic Park Authority.

The Region includes a significant portion of the remaining natural landscape of the Sydney basin and encompasses the built environment of metropolitan Sydney from the airport, light industrial districts and central business district to the beaches, suburbs and northern peri urban fringe. It brings together some of the best known conservation reserves in the state and its characteristics include:

- Some of the world's longest established conservation reserves.
- Natural landscapes which preserve much of the original biodiversity of the Sydney basin, including many species, ecological communities and populations listed under the *Threatened Species Conservation Act 1995*.
- Iconic landscape features like North and South Head which frame the entrance to world famous Sydney Harbour and promote Sydney as a green city surrounded and interspersed by bushland.

- Many of the key destinations for international visitors seeking ‘national park’ experiences in Sydney.
- Sydney’s premium vantage points for outdoor celebrations and Special Events from weekend picnics to New Years Eve celebrations.
- Nationally significant European and Aboriginal heritage sites including many listed under the *Heritage Act 1977* in readily accessible locations.
- Many tangible links to the Aboriginal custodians of these lands, and opportunities to partner Aboriginal communities in the management and interpretation of places and reserves.
- Open space amenity in an otherwise urban landscape and opportunities for outdoor enjoyment, recreation and a continuing place in community life.
- The capacity to provide high quality environmental and cultural experiences for local, domestic and international visitors.
- The capacity to provide opportunities for education and research.

Metro North East Region comprises five NPWS Management Areas, Harbour South, Harbour North, Northern Beaches, Lane Cove River and Lower Hawkesbury and a further two management units the Goat Island Team and Regional Operations Group, incorporating the Visitor Services Unit. The region brings together the talent and experience of around one hundred and sixty national park officers, including those involved in management, visitor services, field operations, and specialist roles. The Pest Management Officer provides support, advice and direction for the strategic management of pests against regional priorities and ensures statutory and legislative responsibilities are met and best practice management processes are adhered to. Area staff manage projects, and undertake on-ground pest control works including coordination and support of volunteer programs and overseeing contractors engaged in pest management programs. Staff participation in pest related training both on the job and via formal certification is well supported and staff keep informed of new developments and best practice by information sharing and participation in pest related seminars and workshops run by relevant committees, societies and agencies.

At just over 37,000 hectares Metro North East Region is responsible for the smallest land area of reserve of any region in NSW. However, the characteristics of the region and the location of the region’s reserves within, or immediately adjacent to, the urban centre of Sydney means that they are subject to a complex planning environment and play a critical role in delivering “whole of government initiatives”. There are 30 local government areas and 31 state government electorates fully or partially within the region and the Region falls within the bounds of Sydney Metropolitan CMA and Hawkesbury Nepean CMA.

The urban interface of NPWS estate in the Region is considerable; many reserves are small or long and narrow, with a high interface ratio. The prioritisation process dictated by this strategy will assist in determining where edge effect should and can be mitigated and through community engagement programs neighbours will be encouraged to take joint ownership of assets and issues.

The Region encompasses a wide range of topographic features, soil types and vegetation associations. It contains over 1000 known species of flora and over 200 known species of mammals, birds and reptiles. There are a high number of species, populations and communities that have been declared under the *Threatened Species Conservation Act 1995* and *Environmental Protection and Biodiversity Conservation Act 2000* that occur within the Region. Priority is given to their care especially those wholly or largely endemic to the region or where their status in Metro North East Region is the primary determinant of their survival or extinction in NSW.



A number of pest species are present in Metro North East Region and their impacts can be observed in all reserves. Urban development impacts heavily upon the Region's reserves as it creates conditions favourable to weed invasion (including nutrient enriched run-off, sewerage overflows, high flow stormwater, soil disturbance, vegetation clearing, dumping of fill and garden waste and garden escape plants). This is evidenced by the high densities of weeds on urban boundaries and along creeks and rivers downstream of development. Weeds listed as Weeds of National Significance, or on the National Alert Weed List and those declared as noxious or identified under Key Threatening Processes under the TSC Act (1995) pose one of the greatest threats to the conservation of biodiversity and cultural heritage and recreational and landscape values in the Region. Rabbits and foxes are the most common vertebrate pests and whilst foxes occur across the landscape including in relatively undisturbed bushland, rabbits are generally confined to areas of high protein grass availability in open areas, predominantly associated with the agricultural and urban interface.

Metro North East Region reserves are regularly impacted upon by fire both as wildfire and also through programmed hazard reduction burning. Fire has been used as a tool for conservation, many plant communities and species including those identified as threatened require defined fire regimes to promote health and regeneration. Fire can also be used as a means of weed control or as a window of opportunity for control. Fire can also lead to increased pest invasion, most commonly weeds, but also increased vertebrate pest activity, including predation by foxes and increased browsing and damage to regenerating plants by rabbits. Conversely, prolonged absence of fire can also lead to degradation of native plant communities and increased weed invasion particularly by mesic species.

More than five hundred volunteers provide support through a remarkably diverse group of programs. The Region was one of the first in NSW to engage community volunteers for Bushcare and boasts over 60 groups and many dedicated individuals, many of whom are considered industry experts. Pest management programs in the region also offer volunteering opportunities for business and industry, corporate groups and schools and university students, armed forces personnel also participate. The Discovery program engages and informs park visitors including regarding the values and assets of the region's reserves and also provides a tool for education including on the impacts of pests and benefits of pest management programs. NSW Fire Brigades Community Fire Units and NSW Rural Fire Service Fire Wise initiatives may also be utilised to undertake weed control in Asset Protection Zones (APZ). Where pests impact upon Aboriginal cultural heritage sites, aboriginal heritage officers and staff liaise with the relevant Aboriginal Land Council and Aboriginal community who may be invited to participate in on ground management. Students (University, TAFE, High School and Aboriginal traineeships) are routinely engaged to assist in pest monitoring and management programs.

Volunteer programs address many critical and high priority actions outlined in this strategy as well as medium and lower priority localised weed impacts. The contribution of all volunteers to pest management is highly valued by NPWS and in turn participants are given experiences relevant to a variety of motivations including personal satisfaction and gaining work experience. Volunteers are also provided with opportunities for on the job training and mentoring and the provision of training courses including an introduction to bush regeneration and plant identification. The Metro North East Region has representatives on the Volunteer Coordinators Network (VCN) which provides support and information sharing for NPWS and other agency

personnel supervising volunteers and ensures best practice management of volunteers; and the Regional Weeds committee who also develop educational and training opportunities and support mechanisms for volunteers. Volunteers are managed according to the PWG Volunteer Policy and Procedures.

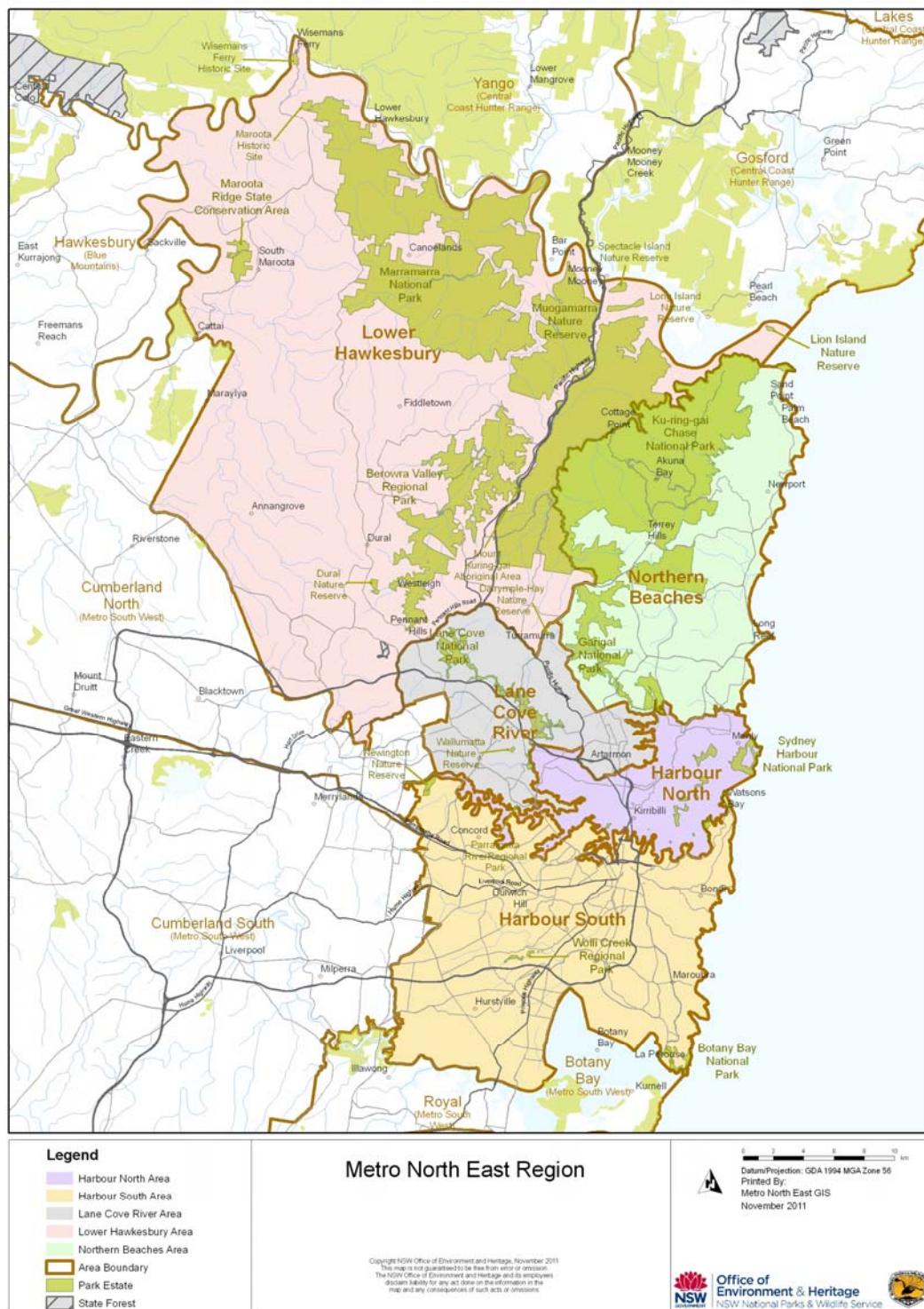
NPWS works in close collaboration with neighbouring agencies and landholders including coordinated pest control programs, information sharing, cost sharing and public education programs. Collaborative programs and issues pertaining to vertebrate pests north of the harbour are coordinated through the Sydney North Urban Feral Animal Action Group (UFAAG) comprising seventeen land management agencies including the Cumberland Livestock Health and Pest Authority; programs south of the harbour involve direct liaison with councils and other agencies and neighbours. Successful landscape wide vertebrate pest control programs coordinated by UFAGG include the Sydney North Regional Fox Control Program and coordinated rabbit control. Supported by the Department of Primary Industries (DPI) the Sydney Regional Weeds Committee (RWC) (Sydney North, Sydney Central and Sydney West Blue Mountains sub committees) of which MNER is a member provides information and support to member agencies in relation to strategic and goal driven collaborative weed control programs, information sharing and staff and community education programs. The Sydney RWC Weed Action Program (WAP) prioritises weed control in high conservation areas, including the conservation of endangered ecological communities and threatened species and populations and targets high priority weeds and new incursions along high risk pathways. The critical priorities in this strategy are in keeping with the philosophy of the WAP.

The Hawkesbury Nepean and Sydney Metropolitan CMAs also play a vital role in facilitating and funding cross tenure programs and community participation in the pest management programs in the region and many NPWS priorities match goals, objectives and outcomes of the relevant Catchment Action Plans (CAPS). NPWS endeavours to work with individual park neighbours to manage pests, however limited resources dictate that pests that have localised impacts will be given lower priority than regional or catchment wide programs.

Regional funding is allocated on a priority basis and external funding is also sought for on-ground control of priority pests through regional and national grants and joint projects; volunteers and “friends of” groups also seek grant funding for works on parks estate against key priorities.

Barriers to effective pest control include conflicting priorities such as routine maintenance and a range of non-pest related management priorities and events and emergency work. Although resources are used to best effect by adhering to predetermined priorities as outlined in this strategy, limited resources, both in terms of adequate funding and staff availability dictate what pest programs are implemented in the region. Not all pests or impacts can be addressed.

### 3. Regional map



## 4. Regional prioritisation

The following key factors are considered when determining priorities for pest management within the Region. However, a precautionary approach using risk management (as described in the risk management policy) will be applied where there is uncertainty about the impacts of the pest to the asset. The feasibility of effective control will also be a consideration.

### Critical priority

#### *C-TSC (Threatened Species Conservation):*

Programs targeting pests which are, or are likely to be, significantly impacting on threatened species/populations/communities. These include the highest priorities identified in the TAPs, PAS and BPWW. e.g. undertake fox control at the Garigal priority site for southern brown bandicoot as identified in the Fox TAP;

#### *C-HD (Health and Disease)*

Programs that target pests which impact significantly on human health or are part of a declared national emergency e.g. outbreak of foot and mouth disease or control of feral pigs in the catchment area of a domestic water supply reservoir;

#### *C-EC (Economic)*

Programs targeting pests that impact significantly on economic enterprises e.g. wild dog control where there is potential for significant stock losses as identified in Wild Dog Management Plans;

#### *C-NE (New and Emerging)*

Programs addressing new occurrences or suppressed populations of highly invasive pest species with potential for significant impacts on park values (subject to risk/feasibility assessment), programs to control Class 1 and 2 noxious weeds;

### High priority

#### *H-IH (International Heritage)*

Programs that target pests that impact significantly on World Heritage or international heritage values, e.g. control of rabbits impacting on World Heritage values of Mungo NP; pest control in RAMSAR wetlands;

#### *H-CH (Cultural Heritage)*

Programs targeting pests that impact significantly on important cultural heritage values e.g. control of feral goats where they are inhabiting an area containing Aboriginal rock art; control of rabbits undermining an historic building;

### Medium priority

#### *M-WNH (Wilderness and National Heritage)*

Programs that target pests that impact significantly on Wilderness, Wild Rivers, national heritage values or other important listed values e.g. control of willows along a declared Wild River or within a Wilderness area;

#### *M-RA (Recreation and aesthetic values)*

Programs that target pests that impact significantly on recreation, landscape or aesthetic values, e.g. control of blackberry on the margins of camping areas; control of weeds in an area of natural beauty that is visited frequently;

#### *M-CP (Cooperative programs)*

Cooperative programs (not covered in higher priorities above) targeting pests that impact significantly on park values or agricultural production (including the control of Class 3 noxious weeds or implementation of other endorsed state or regional plan), e.g. control of bitou bush across boundaries as part of a regional control plan prepared by a regional weeds advisory committee and supported by NPWS.

### **Lower priority**

#### *L-LP (Localised programs)*

Programs targeting pests that have localised impacts on natural ecosystems or agricultural lands that promote community skills, awareness and involvement with parks, e.g. participation in a new bush regeneration project with a local community group for control of Class 4 noxious weeds;

#### *L-PP (Previous programs)*

Previous programs targeting pests that have localised impacts on native species and ecosystems, and that can be efficiently implemented to maintain program benefits, e.g. the maintenance of areas treated previously for serrated tussock to continue keeping them weed free.

In some circumstances, new programs may be introduced, or priority programs extended to target pests where a control “window of opportunity” is identified e.g. where burnt areas become more accessible for ground control of weeds; where feral goats congregate in orchards where food is available making control more effective and efficient; or when a new biocontrol agent becomes available.

Future priorities for pest control will need to reflect changes in the distribution, abundance or impacts of pests that may occur in response to environmental changes including climate change. NPWS is supporting research to understand the interaction between climate change, pests and biodiversity.

Where new weed programs are introduced for the benefit of biodiversity they will also be subject to ranking based on the importance of the species, population or community and the feasibility of control using the biodiversity priorities for widespread weeds system.

Further prioritisation mechanisms will be applied to pest control sites in the Metro North East Region including the mapping of assets and landscape management plans. Site specific management plans are prepared for critical priority TAP sites and BPWW (rank 1 and 2) and include clearly defined aims, outcomes and commitments and in the case of weeds details of staged approach to control.

## 5. Table of prioritised regional pest programs

Live versions of this table will be kept on OEH intranet and updated annually over the 4 year period of the strategy. Further prioritisation and detail will be managed by site specific management plans, and landscape plans.

Area	Reserve(s)	Site name	Target pests or weeds	Asset at risk	Aim of Control	Action	Priority
			<b>Vertebrate pests</b>				
MNE Region	All	MNE Region	<i>Bufo marinus</i> cane toad  No known cane toad populations in MNER, occasional hitchhiker toads reported	Biodiversity: fauna	Prevention	Report sightings to Wildlife Atlas, and PMO/cane toad sightings database. Investigate all on park sightings, Provide advice re all off park sightings.	C-NE
MNE Region	All	MNE Region	<i>Trachemys scripta elegans</i> red-eared slider turtle  No known REST populations in MNER, occasional sightings in Wolli creek & Lane cove River.	Biodiversity: aquatic fauna	Prevention  Local eradication as possible  Containment	Opportunistic monitoring, report sightings to Wildlife Atlas, DPI and PMO, PMO to investigate systematic monitoring and feasibility of control. Any found REST to be taken to Taronga zoo for euthanasia and assessment of breeding status	C-NE
MNE Region	All	MNE Region	<i>Dama dama</i> fallow deer, <i>Rusa timorensis</i> rusa deer	Biodiversity: threatened flora and threatened fauna habitat	Monitoring	Opportunistic monitoring, report sightings to Wildlife Atlas, DPI and PMO, PMO to investigate systematic monitoring and feasibility of control	C-NE
HNA							
HNA	Sydney Harbour	North Head	<i>Vulpes vulpes</i> European red fox	Mainly little penguin ( <i>Eudyptula minor</i> )	Asset	Primary - ground baiting 1080, M44s 1080. Secondary -	C-TSC

	National Park		<i>Felis cattus</i> Feral cat	endangered population (TSC-e), North Head long-nosed bandicoot ( <i>Perameles nasuta</i> ) endangered population (TSC-e)	protection	shooting, habitat modification - den detection & fumigation. Fox activity monitoring (incl. QS Lease conditions). Penguin and bandicoot monitoring including population status and maintain a mortality register  Cat control – trapping (if evidence of cat predation to little penguin or long-nosed bandicoot)	Fox TAP
HNA	Sydney Harbour National Park	Sydney Harbour National Park (HNA)	<i>Vulpes vulpes</i> European red fox <i>Rattus rattus</i> black rat	Bush rat ( <i>Rattus fuscipes</i> ). Native rat reintroduction project.  Long-nosed bandicoot ( <i>Perameles nasuta</i> )  Manly little penguin ( <i>Eudyptula minor</i> ) endangered population (TSC-e) declared habitat at Dobroyd Head. Penguins observed prospecting at Taylors Bay.  Eastern bentwing-bat ( <i>Miniopterus schreibersii oceanensis</i> ) roosting site Middle Head	Asset protection	Ground baiting 1080. Black rat culling (during bandicoot cage trapping).  Support Sydney University rat research project (includes monitoring rat reintroduction).  Monitor for presence absence of long-nosed bandicoot  Monitor for presence absence of little penguin and if present add site to Fox TAP and implement fox control.  Monitor bat roost sites. Implement fox control during roost periods only if fox predation is evident.	C-TSC
HNA	Sydney Harbour National Park	North Head	<i>Oryctolagus cuniculus</i> European wild & escaped domestic rabbit	Eastern Suburbs Banksia Scrub EEC (EPBC-e TSC-e), <i>Acacia terminalis terminalis</i> Sunshine Wattle (EPBC-e	Asset protection	Primary- ground baiting Pindone. Secondary - ground shooting, ground baiting RHDV, habitat modification –	C-TSC H-CH



				TSC-e), <i>Eucalyptus camfieldii</i> (EPBC-v TSC-v)  Quarantine Station and reserve: cultural heritage high visitation  Landscape values – public open space with high visitation including events		warren/harbour detection & destruction, monitoring - spotlight counts& daytime rabbit density index, Monitoring impacts & recovery of <i>Acacia terminalis</i> subsp. <i>terminalis</i> , at QS, habitat modification - plant guards <i>Acacia terminalis</i> subsp. <i>terminalis</i>	SHR 1003  M-RA
HNA	Sydney Harbour National Park	Middle Head Bradleys Head	<i>Oryctolagus cuniculus</i> European wild & feral domestic rabbit	Landscape & recreational values – public open space with high visitation including events	Asset protection	Primary- ground baiting Pindone. Secondary - ground shooting, ground baiting RHDV, habitat modification – warren/harbour detection & destruction, monitoring - spotlight counts& daytime rabbit density index	M-RA  L-CP
HNA	Sydney Harbour National Park	Open reservoir QS North Head	<i>Gambusia sp.</i> plague minnow	Aquatic biodiversity: frogs, invertebrates	Asset protection	No feasible options for control	L- LP
HSA							
HSA	Kamay Botany Bay National Park	Headlands and beaches	<i>Vulpes vulpes</i> European red fox  <i>Felis cattus</i> cat  <i>Rattus rattus</i> black rat	<i>Sterna albifrons</i> Little tern	Asset protection	Monitor presence / absence of little tern annually. Add site to Fox TAP and implement control only in the event that sites are identified as significant little tern nesting, resting and fledgling feeding site.	C-TSC
HSA	Kamay Botany Bay National	Henry Head	<i>Vulpes vulpes</i> European red fox	<i>Miniopterus schreibersii oceanensis</i> eastern bent-wing	Asset	Monitor bat roost sites. Implement fox and cat control	C-TSC

	Park	fortifications	<i>Felis cattus</i> cat	bat (TSC-v) over winter roost site	protection	during roost periods only if predation is found to be a significant impact	
HSA	Kamay Botany Bay	Cape Banks Cemetery & Repatriation site La Perouse precinct	<i>Oryctolagus cuniculus</i> European wild and feral domestic rabbit	Cemetery and repatriation site European & Aboriginal cultural heritage of very high significance	Asset protection	Implement control in accordance with a site management plan / aboriginal place plan.  Primary- ground baiting Pindone. Secondary - ground shooting, ground baiting RHDV, habitat modification – warren/harbour detection & destruction, monitoring - spotlight counts & daytime rabbit density index. Aim to keep rabbit numbers at low density to prevent harm.	H-CH
HSA*	<i>Malabar National Park</i>  *Not yet gazetted	Malabar Headland* Eastern & Western	<i>Vulpes vulpes</i> European red fox  <i>Felis cattus</i> cat	<i>Miniopterus schreibersii oceanensis</i> eastern bent-wing bat (TSC-v) over winter roost site	Asset protection	Monitor bat roost sites. Implement fox and cat control during roost periods only if predation is found to be a significant impact	C-TSC
HSA*	<i>Malabar National Park</i>  *Not yet gazetted	Malabar Headland* Eastern & Western	<i>Oryctolagus cuniculus</i> European wild and feral domestic rabbit	Eastern Suburbs Banksia Scrub EEC (EPBC-e TSC-e)	Asset protection	Monitor for impact to Eastern Suburbs Banksia Scrub EEC implement control in association with neighbours only if impact to EEC is significant.  Primary- ground baiting Pindone. Secondary - ground shooting, ground baiting RHDV, habitat modification – warren/harbour detection &	C-TS

						destruction, monitoring - spotlight counts& daytime rabbit density index.	
HSA	Wolli Creek Regional Park	Wolli Creek Regional Park	<i>Vulpes vulpes</i> European red fox	Long-nosed bandicoot ( <i>Perameles nasuta</i> ) inner west endangered population	Asset protection	Monitor for presence absence of long-nosed bandicoot (inner west endangered population) Add site to Fox TAP and Implement control in the event site is identified as significant to the survival of the inner west long-nosed bandicoot population.	C-TS
HSA	Wolli Creek Regional Park	Wolli Creek Regional Park	<i>Trachemys scripta elegans</i> Red eared slider turtles	Wolli creek aquatic biodiversity	Local eradication if feasible  Asset protection	Opportunistic monitoring, report sightings to Wildlife Atlas, DPI and PMO. PMO to investigate systematic monitoring and feasibility of control, including cage trapping. Any found REST to be taken to Taronga zoo for euthanasia and assessment of breeding status.	C-NE
LCRA							
LCRA	Lane Cove National Park	Lane Cove National Park	<i>Vulpes vulpes</i> European red fox	Common native fauna species becoming uncommon in urban areas including occasional threatened species - Australasian Bittern, wildlife corridor, 10yrs + investment	Asset protection	Primary - ground baiting 1080 in association with Urban Feral Animal Action Group, maintain benefit	M-CP
LCRA	Lane Cove National Park	De Burghs Bridge to the	<i>Oryctolagus cuniculus</i> European wild and feral domestic rabbit	High visitation picnic areas / open space / landscaped and	Asset protection	Primary- ground baiting Pindone. Secondary - ground shooting, ground baiting RHDV, habitat modification –	M-RA

		Weir		revegetated areas  Impact to neighbouring businesses Tourist Park Eden Gardens, Macquarie Park Cemetery		warren/harbour detection & destruction, monitoring - spotlight counts& daytime rabbit density index. UFAAG collaborative program.	M-CP
LCRA	Dalrymple Hay Nature Reserve	Dalrymple Hay Nature Reserve	<i>Oryctolagus cuniculus</i> European wild and feral domestic rabbit	Blue Gum High Forest (EPBC-e, TSC-e)	Asset protection	Monitoring daytime rabbit density index. Reactive control if numbers increase or rabbits cause damage to the EEC	C-TSC
LCRA	Wallumatta Nature Reserve	Wallumatta Nature Reserve	<i>Oryctolagus cuniculus</i> European wild and feral domestic rabbit	Sydney Turpentine Ironbark Forest EEC (EPBC-ce, TSC-e)	Asset protection	Monitoring daytime rabbit density index. Reactive control if numbers increase or rabbits cause damage to the EEC	C-TSC
LCRA	Lane Cove National Park	Lane Cove River	<i>Cyprinus carpio</i> Koi / common carp	Australian bass breeding ground, river bed, water quality, turbidity, common native aquatic flora and fauna	Asset protection	Collect data on impact, Liaise with fisheries re feasibility of control including targeted fishing days, stunning. Discourage visitors from feeding birds and fish.	L-LP
LCRA	Lane Cove National Park	Open space De Burghs Bridge to the weir	<i>Columba livia domestica</i> feral pigeon, <i>Acridotheres tristis</i> Indian myna, <i>Gallus gallus domesticus</i> feral poultry, domestic duck	Public open space: picnic ground amenity, public health  Cross breeding between exotic and native ducks, introduction of disease to native birds	Asset protection	Discourage visitors from feeding birds, rubbish collection in picnic areas and public open space, ground shooting where birds are identified as diseased.	L-LP
LCRA	Lane Cove National Park	Lane Cove River	<i>Trachemys scripta elegans</i> Red eared slider turtle	Australian bass breeding ground, river bed, water quality, turbidity, common native aquatic flora and fauna	Local eradication if feasible  Asset	Opportunistic monitoring, report sightings to Wildlife Atlas, DPI and PMO, PMO to investigate systematic monitoring and feasibility of control, including cage	C-NE

					protection	trapping. Any found REST to be taken to Taronga zoo for euthanasia and assessment of breeding status	
LHA							
LHA	Ku-ring-gai Chase National Park	Ku-ring-gai Fox TAP non treatment site	<i>Vulpes vulpes</i> European red fox	<i>Isoodon obesulus</i> subsp. obesulus southern brown bandicoot (EPBC-e TSC-e)	Asset protection	Twice annual fox activity monitoring, twice annual southern brown bandicoot monitoring (cage trapping, camera monitoring)	C-TS Fox TAP
LHA	Ku-ring-gai Chase National Park	Bobbin Head picnic area & Kalkari Discovery Centre	<i>Oryctolagus cuniculus</i> European wild and feral domestic rabbit	Bobbin Head picnic area cultural heritage, high visitation & Kalkari Discovery Centre visitation and educational values. KCNP National Heritage listed.	Asset protection	Ground baiting Pindone, ground shooting, ground baiting RHDV, habitat modification –warren/harbour detection & destruction, monitoring - spotlight counts & daytime rabbit density index.	H-CH  M-RA
LHA	Ku-ring-gai Chase National Park	Urban interface	<i>Oryctolagus cuniculus</i> European wild and feral domestic rabbit	Park neighbours, urban interface amenity.	Asset protection	Primary control if numbers are high and risk assessment permits: ground baiting Pindone, ground shooting  Participate in cooperative programs with neighbouring agencies (UFAAG): ground baiting RHDV. Monitoring - spotlight counts & daytime rabbit density index.	L-LP
LHA	Marramarra National Park	Laughtondale	<i>Capra hircus</i> feral goat	<i>Acacia bynoeana</i> , <i>Asterolasia elegans</i> , <i>grevillea parviflora</i> , <i>Tetratheca glandulosa</i> , <i>Zieria involucrate</i> . <i>Darwinia fascicularis</i> subsp. <i>olgantha</i>	Asset protection	Monitor for presence / absence and impact to threatened species and Aboriginal sites, liaise with park neighbours. Possibly eradicated from	C-TSC C-NE C-EC

				<p>endangered population (TSC)</p> <p>Aboriginal cultural heritage: engravings</p> <p>Economic impact to park neighbours - orchards</p>		<p>locale implement control in association with Cumberland LHPA if sighted: mustering, trapping, ground shooting</p>	H-CH
LHA	Berowra Valley Regional Park	Galston Gorge	<i>Gallus gallus domesticus</i> Feral Poultry	Visitation area.	Asset protection	Monitor for presence / absence and impact. Cage trapping, net capture. Public education campaigns.	
NBA							
NBA	Garigal National Park	Garigal Fox TAP treatment site	<p><i>Vulpes vulpes</i> European red fox</p> <p><i>Felis cattus</i> Feral cat</p>	<i>Isoodon obesulus</i> subsp. <i>obesulus</i> southern brown bandicoot (EPBC-e TSC-e)	Asset protection	<p>Primary - ground baiting 1080, M44s 1080. Secondary - shooting, habitat modification - den detection &amp; fumigation. Twice annual fox activity monitoring, twice annual southern brown bandicoot monitoring (cage trapping, camera monitoring).</p> <p>Cat control – trapping if evidence of cat predation to southern brown bandicoot, public education.</p>	C-TSC Fox TAP
NBA	Ku-ring-gai Chase National Park	Garigal Fox TAP treatment site (vicinity Bibbenluke, Sandy, Cooyong, Neverfail,	<p><i>Vulpes vulpes</i> European red fox</p> <p><i>Felis cattus</i> Feral cat</p>	<i>Isoodon obesulus</i> subsp. <i>obesulus</i> southern brown bandicoot (EPBC-e TSC-e)	Asset protection	<p>Primary - ground baiting 1080, M44s 1080. Secondary - shooting, habitat modification - den detection &amp; fumigation. Twice annual fox activity monitoring, twice annual southern brown bandicoot monitoring (cage trapping,</p>	C-TSC Fox TAP

		Ryland trails)				camera monitoring)  Cat control – trapping if evidence of cat predation to southern brown bandicoot, public education.	
NBA	Ku-ring-gai Chase National Park	Ku-ring-gai non treatment site	<i>Vulpes vulpes</i> European red fox	<i>Isododon obesulus</i> subsp. <i>obesulus</i> southern brown bandicoot (EPBC-e TSC-e)	Asset protection	Twice annual fox activity monitoring, twice annual southern brown bandicoot monitoring (cage trapping, camera monitoring)	C-TSC
NBA	Ku-ring-gai Chase National Park	Par 3 Golf driving range	<i>Oryctolagus cuniculus</i> European wild and feral domestic rabbit	Duffys Forest Ecological Community EEC (TSC-e), <i>Grevillea caleyi</i> (TSC-e)	Asset protection	Primary control if damage to EEC or threatened species is evident and especially after fire: ground baiting Pindone, ground shooting.  Participate in cooperative programs with neighbouring agencies (UFAAG): ground baiting RHDV. Monitoring - spotlight counts & daytime rabbit density index	C-TSC
NBA	Ku-ring-gai Chase National Park	Barrenjoey Headland	<i>Oryctolagus cuniculus</i> European wild and feral domestic rabbit	Lighthouse precinct SHR 979, Customs House precinct, Aboriginal middens, adjacent Littoral Rainforest EEC (EPBC-ce TSC-e), Themeda grassland on sea cliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner bioregions EEC (TSC-e)	Asset protection	Primary control if numbers are high and risk assessment permits: ground baiting Pindone, ground shooting.  Participate in cooperative programs with neighbouring agencies (UFAAG): ground baiting RHDV. Monitoring - spotlight counts & daytime rabbit density index	H-CH SHR979



NBA	Garigal National Park	Killarney Heights, Forestville including NBA office  Other areas of urban interface	<i>Oryctolagus cuniculus</i> European wild and feral domestic rabbit	Park neighbours: residential properties and council estate. Urban interface amenity. Common vegetation associations & APZ	Asset protection	Primary control if numbers are high and risk assessment permits: ground baiting Pindone, ground shooting.  Participate in cooperative programs with neighbouring agencies (UFAAG): ground baiting RHDV. Monitoring - spotlight counts & daytime rabbit density index	L-LP
NBA	Ku-ring-gai Chase National Park	Cottage Point	<i>Oryctolagus cuniculus</i> European wild and feral domestic rabbit	Park neighbours: residential properties, council estate and RFS station. Visitation. Common vegetation associations.	Asset protection	Primary control if numbers are high and risk assessment permits: ground baiting Pindone, ground shooting.  Participate in cooperative programs with neighbouring agencies (UFAAG): ground baiting RHDV, cage trapping. Monitoring - spotlight counts & daytime rabbit density index	L-LP
<b>Area</b>	<b>Reserve(s)</b>	<b>Site name</b>	<b>Target pests or weeds</b>	<b>Asset at risk</b>	<b>Aim of Control</b>	<b>Action</b>	<b>Priority</b>
			<b>Weeds</b>				
MNER	All reserves	Target weeds	<i>Parietaria judaica</i> asthma weed, <i>Toxicodendron succedaneum</i> rhus, <i>Hedera helix</i> English ivy	Human health: Plants cause moderate to severe allergic reaction in people	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control.  Remove from areas easily accessed by the public	C-HD
HNA	Sydney Harbour	North Head Collins Beach	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>Asparagus asparagoides</i> bridal creeper,	Littoral Rainforest EEC (EPBC-ce TSC-e), Manly little penguin ( <i>Eudyptula minor</i> )	Asset protection	Foliar spray, cut and paint, biological control, physical /	C-TSC BPWW-1

	National Park		<i>Rubus fruticosus</i> agg. Blackberry, <i>Cinnamomum camphora</i> camphor laurel, <i>Erythrina x sykesii</i> coral tree, <i>Ligustrum lucidum</i> & <i>Ligustrum sinense</i> large leaf & small leaf privet, <i>Ochna serrulata</i> ochna, <i>Paspalum quadrifarium</i> tussock paspalum, <i>Tradescantia fluminensis</i> trad, <i>Nephrolepis cordifolia</i> fishbone fern	endangered population (TSC-e), North Head long-nosed bandicoot ( <i>Perameles nasuta</i> ) endangered population (TSC-e), <i>Ninox strenua</i> powerful owl habitat (TSC-v), <i>Pteropus poliocephalus</i> grey headed flying-fox (EPBC-v TSC-v) foraging, <i>Miniopterus schreibersii oceanensis</i> eastern bent-wing bat (TSC-v) foraging, dry sclerophyll forest		mechanical control.  Volunteer Bushcare Program - "project penguin" asparagus fern removal. Targeted coral tree removal by staff. Stormwater drainage works, sewer monitoring.	ID 2146
HNA	Sydney Harbour National Park	North Head ESBS and surrounds	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush, <i>Cortaderia selloana</i> pampas grass, <i>Paspalum quadrifarium</i> tussock paspalum	Eastern Suburbs Banksia Scrub EEC (EPBC-e TSC-e), Coastal Heath, North Head long-nosed bandicoot ( <i>Perameles nasuta</i> ) endangered population (TSC-e), <i>Psuedophyrne australis</i> red-crowned toadlet (TSC-v), <i>Pteropus poliocephalus</i> grey headed flying-fox (EPBC-v TSC-v) foraging, <i>Miniopterus schreibersii oceanensis</i> eastern bent-wing bat (TSC-v) foraging  High visitation including events, iconic views	Asset protection	Foliar spray, splatter gun, cut and paint, naturally occurring biological control, physical / mechanical control.  Targeted exotic grass control, compensatory habitat bush regeneration, flora monitoring of rehabilitation site.	C-TSC  BPWW Not published  Bitou TAP cat-3 SM4
HNA	Sydney Harbour National Park	North Head threatened species	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush	<i>Acacia terminalis</i> subsp. <i>Terminalis</i> Sunshine wattle (EPBC-e TSC-e), <i>Eucalyptus camfieldii</i> (EPBC-v TSC-v)	Asset protection	Cut and paint, naturally occurring biological control, physical / mechanical control.  Monitoring impacts and recovery of <i>Acacia terminalis</i> subsp. <i>terminalis</i> at QS. Habitat modification - plant	C-TSC  BPWW Not published  Bitou TAP

						guards <i>Acacia terminalis</i> subsp. <i>terminalis</i>	cat-3 SM5
HNA	Sydney Harbour National Park	Dobroyd Head	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>Cestrum parqui</i> green cestrum, <i>Ligustrum lucidum</i> & <i>Ligustrum sinense</i> large leaf & small leaf privet, <i>Ochna serrulata</i> , <i>Olea europaea</i> subsp. <i>cuspidate</i> African olive <i>Bryophyllum delagoneense</i> mother of millions, <i>Nephrolepis cordifolia</i> fishbone fern	Coastal heath, Dry sclerophyll forest, <i>Angophora costata</i> woodland, ROTAP, Manly little penguin ( <i>Eudyptula minor</i> ) endangered population declared habitat (TSC-e), <i>Xanthomyza phrygia</i> regent honeyeater (EPBC-e TSC-e), <i>Ninox strenua</i> powerful owl habitat (TSC-v), <i>Pteropus poliocephalus</i> grey headed flying-fox (EPBC-v TSC-v) foraging, <i>Miniopterus schreibersii oceanensis</i> eastern bent-wing bat (TSC-v) foraging, <i>Hydromys chrysogaster</i> water rat (locally significant), <i>Rulingia hermanniifolia</i> regionally significant  High visitation (including events), iconic views	Asset protection	Foliar spray, cut and paint, stem injection, physical / mechanical control	C-TSC  BPWW-2 ID 2158
HNA	Sydney Harbour National Park	Dobroyd Head Castle Rock Circuit	<i>Lantana camara</i>	Open Woodlands, Coastal Heath, <i>Psuedophyrne australis</i> red-crowned toadlet (TSC-v)		Foliar spray, splatter gun, cut and paint, physical / mechanical control	C-TSC BPWW-2 ID 2159  Lantana Plan 2-147
HNA	Sydney Harbour	Bradleys Head including Taylors Bay	<i>Lantana camara</i> , <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Delairea odorata</i> cape ivy, <i>Ipomoea cairica</i> coastal morning	<i>Angophora costata</i> woodland, <i>Psuedophyrne australis</i> red-crowned toadlet (TSC-v), <i>Pteropus poliocephalus</i> grey	Asset protection	Foliar spray, cut and paint, stem injection, physical /	C-TSC BPWW-2

	National Park	Gully	glory, <i>Lonicera japonica</i> Japanese honeysuckle, <i>Rubus fruticosus</i> agg. blackberry, <i>Cestrum parqui</i> green cestrum, <i>Erythrina x sykesii</i> coral tree, <i>Ligustrum lucidum</i> & <i>Ligustrum sinense</i> large leaf & small leaf privet, <i>Ochna serrulata</i> ochna, <i>Olea europaea</i> subsp. <i>cuspidate</i> African olive, <i>Polygala myrtifolia</i> polygala, <i>Cortaderia selloana</i> pampas grass, <i>Agave sp.</i> , <i>Bryophyllum delagouense</i> mother of millions, <i>Chlorophytum comosum</i> spider plant, <i>Nephrolepis cordifolia</i> fishbone fern, garden escapes	headed flying-fox (EPBC-v TSC-v) foraging, <i>Miniopterus schreibersii oceanensis</i> eastern bent-wing bat (TSC-v) foraging  High visitation including events, iconic views		mechanical control.  Corporate volunteer program: Park entrance, Athol Beach, Bradleys Head Beach, (weed control via kayak)  Weed control included in Athol Beach lease conditions.	ID 2119  Lantana Plan 2-148
HNA	Sydney Harbour National Park	Bradleys Head Ashton Park Mosman	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush, <i>Polygala myrtifolia</i> , Polygala, <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Chlorophytum comosum</i> spider plant,, <i>Agave sp.</i>	<i>Acacia terminalis</i> subsp. <i>Terminalis</i> sunshine wattle (EPBC-e TSC-e)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, naturally occurring biological control, physical / mechanical control	C-TSC BPWW-5 ID 2098  Bitou TAP cat-4 SM7
HNA	Sydney Harbour National Park	Chowder Head	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush, <i>Erythrina x sykesii</i> coral tree, <i>Ochna serrulata</i> ochna, <i>Olea europaea</i> subsp. <i>cuspidate</i> African olive, <i>Ligustrum lucidum</i> & <i>Ligustrum sinense</i> large & small leaf privet, <i>Senna pendula</i> var. <i>glabrata</i> senna, <i>Lonicera japonica</i> Japanese honeysuckle, <i>Rubus fruticosus</i> agg. blackberry, <i>Ipomoea cairica</i> coastal morning glory, <i>Tradescantia fluminensis</i> trad, <i>Chlorophytum comosum</i> spider plant, <i>Nephrolepis</i>	<i>Acacia terminalis</i> subsp. <i>terminalis</i> sunshine wattle (EPBC-e TSC-e), open Angophora forest / woodland	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, naturally occurring biological control, physical / mechanical control. Monitor presence / absence and weed impacts <i>Acacia terminalis</i> subsp. <i>terminalis</i> .	C-TSC  BPWW-4 ID2144  Bitou TAP cat-4 SM8

			<i>cordifolia</i> fishbone fern				
HNA	Sydney Harbour National Park	Middle Head Chowder Bay Road	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>Lantana camara</i>	Littoral rainforest EEC (EPBC-ce TSC-e)	Asset protection	Foliar spray, splatter gun, cut and paint, physical / mechanical control. Stormwater drainage works, sewer monitoring.	C-TSC  New site Add to BPWW
HNA	Sydney Harbour National Park	Middle Head	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush, <i>Acetosa sagittata</i> turkey rhubarb, <i>Anredera cordifolia</i> Madeira vine <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Bryophyllum delagouense</i> mother of millions, <i>Cardiospermum grandiflorum</i> balloon vine, <i>Cestrum parqui</i> green cestrum, <i>Chlorophytum comosum</i> spider plant, <i>Lantana camara</i> , <i>Lonicera japonica</i> Japanese honeysuckle, <i>Ligustrum lucidum</i> & <i>Ligustrum sinense</i> large leaf & small leaf privet, <i>Nephrolepis cordifolia</i> Fishbone fern, <i>Ochna serrulata</i> ochna, <i>Olea europaea</i> subsp. <i>Cuspidate</i> African olive, <i>Rubus fruticosus</i> agg blackberry, <i>Ipomoea cairica</i> coastal morning glory, <i>Senna pendula</i> var. <i>glabrata</i> senna, <i>Tradescantia fluminensis</i> trad	<i>Acacia terminalis</i> subsp. <i>Terminalis</i> sunshine wattle (EPBC-e TSC-e), coastal heath, <i>Pteropus poliocephalus</i> grey headed flying-fox (EPBC-v TSC-v) foraging, <i>Miniopterus schreibersii oceanensis</i> eastern bent-wing bat (TSC-v) over winter roost site	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, naturally occurring biological control, physical / mechanical control. Corporate volunteer program.  Ensure clear flight path from eastern bent-wing bat over winter roost site.  Monitor presence / absence and weed impact to <i>Acacia terminalis</i> subsp. <i>terminalis</i>	C-TSC  BPWW-4 ID 2240  Bitou TAP cat-4 SM6
HNA	Sydney Harbour National Park	North Head walls  Quarantine Station cultural	<i>Lantana camara</i> , <i>Cortaderia selloana</i> pampas grass, <i>Nephrolepis cordifolia</i> fishbone fern	Historic walls, North Head Quarantine Station and reserve	Asset protection	Foliar spray, cut and paint, physical / mechanical control. Clear APZ, remove all veg from walls (weeds and natives)  Lessee implements weed	H-CH SHR 1003

		landscape	Suite of weeds (and natives)			control at QS	
HNA	Sydney Harbour National Park	Bradleys Head 1853 and 1871 military fortifications and Sydney mast	<i>Lantana camara</i> , <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Dipogon lignosus</i> dolichos pea, <i>Cortaderia selloana</i> pampas grass, <i>Ligustrum lucidum</i> & <i>Ligustrum sinense</i> large leaf & small leaf privet, <i>Tradescantia fluminensis</i> trad	1853 and 1871 military fortifications including trench  <i>Miniopterus schreibersii oceanensis</i> eastern bent-wing bat (TSC-v) over winter roost site	Asset protection	Foliar spray, cut and paint, physical / mechanical control. Corporate volunteer program.  Remove weed growth from structures and surrounds  Ensure clear flight path from eastern bent-wing bat over winter roost site	C-TSC  H-CH SHR 1838
HNA	Sydney Harbour National Park	Georges Head SHR 987 military fortifications	<i>Lantana camara</i> , <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Ligustrum lucidum</i> & <i>Ligustrum sinense</i> large leaf & small leaf privet, <i>Olea europaea</i> subsp. <i>Cuspidate</i> African olive, <i>Senna pendula</i> var. <i>glabrata</i> senna, <i>Nephrolepis cordifolia</i> fishbone fern	Military Fortification SHR 987 1871 beehive casemate group, 1886 armoured casemate group, 1942 WW11 searchlight, lookout posts and gun positions.	Asset protection	Foliar spray, cut and paint, physical / mechanical control.  Remove growth from buildings, stonework, structures, pavement and water reservoir.	H-CH SHR 987
HNA	Sydney Harbour National Park	Middle Head military fortifications 1801  Middle Head military fortifications 1870s	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>ochna serrulata</i> ochna, <i>Ligustrum lucidum</i> & <i>Ligustrum sinense</i> large leaf & small leaf privet, thistles	Military fortifications 1801 & 19870s  <i>Miniopterus schreibersii oceanensis</i> eastern bent-wing bat (TSC-v) over winter roost site  Don Goodsir walk	Asset protection	Foliar spray, cut and paint, physical / mechanical control. Corporate volunteer and Conservation Volunteers Australia programs  Ensure clear flight path from eastern bent-wing bat over winter roost site  Remove weed growth from structures and surrounds	C-TSC  H-CH SHR 999
HNA	Sydney Harbour	Dobroyd Head	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>lantana camara</i> ,	Aboriginal sites: repatriation site of high cultural	Asset	Foliar spray, cut and paint, physical / mechanical control	H-CH

	National Park	Reef Beach	<i>ochna serrulata</i> ochna, <i>senna pendula</i> var. <i>glabrata</i> senna, <i>Agave</i> sp.	significance, engravings, middens  Manly scenic walk  20yr + investment by Bushcare group "Reef Beach volunteers"	protection	Bushcare volunteer program.	state
HNA	Sydney Harbour National Park	Dobroyd Head Crater Cove	<i>Lantana camara</i> , <i>Cortaderia selloana</i> pampas grass, <i>Anredera cordifolia</i> madeira vine, <i>Araujia sericifera</i> moth vine, <i>Hedychium</i> sp. ginger lily, exotic grasses, garden escapes	Cultural Heritage site (huts) of local significance,  scenic values  15yr+ investment Crater Cove caretaker volunteers	Asset protection	Foliar spray, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program. APZ clearing, keep structures clear	H-CH local
HNA	Sydney Harbour National Park	Chowder Head Japanese war memorial plaque and associated landscaping	<i>Lantana camara</i> , <i>Ochna serrulata</i> ochna, <i>Ligustrum lucidum</i> & <i>Ligustrum sinense</i> large leaf and small leaf privet, <i>Alstroemeria</i> sp. Peruvian lily, <i>Crocasmia x crocosmiiflora</i> montbretia, <i>Nephrolepis cordifolia</i> fishbone fern, <i>Chlorophytum comosum</i> spider plant, garden escapes.	Japanese WW11 memorial plaque and associated landscaping.	Asset protection	Foliar spray, cut and paint, physical / mechanical control. Maintain amenity of memorial and associated landscaping.	H-CH local
HNA	Sydney Harbour National Park	Bradleys Head amphitheatre & look outs	<i>Lantana camara</i> , <i>Lophostemon confertus</i> brush box	Areas of high visitation including events. Scenic value  Cultural heritage plantings <i>Lophostemon confertus</i> brush box & landscaping	Asset protection	Foliar spray, cut and paint, stem injection, physical / mechanical control. Corporate volunteer program. Cultural heritage plantings of brushbox: maintain original plantings but prevent spread	M-RA
HNA	Sydney Harbour	North Head lookouts	<i>Lantana camara</i> , <i>Anredera cordifolia</i> Madeira vine, <i>Cardiospermum grandiflorum</i>	Areas of high visitation including events. Scenic value	Asset protection	Foliar spray, cut and paint, stem injection, physical / mechanical control. Corporate	M-RA



	National Park		balloon vine, <i>Lonicera japonica</i> Japanese honeysuckle, <i>Ricinus communis</i> castor oil, <i>Paspalum quadrifarium</i> tussock paspalum, <i>Nephrolepis cordifolia</i> fishbone fern, garden escapes			volunteer program	
HNA	Sydney Harbour National Park	Chowder Head Iluka road & The Manor	<i>Lantana camara</i> , <i>Ochna serrulata</i> ochna, <i>Ligustrum lucidum</i> & <i>Ligustrum sinense</i> large leaf and small leaf privet, <i>Alstroemeria</i> sp. Peruvian lily, <i>Crocosmia</i> sp. montbretia, <i>Nephrolepis cordifolia</i> fishbone fern, <i>Chlorophytum comosum</i> spider plant, garden escapes.	Recreation and educational values, bush foods walk, Harbour Scenic Walkway Previous program	Asset protection	Foliar spray, cut and paint, stem injection, physical / mechanical control. Corporate volunteer program	M-RA
HNA	Sydney Harbour National Park	Morella road, & Morella Road Georges Hts	<i>Ligustrum lucidum</i> & <i>Ligustrum sinense</i> large leaf & small leaf privet, <i>ochna serrulata</i> ochna, <i>senna pendula glabrata</i> senna, <i>Prunus</i> sp. cherry blossom, <i>Strelitzia reginae</i> bird of paradise, <i>tradescantia fluminensis</i> trad, garden escapes	Harbour scenic walk  Long standing Bushcare group 10 yrs+	Asset protection	Foliar spray, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program	L-PP
HNA	Sydney Harbour National Park	Cross street, Bradleys Head	<i>Anredera cordifolia</i> Madeira vine, <i>Araujia sericifera</i> moth vine, <i>Ligustrum lucidum</i> & <i>Ligustrum sinense</i> large leaf & small leaf privet, <i>Tropaeolum majus</i> nasturtium, <i>Hedychium gardnerianum</i> ginger lily, Garden escapes	Bushcare site: Duke of Edinburgh Scouts. Small investment with good return for effort.	Asset protection	Foliar spray, cut and paint, stem injection, physical / mechanical control. Duke of Edinburgh volunteer program	L-PP
HNA	Sydney Harbour National Park	Dobroyd Head Cutler road, opposite Tania	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> boneseed (class 2) <i>Asparagus aethiopicus</i> ground asparagus fern., <i>Lantana camara</i> ,	Park entrance, scenic values  Established vol group "Reef	Eradication class 2 boneseed (if	Foliar spray, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program. Spray	C-NE

		park	<i>Parietaria judaica</i> asthma weed, exotic grasses, garden escapes	Beach volunteers"	feasible)  Asset protection	asthma weed (C-HH).  Target weed control – boneseed eradication program. Annual monitoring boneseed July – Oct.	L-PP
HNA	Sydney Harbour National Park	Dobroyd Head Beatty Street APZ	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>erythrina x sykesii</i> coral tree, <i>Hedychium sp.</i> ginger lily, <i>Alocasia sp.</i> elephant ear. garden escapes	Entrance to Manly Scenic walkway  Established vol group "Reef Beach volunteers"	Asset protection	Foliar spray, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program	L-PP
<b>HSA</b>							
HSA	Kamay Botany Bay National Park	Botany Bay NP Jennifer St lands	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush, <i>Pennisetum clandestinum</i> kikuyu, <i>lantana camara</i>	Eastern Suburbs Banksia Scrub (EPBC-e TSC-e), <i>Rulingia hermanniifolia</i> rare, <i>Gonocarpus salsoloides</i> ROTAP Freshwater Wetlands in the Sydney Basin Bioregion EEC (TSC-e)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, naturally occurring biological control, fire, Bushcare volunteer program.	C-TSC BPWW-2 ID2203 & ID2204  Bitou TAP cat-1 SM26  Lantana plan 2-138
HSA	Kamay Botany Bay National Park	Botany Bay NP Cape Banks & adjacent headland	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush, <i>Pennisetum clandestinum</i> kikuyu	Themeda ( <i>Themeda triandra</i> ) grassland on sea cliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner bioregions EEC (TSC-e), Eastern Suburbs Banksia Scrub (EPBC-e TSC-e)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, naturally occurring biological control, fire	C-TSC  BPWW-1 ID2137 & ID2256  Bitou TAP cat-1 SM27

HSA	Kamay Botany Bay National Park	Botany Bay NP Grose St	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush <i>lantana camara</i> , <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Rubus fruticosus</i> agg. blackberry, exotic grasses	Eastern Suburbs Banksia Scrub (EPBC-e TSC-e)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, naturally occurring biological control, fire	C-TSC BPWW-2 ID2203
HSA	Kamay Botany Bay National Park	Botany Bay NP The Big House & Cemetery Cape Banks North	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush <i>lantana camara</i> , <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Rubus fruticosus</i> agg., exotic grasses	Eastern Suburbs Banksia Scrub (EPBC-e TSC-e)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, naturally occurring biological control, fire	C-TSC BPWW-2 ID2203
HSA	Kamay Botany Bay National Park	Henry Head	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush <i>lantana camara</i> , exotic grasses	Themeda ( <i>Themeda triandra</i> ) grasslands on sea cliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner bioregions EEC (TSC-e)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, naturally occurring biological control	C-TSC
HSA	Kamay Botany Bay National Park	Bare Island	<i>Pennisetum clandestinum</i> kikuyu, <i>Cynodon dactylon</i> couch, <i>Coprosma repens</i> mirror bush, <i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush	Themeda ( <i>Themeda triandra</i> ) grassland on sea cliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner bioregions EEC (TSC-e)  Bare Island Fort State significance SHR 978	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, naturally occurring biological control, fire	C-TSC  H-CH SHR 978 state
HSA	Kamay Botany Bay National Park	La Perouse Headland	Exotic grasses	European cultural heritage: museum and monuments La Perouse Headland HHIMS	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	H-CH state

				1375		Maintain landscaped surrounds	
HSA	Kamay Botany Bay National Park	Cemetery & repatriation site	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush, <i>Pennisetum clandestinum</i> kikuyu, <i>lantana camara</i>  (see also rabbit)	Cemetery and repatriation site European & Aboriginal cultural heritage of very high significance  Eastern Suburbs Banksia Scrub (EPBC-e TSC-e), Freshwater wetland (TSC-e)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, naturally occurring biological control	H-CH local
HSA	Kamay Botany Bay National Park	Henry Head military fortifications	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush, <i>lantana camara</i> , <i>Opuntia</i> sp. prickly pear	<i>Miniopterus schreibersii oceanensis</i> eastern bent-wing bat (TSC-v) over winter roost site  Military fortifications 1871 & c.1940s.	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, naturally occurring biological control  Ensure clear flight path from eastern bent-wing bat over winter roost site  Remove weed growth from structures	C-TSC  H-CH local
HSA	Kamay Botany Bay National Park	Cape Banks c1940s military fortifications	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush	Military fortifications c.1940s La Perouse Headland. State significance	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, naturally occurring biological control.  Remove weed growth from structures	H-CH local
HSA	Kamay Botany Bay National Park	Congwong midden	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush	Aboriginal cultural heritage – midden local significance	Asset protection	Foliar spray, cut and paint, physical / mechanical control, naturally occurring biological	H-CH local

						controls	
HSA	Kamay Botany Bay National Park	Bio control site	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush	National nursery site for bitou bush biological control <i>tortrix</i> sp leaf rolling moth	Asset protection	Nil spraying, fire or other removal of bitou bush. Pruning or cut and paint and remove dead material is permissible to keep pathways open.	national
HSA	Kamay Botany National Park	Cruwee Cove Botany Bay NP	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush, <i>lantana camara</i>	Coastal Heath  Henry Head to Cape Banks Walk: scenic values	Asset Protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, naturally occurring biological control	M-RA
HSA	Kamay Botany Bay National Park	Park entry Anzac Parade	<i>Asparagus aethiopicus</i> ground asparagus fern <i>Rubus fruticosus</i> agg. blackberry, <i>Anredera cordifolia</i> Madeira vine, <i>lantana camara</i> , <i>ricinus communis</i> castor oil, <i>Olea europaea</i> subsp. <i>cuspidata</i> African olive, <i>Cestrum parqui</i> green cestrum, <i>Cortaderia selloana</i> pampas, <i>Phoenix canariensis</i> Phoenix palm <i>Delairea odorata</i> cape ivy	Park entry	Asset Protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, naturally occurring biological control	M-RA
HSA	Kamay Botany Bay National Park	Congwong Beach	<i>Erythrina x sykesii</i> coral tree, <i>Alternanthera philoxeroides</i> Alligator weed, <i>Asparagus aethiopicus</i> ground asparagus fern <i>Rubus fruticosus</i> agg. blackberry, <i>Anredera cordifolia</i> Madeira vine, <i>lantana camara</i> , <i>Ricinus communis</i> castor oil, <i>Olea europaea</i> subsp. <i>cuspidata</i> African olive, <i>Cestrum parqui</i> green cestrum, <i>Cortaderia selloana</i> pampas, <i>Phoenix canariensis</i> Phoenix palm	Dune vegetation, Sandstone woodland	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, naturally occurring biological control	M-RA  BPWW not ranked

			<i>Delairea odorata</i> cape ivy				
HSA	Kamay Botany Bay National Park	Happy Valley	<i>Erythrina x sykesii</i> coral tree, <i>Alternanthera philoxeroides</i> Alligator weed, <i>Asparagus aethiopicus</i> ground asparagus fern <i>Rubus fruticosus</i> agg. blackberry, <i>Anredera cordifolia</i> Madeira vine, <i>lantana camara</i> , <i>Ricinus communis</i> castor oil, <i>Olea europaea</i> subsp. <i>cuspidata</i> African olive, <i>Cestrum parqui</i> green cestrum, <i>Cortaderia selloana</i> pampas, <i>Phoenix canariensis</i> Phoenix palm <i>Delairea odorata</i> cape ivy	Sandstone woodland	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, biological control. Control not feasible, maintain edges, potential bio control trial site.	L-LP
HSA	Kamay Botany Bay National Park	Botany Bay NP	<i>Erythrina x sykesii</i> coral tree, <i>Phoenix canariensis</i> Phoenix palms	Coastal heath, coastal sandstone woodland and EECs as above  OHS public open space	Local eradication	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, naturally occurring biological control  Target weeding	L-PP
HSA*	Malabar National Park <i>*Not yet gazetted</i>	Western headland	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush <i>lantana camara</i> , <i>Asparagus aethiopicus</i> ground asparagus fern, exotic grasses	Eastern Suburbs Banksia Scrub (EPBC-e TSC-e)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, naturally occurring biological control. Bushcare volunteer program.	Bitou TAP cat-1 SM22
HSA*	Malabar National Park <i>*Not yet gazetted</i>	Eastern headland	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush <i>lantana camara</i> , <i>Asparagus aethiopicus</i> ground asparagus fern, exotic grasses	Eastern Suburbs Banksia Scrub (EPBC-e TSC-e)  <i>Miniopterus schreibersii oceanensis</i> eastern bent-wing bat (TSC-v) over winter roost	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, naturally occurring biological control	Bitou TAP cat-1 SM22  H-CH

				site Military fortifications c1940s		Ensure clear flight path from eastern bent-wing bat over winter roost site	state
HSA	Sydney Harbour National Park	Nielsen Park Mt Treffe & Bottle and Glass Point	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> boneseed (class1), <i>lantana camara</i> , <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Olea europaea</i> subsp. <i>cuspidata</i> African olive, <i>Cardiospermum grandiflorum</i> balloon vine, <i>Anredera cordifolia</i> Madeira vine	<i>Allocasuarina portuensis</i> , (EPBC-e & TSC-e) <i>Acacia terminalis</i> subsp. <i>Terminalis</i> (EPBC-e & TSC-e)  Maintain natural landscape features of Bottle & Glass Point & Mt Trefle (also as a vegetated backdrop to Greycliffe house) State significance HHIMs 1345	Asset protection  Eradication class 2 boneseed if feasible	Foliar spray, cut and paint, physical / mechanical control, Bushcare Volunteer program, fire: ecological burning  Target weed control - boneseed (containment Woollahra LGA). Annual monitoring boneseed July – Oct.	C-TSC BPWW-1 ID2251  Lantana plan 2-125  Bitou TAP cat-2 SM10  C-NE  H-CH state
HSA	Sydney Harbour National Park	Gap bluff	<i>Lantana camara</i> , <i>Senna pendula</i> var <i>glabrata</i> , <i>Olea europaea</i> subsp. <i>cuspidata</i> African olive, exotic grasses  <i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> boneseed (class1)  <i>Cortaderia selloana</i> pampas grass, exotic grasses	<i>Acacia terminalis</i> subsp. <i>Terminalis</i> (EPBC-e & TSC-e)  Wall & concrete slabs ) State significance HHIMs 1347	Asset protection  Eradication class 2 boneseed if feasible	Foliar spray, cut and paint, physical / mechanical control, Bushcare Volunteer program, ecological burn  Target weed control boneseed (containment Woollahra LGA). Annual monitoring boneseed July – Oct.  Maintain archaeological site, remove grass and weeds from concrete slabs.	C-TSC add to BPWW  C-NE  Bitou TAP cat-2 SM10  H-CH state
HSA	Sydney Harbour National Park	South Head	<i>Lantana camara</i> , <i>Coprosma repens</i> mirror bush, exotic grasses	Military fortifications 1871, - WW11 archaeological remnants pathways and structures. State significance	Asset protection	Remove weed growth from stone walls, structures and surrounds	H-CH state



				HHIMs 1347		Foliar spray, cut and paint, physical / mechanical control, naturally occurring biological control	
HSA	Sydney Harbour National Park	Green Point	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> boneseed (class 2), <i>Erythrina x sykesii</i> coral tree, <i>Lantana camara</i> , <i>Olea europaea</i> subsp. <i>cuspidata</i> African olive, <i>Senna pendula</i> var. <i>glabrata</i> , exotic grasses	Military fortifications 1871 State significance HHIMs 1347	Eradication class 2 boneseed if feasible  Asset protection	Foliar spray, cut and paint, physical / mechanical control, naturally occurring biological control  Target weed control boneseed (containment Woollahra LGA). Annual monitoring boneseed July – Oct.  Remove weed growth from structures, pathways and surrounds	C-NE  H-CH state
HSA	Sydney Harbour NP	Milk beach middens	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>Olea europaea</i> subsp. <i>cuspidata</i> African olive, <i>Nephrolepis cordifolia</i> fishbone fern	Aboriginal cultural heritage – midden & engravings  Local significance	Asset protection	Foliar spray, cut and paint, physical / mechanical control, naturally occurring biological controls	H-CH local
HSA	Sydney Harbour National Park	Hermitage Foreshore Walking Track	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>Olea europaea</i> subsp. <i>cuspidata</i> African olive, <i>lantana camara</i> , <i>Ipomoea indica</i> morning glory, <i>Anredera cordifolia</i> Madeira vine, <i>Delairea odorata</i> cape ivy, <i>Nephrolepis cordifolia</i> fishbone fern, garden escapes	High visitation walking track, iconic harbour views	Asset protection	Cut and paint, spot spray,  Work good to bad	M-RA
HSA	Sydney Harbour	South Head	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush,	High visitation walking track,	Asset	Cut and paint, spot spray,	M-RA

	National Park	Heritage Trail	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>Olea europaea</i> subsp. <i>cuspidata</i> African olive, lantana camara, <i>Ipomoea indica</i> morning glory, <i>Anredera cordifolia</i> Madeira vine, Phoenix canariensis Phoenix palm <i>Nephrolepis cordifolia</i> fishbone fern, garden escapes	iconic harbour views	protection	Work good to bad	
HSA	Wolli Creek Regional Park	Turrella & Jackson Place	<i>Cynodon dactylon</i> couch grass, <i>Lonicera japonica</i> Japanese honeysuckle, <i>Atriplex prostrata</i>	Coastal Saltmarsh EEC (TSC-e)		Foliar spray, cut and paint, physical / mechanical removal, landscaping	C-TSC  BPWW-1 ID 2337
HSA	Wolli Creek Regional Park	Whole of reserve	<i>Asparagus asparagoides</i> bridal creeper, <i>Passiflora suberosa</i> corky passionflower  Aquatic weeds: Alligator Weed, <i>Ludwigia peruviana</i> , <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Anredera cordifolia</i> Madeira vine, <i>Araujia sericifera</i> moth vine, <i>Cardiospermum grandiflorum</i> balloon vine, <i>ipomoea purpurea</i> morning glory, <i>Lantana camara</i> , <i>Lonicera japonica</i> Japanese honeysuckle, <i>Ligustrum lucidum</i> & <i>Ligustrum sinense</i> large leaf & small leaf privet, <i>Olea europaea</i> subsp <i>cuspidate</i> , <i>Rubus fruticosus</i> agg. blackberry	Sydney Sandstone Woodland and Heath  Wolli Creek water flow and quality  Grey headed flying-fox (EPBC-v TSC-v), colony adjacent (off park)  Wildlife / green corridor  Recreation visitation values	Containment   Asset protection	Foliar spray, cut and paint, stem injection, physical / mechanical removal, biological control, Bushcare volunteer program (6 volunteer groups). Target new occurrences of known highly invasive species.	C-NE  M-CP  M-RA  L-LP
LCRA							

LCRA	All reserves	New incursions and alert weeds	<i>Hyparrhenia hirta</i> Coolatai grass, <i>Solanum viarum</i> tropical soda apple (class 2), <i>Solanum linnaeanum</i> apple of Sodom, <i>Fraxinus griffithii</i> evergreen ash		Eradication (local)	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, record (gps) infestations	C-NE
LCRA	Dalrymple Hay NR	All precincts: Rosedale Road end, SW corner, High Ridge Creek & Browns Forest.	<i>Lantana camara</i> , <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Delairea odorata</i> cape Ivy, <i>Lonicera japonica</i> Japanese honeysuckle, <i>Passiflora suberosa</i> corky passionfruit, <i>Celtis australis</i> celtis, <i>Genista monspessulana</i> Montpellier broom <i>Ligustrum lucidum</i> large leaf privet, <i>Ligustrum sinense</i> small leaf privet, <i>Ochna serrulata</i> ochna, <i>Pistacia chinensis</i> Chinese pistachio, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Chlorophytum comosum</i> spider plant, <i>Nephrolepis cordifolia</i> fishbone fern, <i>Tradescantia fluminensis</i> trad, <i>Ehrharta erecta</i> ehrharta	Blue Gum High Forest EEC (EPBC-ce TSC-ce), Sydney turpentine ironbark forest (EPBC-ce TSC-ce), <i>Tetratheca glandulosa</i> (EPBC-v TSC-v), <i>Miniopterus schreibersii oceanensis</i> eastern bentwing-bat (TSC-v), <i>Mormopterus norfolkensis</i> eastern freetail-bat (TSC-v), <i>Chalinolobus dwyeri</i> large-eared pied bat (EPBC-v TS-v) foraging, <i>Saccolaimus flaviventris</i> yellow-bellied sheath-tail-bat (TSC-v) foraging, <i>Falsistrellus tasmaniensis</i> eastern false pipistrelle (TSC-v), <i>Pteropus poliocephalus</i> grey-headed flying-fox (EPBC-v TSC-v), bat foraging important to BGHF health, <i>Ninox strenua</i> powerful owl (TSC-v)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, biological control (lantana rust release site), fire regime. Monitoring - flora & fauna transect monitoring. Monitor for BMAD. Bushcare volunteer program (group 40). DHNR is a demonstration site for BGHF best practice methods	C-TSC BPWW-1 ID 2286 ID 2151 ID 2196 & ID 2120 Lantana plan 1-60
LCRA	Lane Cove National Park	Whole of reserve: Terrace Road & Blaxland Road Killara, Valley View Close Roseville,	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> boneseed (class1)	Class 2 eradication program	Eradication Class 2 boneseed	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, Bushcare volunteer program. Boneseed eradication program Annual monitoring boneseed July – October.	C-NE

		Riverside Drive					
LCRA	Lane Cove NP	Downes Street north Epping	<i>Lantana camara</i> , <i>Asparagus asparagoides</i> ground asparagus fern, <i>Cardiospermum grandiflorum</i> balloon vine, <i>Lonicera japonica</i> Japanese honeysuckle, <i>Rubus fruticosus</i> agg., blackberry, <i>Ehrharta erecta</i> Ehrharta, <i>Chlorophytum comosum</i> spider plant, <i>Hedychium gardnerianum</i> ginger lily, <i>Nephrolepis cordifolia</i> fishbone fern, <i>Tradescantia fluminensis</i> trad	Duffy's Forest EEC (TSC-e), only DFEC remnant in LCNP, <i>Pimelea curviflora</i> var. <i>curviflora</i> (TSC-v), <i>Epacris purpurascens</i> var. <i>purpurascens</i> (TSC-v)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program Downes street east.	C-TSC BPWW-1 ID 2162
LCRA	Lane Cove NP	Delhi Road West to Fern Gully Creek	<i>Lantana camara</i> , <i>Asparagus asparagoides</i> ground asparagus fern, <i>Cardiospermum grandiflorum</i> balloon vine <i>Cotoneaster</i> spp., <i>Ligustrum</i> spp. privet, <i>Ochna serrulata</i> , <i>Setaria palmifolia</i> palm grass, <i>Andropogon virginicus</i> whiskey grass, <i>Cortaderia selloana</i> pampas grass, <i>Ehrharta erecta</i> ehrharta, <i>Paspalum quadrifarium</i> Tussock paspalum, <i>Ageratina riparia</i> mistflower, <i>Opuntia</i> spp. Prickly pear, <i>Tradescantia fluminensis</i> trad,	<i>Darwinia biflora</i> (EPBC-v TSC-v), <i>Epacris purpurascens</i> var. <i>purpurascens</i> (TSC-v), <i>Tetratheca glandulosa</i> (EPBC-v TSC-v), sandstone heath, sandstone gully forest, riparian vegetation, remnant marginal Sydney turpentine ironbark forest (EPBC-ce, TSC-e), wildlife corridor.  RWC program: new incursions & priority exotic grasses  Major arterial road: visual amenity. Visitation: Picnic Area 20 Fern Valley	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program Fern Valley (Group 1).	C-TSC BPWW-1 ID 2156

LCRA	Lane Cove NP	Short Street Thornleigh	<i>Lantana camara</i> , <i>Asparagus asparagoides</i> ground asparagus fern, <i>Cardiospermum grandiflorum</i> balloon vine <i>Cotoneaster spp.</i> , <i>Ligustrum spp.</i> privet, <i>Ochna serrulata</i> , <i>Setaria palmifolia</i> palm grass, <i>Andropogon virginicus</i> whiskey grass, <i>Cortaderia selloana</i> pampas grass, <i>Ehrharta erecta</i> ehrharta, <i>Ageratina riparia</i> mistflower, <i>Ambrosia psilostachya</i> Perennial Ragweed, <i>Chlorophytum comosum</i> spider plant, <i>Hedychium gardnerianum</i> ginger lily, <i>Opuntia spp.</i> Prickly pear, <i>Tradescantia fluminensis</i> trad	Sydney Turpentine Ironbark Forest EEC (EPBC-ce TSC-e), <i>Tetratheca glandulosa</i> (EPBC-v TSC-v), connectivity with BVRP	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program (group 42).	C-TSC BPWW-1 ID 2293
LCRA	Lane Cove National Park	Lorna Pass and Commenara Parkway	<i>Anredera cordifolia</i> madeira vine <i>Ipomoea purpurea</i> morning glory, <i>Tradescantia fluminensis</i> trad, <i>Setaria palmifolia</i> palm grass	<i>Wahlenbergia multicaulis</i> (TS - end pop), Coachwood simple rainforest, riparian gallery forest, <i>Ninox strenua</i> powerful owl (TS-v), connectivity with BVRP	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW-1 ID 2229
LCRA	Lane Cove National Park	Sugarloaf	<i>Lantana camara</i>	Swamp Oak Floodplain Forest EEC (TSC-e), <i>Miniopterus schreibersii oceanensis</i> eastern bentwing-bat (TSC-v)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Landscaping / planting. Prevent obstruction of cave entrances by weeds.	C-TSC BPWW-1 ID 2297 Lantana plan 2-157 C-NE

LCRA	Lane Cove National Park	Tunks Hill	<i>Lantana camara</i>	Duffys Forest EEC (TSC-e), <i>Angophora crassifolia</i> ROTAP	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW-1 ID 2314 Lantana plan 2-61
LCRA	Lane Cove National Park	Kittys Creek to Magdala Park	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> boneseed (class1)  <i>Lantana camara</i> , <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Acetosa sagittata</i> turkey rhubarb, <i>Ipomoea purpurea</i> morning glory, <i>Lonicera japonica</i> Japanese honeysuckle, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Cynodon dactylon</i> , <i>Pennisetum clandestinum</i> kikuyu, <i>Hydrocotyle bonariensis</i> pennywort	Coastal Saltmarsh EEC (TSC-e), migratory bird habitat, important nesting site for wading birds and fish habitat along the Lane Cove River and an important wildlife corridor.	Eradication (class 2)  Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program (group 42).	C-TSC BPWW-1 ID 2212

LCRA	Lane Cove National Park	Marrs Creek	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> boneseed, <i>Alternanthera philoxeroides</i> alligator weed, <i>Lantana camara</i> , <i>Asparagus asparagoides</i> ground asparagus, <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Acetosa sagittata</i> turkey rhubarb, <i>Anredera cordifolia</i> crofton weed, <i>Cardiospermum grandiflorum</i> balloon vine, <i>Delairea odorata</i> cape ivy, <i>Ipomoea purpurea</i> , <i>Rubus fruticosus</i> agg. blackberry, <i>Ailanthus altissima</i> tree of heaven, <i>Erythrina crista-galli</i> Cockspur coral tree, <i>Ligustrum</i> spp. privet, <i>Ochna serrulata</i> ochna, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Acer negundo</i> giant reed, <i>Ageratina riparia</i> mistflower, <i>Hedychium gardnerianum</i> ginger lily, <i>Nephrolepis cordifolia</i> fishbone fern, <i>Tradescantia fluminensis</i> trad, <i>Alstroemeria pulchella</i> Christmas lily	Sandstone gully forest, coachwood simple rainforest	Eradication (class 2) boneseed  Asset protection	Target weed control - boneseed eradication program Annual monitoring boneseed July - October  Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control.  Bushcare volunteer program (group 2)	C-NE  C-TSC BPWW-1 ID 2238
LCRA	Lane Cove River Area	All / Whole of reserve	suite of weeds	Aboriginal cultural heritage scattered sites: engraving sites, middens	Asset protection	Foliar spray, cut and paint, stem injection, physical / mechanical control (with due care and as appropriate as to not cause disturbance). Prioritise by impact, feasibility of control, visitation (promote or conceal).	H-CH local

LCRA	Lane Cove National Park	Bakers Cottage	<i>Lantana camara</i> , <i>Ligustrum</i> sp privet, exotic grasses	European cultural heritage local significance  <i>Ninox strenua</i> powerful owl (TSC-v), <i>Pteropus poliocephalus</i> grey-headed flying fox (EPBC-v TSC-v)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, Bushcare volunteer program (group 20).	H-CH local
LCRA	Lane Cove National Park	Fiddens Wharf Tuesday Team	<i>Anredera cordifolia</i> Madeira vine, <i>cardiospermum grandiflorum</i> balloon vine, <i>Lantana camara</i> , <i>Ligustrum</i> sp privet, <i>Ageratina riparia</i> exotic grasses	European cultural heritage local significance	European cultural heritage local significance	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, Bushcare volunteer program (Group 20)	H-CH local
LCRA	Lane Cove National Park	Fairyland	<i>Lantana camara</i> , <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Rubus fruticosus</i> agg. blackberry, <i>Cinnamomum camphora</i> camphor laurel, <i>Ligustrum lucidum</i> large leaf privet, <i>Ligustrum sinense</i> small leaf privet, <i>Ochna serrulata</i> ochna, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Ehrharta erecta</i> ehrharta, <i>Paspalum quadrifarium</i> tussock paspalum	Freshwater Wetlands EEC (TSC-e), Swamp Oak Floodplain Forest EEC (TSC-e)  European cultural heritage site (pleasure grounds) of local significance	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control Bushcare volunteer program (group 14)	C-TSC BPWW-3 ID 2169 Lantana plan 2-158 & 4-16  H-CH local
LCRA	Lane Cove National Park	Malton Road	<i>Lantana camara</i>	Duffys Forest EEC (TSC-e), <i>Pimelea curviflora</i> var. <i>curviflora</i> (EPBC-v TSC-v) <i>Angophora crassifolia</i> ROTAP	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program (Malton road).	C-TSC BPWW-3 ID 2235 Lantana plan 2-32



LCRA	Lane Cove National Park	Pages Creek Wetland	<i>Lantana camara</i> , <i>Asparagus asparagoides</i> bridal creeper, <i>Cotoneaster</i> spp., <i>Ligustrum sinense</i> small leaf privet, <i>Ochna serrulata</i> , <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Cortaderia selloana</i> pampas grass, <i>Paspalum quadrifarium</i> tussock paspalum, <i>Pennisetum clandestinum</i> kikuyu	Freshwater Wetland EEC (TSC-e)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Biological control (bridal creeper).	C-TSC BPWW-3 ID 2262 Lantana plan 2-134 & 4-17
LCRA	Lane Cove National Park	Fergusson Ave Thornleigh	<i>Lantana camara</i> , <i>Acetosa sagittata</i> turkey rhubarb, <i>Anredera cordifolia</i> Madeira vine, <i>Cardiospermum grandiflorum</i> balloon vine, <i>Ipomoea purpurea</i> morning glory, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Ehrharta erecta</i> ehrharta, <i>Tradescantia fluminensis</i> trad	Sydney Turpentine Ironbark Forest EEC (EPBC-ce TSC-e), <i>Syncarpia glomulifera</i> turpentine, <i>Eucalyptus paniculata</i> ironbark	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program (group 42)	C-TSC BPWW-3 ID 2172
LCRA	Lane Cove National Park	Kittys creek to Buffalo Creek	<i>Lantana camara</i> , <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Acetosa sagittata</i> turkey rhubarb, <i>Ipomoea purpurea</i> morning glory <i>Lonicera japonica</i> Japanese honeysuckle, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Cynodon dactylon</i> couch, <i>Pennisetum clandestinum</i> kikuyu, <i>Hydrocotyle bonariensis</i> pennywort	Coastal Saltmarsh EEC (TSC-e), <i>Miniopterus schreibersii</i> oceanensis eastern bentwing-bat (TSC-v), migratory bird habitat, important nesting site for wading birds and fish habitat along Lane Cove River and an important wildlife corridor. Good example of <i>Melaleuca ericifolia</i> forest not well represented in the area	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program (group 42). Remove mangroves. Handweeding inter-tidal zone. Revegetation / landscaping buffer zone.	C-TSC BPWW-3 ID 2211 Lantana plan 4-4

LCRA	Lane Cove National Park	Blackbutt Creek	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> boneseed (class 2), <i>Lantana camara</i> , <i>Asparagus asparagoides</i> bridal creeper, <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Acetosa sagittata</i> turkey rhubarb, <i>Anredera cordifolia</i> Madeira vine, <i>Cardiospermum grandiflorum</i> balloon vine, <i>Delairea odorata</i> cape ivy, <i>Ipomoea purpurea</i> morning glory, <i>Rubus fruticosus</i> agg. blackberry, <i>Ailanthus altissima</i> tree of heaven, <i>Erythrina crista-galli</i> cockspur coral tree, <i>Ligustrum spp.</i> privet, <i>Ochna serrulata</i> ochna, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Ageratina riparia</i> mistflower, <i>Alstroemeria pulchella</i> Peruvian lily, <i>Hedychium gardnerianum</i> ginger lily, <i>Tradescantia fluminensis</i> trad, <i>Nephrolepis cordifolia</i> fishbone fern, <i>Acer negundo</i> giant reed,	Sandstone Gully Forest, Coachwood simple forest, riparian vegetation, <i>Ninox strenua</i> powerful owl (TSC-v)	Eradication (class 2)  Asset protection	Boneseed eradication program Annual monitoring boneseed July – October.  Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control Biological control (bridal creeper)	C-TSC BPWW-3 ID 2112
LCRA	Lane Cove National Park	Shrimptons creek	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> boneseed (class 2), <i>Alternanthera philoxeroides</i> alligator weed <i>Ludwigia peruviana</i> primrose, <i>Lantana camara</i> , <i>Asparagus asparagoides</i> bridal creeper, <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Acetosa sagittata</i> turkey rhubarb, <i>Anredera cordifolia</i> Madeira vine, <i>Cardiospermum grandiflorum</i> balloon vine, <i>Delairea odorata</i> cape ivy, <i>Ipomoea purpurea</i> morning glory, <i>Rubus fruticosus</i>	Sandstone Gully Forest, Coachwood simple forest, riparian vegetation, <i>Ninox strenua</i> powerful owl (TSC-v)	Eradication (class 2)  Asset protection	Boneseed eradication program Annual monitoring boneseed July - October  Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program (Shrimptons creek leisure close group 3).	C-TSC BPWW-3 ID 2294

			agg. blackberry, <i>Ailanthus altissima</i> tree of heaven <i>Erythrina crista-galli</i> cockspur coral tree, <i>Ligustrum spp.</i> privet, <i>Ochna serrulata</i> ochna, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Ageratina riparia</i> mistflower, <i>Alstroemeria pulchella</i> Peruvian lily, <i>Hedychium gardnerianum</i> ginger lily, <i>Tradescantia fluminensis</i> trad, <i>Nephrolepis cordifolia</i> fishbone fern, <i>Acer negundo</i> giant reed,				
LCRA	Lane Cove National Park	Delhi Road	<i>Asparagus asparagoides</i> bridal creeper, <i>Anredera cordifolia</i> Madeira vine, <i>Ipomoea purpurea</i> morning glory, <i>Ligustrum spp.</i> privet, <i>Ochna serrulata</i> ochna, <i>Paspalum quadrifarium</i> tussock paspalum	Open woodland adjacent Swamp Oak Flood Plain Forest EEC (TSC-e) at Fairylands	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control Biological control (bridal creeper)	C-TSC BPWW-3 ID 2094
LCRA	Lane Cove National Park	River Ave west Chatswood	<i>Asparagus asparagoides</i> bridal creeper, <i>Phyllostachys spp.</i> , <i>Acetosa sagittata</i> turkey rhubarb, <i>Cardiospermum grandiflorum</i> balloon vine, <i>Delairea odorata</i> cape ivy, <i>Ipomoea purpurea</i> morning glory, <i>Macfadyena unguis-cati</i> cats claw creeper, <i>Ligustrum spp.</i> privet	Coastal Saltmarsh EEC (TSC-e), adjacent Swamp Oak Floodplain Forest EEC (TSC-e)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program (River Ave). Biological control (bridal creeper)	C-TSC BPWW-4 ID 2280
LCRA	Lane Cove National Park	Upper Blue Gum Creek Valley View Close to UTS	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> boneseed (class 2), <i>Lantana camara</i> , <i>Asparagus asparagoides</i> bridal creeper, <i>Ipomoea purpurea</i> morning glory, <i>Lonicera japonica</i> Japanese	Sandstone Gully Forest, Coachwood simple forest, riparian vegetation, <i>Ninox strenua</i> powerful owl (TSC-v), <i>Darwinia biflora</i> (EPBC-v)	Eradication (class 2)  Asset	Boneseed eradication program Annual monitoring boneseed July – October.  Foliar spray, splatter gun, cut and paint, stem injection,	C-TSC BPWW-4 ID 2317

			honeysuckle, <i>Rubus fruticosus</i> agg. blackberry, <i>Genista monspessulana</i> Montpellier broom, <i>Ligustrum spp.</i> privet, <i>Ehrharta erecta</i> erhartia, <i>Hedychium gardnerianum</i> ginger lily, <i>Tradescantia fluminensis</i> trad, <i>Setaria palmifolia</i> palm grass	TSC-v)	protection	physical / mechanical control	
LCRA	Lane Cove National Park	George St Pennant Hills	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>Anredera cordifolia</i> Madeira vine, <i>Cardiospermum grandiflorum</i> balloon vine, <i>Delairea odorata</i> cape ivy, <i>Hedera helix</i> English ivy, <i>Ipomoea purpurea</i> morning glory, <i>Lonicera japonica</i> Japanese honeysuckle, <i>Macfadyena unguis-cati</i> cats claw creeper, <i>Setaria palmifolia</i> palm grass, <i>Ligustrum spp.</i> privet, <i>Ochna serrulata</i> ochna, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Alstroemeria aurea</i> Peruvian lily, <i>Chlorophytum comosum</i> spider plant, <i>Tradescantia fluminensis</i> trad	Blue Gum High Forest EEC (EPBC-ce TSC-ce)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, Bushcare volunteer program (group 20). Biological control (cats claw creeper).	C-TSC BPWW-4 ID 2180
LCRA	Lane Cove National Park	De Burghs Bridge to Browns Waterhole	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> boneseed (class 2), <i>Egeria densa</i> , <i>Sagittaria sp.</i> , <i>Ludwigia peruviana</i> , <i>Achillea millefolium</i> yarrow, <i>Salix spp.</i> willows, <i>Colocasia esculenta</i> taro, <i>Lantana camara</i> , <i>Asparagus asparagoides</i> bridal creeper, <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Acetosa sagittata</i>	Riparian Vegetation <i>Ninox strenua</i> powerful owl (TSC-v), Aquatic biodiversity: <i>Macquaria novemaculeata</i> Australian bass gudgeon, <i>galaxias sp.</i> , eels, <i>Chelodina longicollis</i> eastern long-necked turtle, <i>Hydromys chrysogaster</i> rakali / water-	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control.	C-TSC BPWW-4 ID 2220

			turkey rhubarb, <i>Anredera cordifolia</i> Madeira vine, <i>Cardiospermum grandiflorum</i> balloon vine, <i>Delairea odorata</i> cape ivy, <i>Ipomoea purpurea</i> morning glory, <i>Rubus fruticosus</i> agg. blackberry, <i>Ailanthus altissima</i> tree of heaven, <i>Erythrina crista-galli</i> cockspur coral tree, <i>Ligustrum</i> spp. privet, <i>Ochna serrulata</i> ochna, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Acer negundo</i> giant reed, <i>Ageratina riparia</i> mistflower, <i>Alstroemeria pulchella</i> Peruvian lily, <i>Nephrolepis cordifolia</i> fishbone fern, <i>Tradescantia fluminensis</i> trad, <i>Hedychium gardnerianum</i> ginger lily	rat, aquatic birds			
LCRA	Lane Cove National Park	Pages Creek	<i>Lantana camara</i> , <i>Anredera cordifolia</i> Madeira vine, <i>Ligustrum lucidum</i> large leaf privet, <i>Ligustrum sinense</i> small leaf privet, <i>Tradescantia fluminensis</i> trad	Coachwood simple rainforest, <i>Epacris purpurascens</i> var <i>purpurascens</i> (TSC-v)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW-4 ID 2261
LCRA	Lane Cove National Park	Terrys Creek	<i>Lantana camara</i> , <i>Anredera cordifolia</i> Madeira vine, <i>Delairea odorata</i> cape ivy, <i>Cardiospermum grandiflorum</i> balloon vine, <i>Ipomoea purpurea</i> morning glory, <i>Ligustrum sinense</i> small leaf privet, <i>Ehrharta erecta</i> ehrharta, <i>Alstroemeria</i> sp. Peruvian lily, NZ	Coachwood simple rainforest	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW-4 ID 2301 Lantana plan 4-18

			Christmas bell, <i>Tradescantia fluminensis</i> trad				
LCRA	Lane Cove National Park	Morona Ave fire trail & Beltana Ave	<i>Lantana camara</i> , <i>Anredera cordifolia</i> Madeira vine, <i>Cardiospermum grandiflorum</i> balloon vine, <i>Rubus fruticosus</i> agg. blackberry, <i>Ligustrum</i> spp. privet, <i>Senna pendula</i> var. <i>glabrata</i> senna, <i>Ehrharta erecta</i> ehrharta, <i>Ageratina adenophora</i> crofton weed, <i>Ageratina riparia</i> mistflower, <i>Setaria palmifolia</i> palm grass, <i>Tradescantia fluminensis</i> trad,	<i>Darwinia biflora</i> (EPBC-v, TSC-v), <i>Pseudophryne australis</i> red crowned toadlet (TSC-v), Riparian vegetation community along upper reach of Lane Cove River	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program (Morona Ave group 23 & Beltana Ave)	C-TSC BPWW-4 ID 2244
LCRA	Lane Cove National Park	Byles Creek Cheltenham	<i>Asparagus asparagoides</i> bridal creeper, <i>Acetosa sagittata</i> turkey rhubarb, <i>Ipomoea purpurea</i> morning glory, <i>Lonicera japonica</i> Japanese honeysuckle, <i>Rubus fruticosus</i> agg. blackberry, <i>Ligustrum</i> spp. Privet, <i>Ehrharta erecta</i> ehrharta, <i>Ageratina riparia</i> mistflower, <i>Tradescantia fluminensis</i> trad, <i>Hedychium gardnerianum</i> ginger lily, <i>Setaria palmifolia</i> palm grass	Coachwood simple rainforest	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program (Kethel road).	C-TSC BPWW-4 ID 2132
LCRA	Lane Cove National Park	Cecil Ave	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>Anredera cordifolia</i> Madeira vine, <i>Cardiospermum grandiflorum</i> balloon vine, <i>Delairea odorata</i> cape ivy, <i>Ipomoea purpurea</i> morning glory, <i>Macfadyena unguis-cati</i> cats claw creeper	Shale Sandstone Transition forest EEC (EPBC-e TSC-e)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW-5 ID 2141

			<i>Ligustrum spp.</i> privet, <i>Ochna serrulata</i> ochna, <i>Senna pendula</i> var. <i>glabrata</i> senna, <i>Chlorophytum comosum</i> spider plant, <i>Setaria palmifolia</i> palm grass, <i>Tradescantia fluminensis</i> trad				
LCRA	Lane Cove National Park	Lane Cove River and tributaries	Aquatic weeds: <i>Alternanthera philoxeroides</i> alligator weed, <i>Indigofera heteranthera</i> heteranthera, <i>Ludwigia peruviana</i> , <i>ludwigia longifolia</i> , <i>ludwigia peruviana</i> , <i>Ludwigia repens</i> primrose, <i>Murdania keisak</i> marsh dewflower, <i>Sagittaria platyphylla</i> , <i>Sagittaria montevidensis</i>	Aquatic biodiversity, water quality, river bank stability  High visitation: recreation and landscape values  RWC control program	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, biological control (Alligator weed flea beetle). Twice annual monitoring of changes in distribution.	M-CP
LCRA	Lane Cove National Park	Whole of reserve: road verges, track trails, utilities & infrastructure	<i>Paspalum quadrifarium</i> Tussock paspalum, <i>Cortaderia selloana</i> pampas grass	RWC program: priority grasses	Asset protection	Foliar spray, physical / mechanical control.	M-CP
LCRA	Lane Cove National Park	Lane Cove River De Burghs Bridge to Weir riparian zone	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> boneseed 9class 2) <i>Alternanthera philoxeroides</i> , alligator weed, <i>Egeria densa</i> , <i>Sagittaria sp.</i> , <i>Ludwigia peruviana</i> , primrose <i>Achillea millefolium</i> , <i>Nasturtium officinale</i> , <i>Colocasia esculenta</i> , <i>Lantana camara</i> , <i>Asparagus asparagoides</i> bridal creeper, <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Acetosa sagittata</i> turkey rhubarb, <i>Anredera cordifolia</i> Madeira vine, <i>Cardiospermum grandiflorum</i>	Riparian vegetation, <i>Ninox strenua</i> powerful owl (TSC-v), Aquatic biodiversity: <i>Macquaria novemaculeata</i> Australian bass gudgeon, <i>galaxias sp.</i> , eels, <i>Chelodina longicollis</i> eastern long-necked turtle, <i>Hydromys chrysogaster</i> rakali / water-rat, aquatic birds	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW-5 ID 2221

			balloon vine, <i>Delairea odorata</i> cape ivy, <i>Ipomoea purpurea</i> morning glory, <i>Rubus fruticosus</i> agg. blackberry, <i>Alstroemeria</i> pulchella, <i>Erythrina crista-galli</i> cockspur coral tree, <i>Ligustrum</i> <i>spp.</i> privet, <i>Ochna serrulata</i> ochna, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Salix spp.</i> willows, <i>Acer negundo</i> giant reed, <i>Ageratina riparia</i> mistflower, <i>Nephrolepis cordifolia</i> fishbone fern, <i>Tradescantia fluminensis</i> trad, <i>Hedychium gardnerianum</i> ginger lily, <i>Ailanthus altissima</i> tree of heaven				
LCRA	Lane Cove National Park	Lower Blue Gum Creek	<i>Acetosa sagittata</i> turkey rhubarb, <i>Anredera cordifolia</i> Madeira vine, <i>Cardiospermum grandiflorum</i> balloon vine, <i>Delairea odorata</i> cape ivy, <i>Ligustrum spp.</i> Privet, <i>Senna pendula</i> var. <i>glabrata</i> senna, <i>Tradescantia fluminensis</i> trad, <i>Pennisetum clandestinum</i> kikuyu	Coastal Saltmarsh EEC (TSC-e), fish nursery	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program (Fuller Park Rd, Fullers park)	C-TSC BPWW-6 ID 2232
LCRA	Lane Cove National Park	Boy Scout Creek	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> boneseed (class 2), <i>Lantana camara</i> , <i>Asparagus</i> <i>asparagoides</i> bridal creeper, <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Acetosa sagittata</i> , turkey rhubarb, <i>Anredera</i> <i>cordifolia</i> Madeira vine, <i>Cardiospermum grandiflorum</i> balloon vine, <i>Delairea odorata</i> cape ivy, <i>Ipomoea purpurea</i> morning glory, <i>Rubus fruticosus</i>	Sandstone Gully Forest, Coachwood simple forest, riparian vegetation, <i>Ninox</i> <i>strenua</i> powerful owl (TSC-v), <i>Miniopterus schreibersii</i> <i>oceanensis</i> eastern bentwing- bat (TSC-v)	Eradication (class 2)  Asset protection	Boneseed eradication program Annual monitoring boneseed July – October  Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW ID 2118 not ranked





			cape ivy, <i>Ipomoea purpurea</i> morning glory, <i>Rubus fruticosus</i> agg. blackberry, <i>Ailanthus</i> <i>altissima</i> tree of heaven, <i>Erythrina</i> <i>crista-galli</i> cockspur coral tree, <i>Ligustrum</i> spp. privet, <i>Ochna</i> <i>serrulata</i> ochna, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Salix</i> spp. Willow, <i>Ageratina riparia</i> mistflower, <i>Alstroemeria pulchella</i> peruvian lily, <i>Hedychium</i> <i>gardnerianum</i> ginger lily, <i>Nephrolepis cordifolia</i> fishbone fern, <i>Tradescantia fluminensis</i> trad, <i>Acer negundo</i> giant reed				
LCRA	Lane Cove National Park	Browns Waterhole to Devlins creek	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> boneseed (class 2), <i>Achillea millefolium</i> , <i>Egeria</i> <i>densa egeria</i> , <i>Sagittaria</i> sp., <i>Ludwigia longifolia</i> primrose, <i>Lantana camara</i> , <i>Asparagus</i> <i>asparagoides</i> bridal creeper, <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Acetosa sagittata</i> , turkey rhubarb, <i>Anredera</i> <i>cordifolia</i> Madeira vine, <i>Cardiospermum grandiflorum</i> balloon vine, <i>Delairea odorata</i> cape ivy, <i>Ipomoea purpurea</i> coastal morning glory, <i>Rubus</i> <i>fruticosus</i> agg. blackberry, <i>Ailanthus altissima</i> tree of heaven, <i>Erythrina crista-galli</i> cockspur coral tree, <i>Ligustrum</i> spp. privet, <i>Ochna serrulata</i> ochna, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Salix</i> spp. Willow, <i>Ageratina riparia</i> mistflower,	Hornsby / Ku-ring-gai Gang Gang cockatoo <i>Callocephallon fimbriatum</i> endangered population (TSC- e), <i>Ninox strenua</i> powerful owl (TSC-v), <i>Macquaria</i> <i>novemaculeata</i> Australian bass, riparian vegetation	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program (group 38). Monitoring: Gang Gang sightings and observations. Vine control to limit impact to canopy and habitat trees	C-TSC BPWW ID 2121 not ranked

			<i>Alstroemeria pulchella</i> tree of heaven, <i>Nephrolepis cordifolia</i> fishbone fern, <i>Tradescantia fluminensis</i> trad, <i>Acer negundo</i> giant reed				
	Lane Cove National Park	Browns waterhole cycleway	Exotic grasses	<i>Darwinia biflora</i> (EPBC-v TSC-v), Hornsby / Ku-ring-gai Gang Gang cockatoo <i>Callocephalon fimbriatum</i> endangered population (TSC-e)  Recreation area			C-TSC BPWW not ranked  M-RA
LCRA	Lane Cove National Park	Devlins Creek	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> boneseed (class 2), <i>Ludwigia longifolia</i> primrose, <i>Lantana camara</i> , <i>Asparagus asparagoides</i> bridal creeper, <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Acetosa sagittata</i> , turkey rhubarb, <i>Anredera cordifolia</i> Madeira vine, <i>Cardiospermum grandiflorum</i> balloon vine, <i>Delairea odorata</i> cape ivy, <i>Ipomoea purpurea</i> morning glory, <i>Rubus fruticosus</i> agg. blackberry, <i>Ailanthus altissima</i> tree of heaven, <i>Erythrina crista-galli</i> cockspur coral tree, <i>Ligustrum</i> spp. privet, <i>Ochna serrulata</i> ochna, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Tradescantia fluminensis</i> trad, <i>Ageratina riparia</i> mistflower, <i>Alstroemeria pulchella</i> Peruvian lily, <i>Hedychium gardnerianum</i> ginger lily, <i>Nephrolepis cordifolia</i> fishbone	Sandstone Gully Forest, Coachwood simple forest, riparian vegetation, <i>Ninox strenua</i> powerful owl (TSC-v)	Eradication (class 2)  Asset protection	Boneseed eradication program Annual monitoring boneseed July – October.  Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Vine control to limit impact to canopy and habitat trees	C-NE  C-TSC BPWW ID 2157 not ranked

			fern, <i>Acer negundo</i> giant reed				
LCRA	Lane Cove National Park	Rudder Creek	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> boneseed (class 2), <i>Alternanthera philoxeroides</i> alligator weed, <i>Ludwigia peruviana</i> primrose, Lantana camara, <i>Asparagus asparagoides</i> bridal creeper, <i>Asparagus aethiopicus</i> ground asparagus fern <i>Anredera cordifolia</i> Madeira vine, <i>Acetosa sagittata</i> turkey rhubarb, <i>Cardiospermum grandiflorum</i> balloon vine, <i>Ipomoea purpurea</i> morning glory, <i>Ligustrum</i> spp. privet, <i>Ageratina riparia</i> mistflower, <i>Nephrolepis cordifolia</i> fishbone fern, <i>Tradescantia fluminensis</i> trad	Sandstone Gully Forest, Coachwood simple forest, riparian vegetation, <i>Ninox strenua</i> powerful owl (TSC-v)	Eradication (class 2)  Asset protection	Boneseed eradication program Annual monitoring boneseed July – October.  Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-NE  C-TSC BPWW ID 2287 not ranked
LCRA	Lane Cove National Park	Unnamed creek north of Kurrajong street Pennant Hills	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>Ageratina adenophora</i> crofton weed, <i>Ageratina riparia</i> mistflower, <i>Senna pendula</i> var. <i>glabrata</i> senna, <i>Rubus fruticosus</i> agg. blackberry	<i>Ninox strenua</i> powerful owl (TSC-v), Sandstone Gully Forest, riparian vegetation	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW ID 2316 not ranked
LCRA	Lane Cove National Park	Carters Creek	<i>Lantana camara</i> , <i>Ligustrum</i> spp. Privet, <i>Phoenix canariensis</i> phoenix palm	<i>Darwinia biflora</i> (EPBC-v TSC-v), and <i>Tetradlea glandulosa</i> (EPBC-v TSC-v)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program (group 1).	C-TSC add to BPWW & rank

LCRA	Lane Cove National Park	Lane Cove Tourist Park	<i>Anredera cordifolia</i> Madeira vine, <i>Ligustrum</i> spp. Privet, Mexican poppy	<i>Darwinia biflora</i> (EPBC-v TSC-v), <i>Epacris purpurascens</i> var. <i>purpurascens</i> (TSC-v)  High visitation: tourist park cabins and camping	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control.	C-TSC add to BPWW & rank  M-RA
LCRA	Lane Cove National Park	Picnic Area 7 Moola	<i>Rubus fruticosus</i> agg. blackberry, <i>Ochna serrulata</i> ochna	High visitation: picnic area, Great North Walk and the Lane Cove Heritage Walk.	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program.	M-RA
LCRA	Lane Cove National Park	Picnic Area 8 Ironbarks	<i>Lantana camara</i> , <i>Cardiospermum grandiflorum</i> balloon vine, <i>Deliria odorata</i> cape ivy, <i>Rubus fruticosus</i> agg. Blackberry, <i>Ligustrum</i> spp. Privet, <i>Paspalum quadrifarium</i> tussock paspalum, <i>Tradescantia fluminensis</i> trad	High visitation: picnic area, river frontage	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program (group 20)	M-RA
LCRA	Lane Cove National Park	Picnic Area 17 Scribbly Gums,	<i>Anredera cordifolia</i> Madeira vine, <i>Paspalum quadrifarium</i> tussock paspalum, annuals and exotic grasses	<i>Darwinia biflora</i> (EPBC-v TSC-v), High visitation: picnic area	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program (group 13).	C-TSC BPWW not ranked  M-RA
LCRA	Lane Cove National Park	Picnic Area 19 Halfway Point	<i>Lantana camara</i> , <i>Asparagus asparagoides</i> ground Asparagus fern, <i>Asparagus aethiopicus</i> bridal creeper, <i>Cardiospermum grandiflorum</i> balloon vine, <i>Deliria odorata</i> cape ivy, <i>Rubus fruticosus</i> agg. Blackberry, <i>Paspalum quadrifarium</i> tussock paspalum	<i>Miniopterus schreibersii oceanensis</i> eastern bentwing-bat (TSC-v) roost caves.  High visitation: picnic area, river frontage	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program (group 20). Ensure cave entrances are clear	C-TSC BPWW not ranked  M-RA
LCRA	Lane Cover	Nursery Group		Endemic native plants	Asset	Bushcare volunteer program,	M-CP

	River Area				protection	seed collection & propagation	
LCRA	Lane Cover River Area	College Creek	<i>Cardiospermum grandiflorum</i> balloon vine, <i>Ligustrum sp.</i> Privet, <i>Tradescantia fluminensis</i> trad	Sydney coastal dry sclerophyll forest, Sydney sandstone gully forest	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program	L-LP
LCRA	Lane Cover River Area	Durham Close	<i>Tradescantia fluminensis</i> trad Garden escapes, annuals and grasses	Sydney coastal dry sclerophyll forest	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program (group 210)	L-LP
LCRA	Lane Cover River Area	Fiddens Wharf Road	<i>Rubus fruticosus</i> agg. Blackberry, <i>Ligustrum sp.</i> privet, garden escapes, exotic grasses	Sydney coastal dry sclerophyll forest	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program	L-LP
LCRA	Lane Cover River Area	Gloucester Ave	<i>Rubus fruticosus</i> agg. Blackberry, <i>Ligustrum sp.</i> Privet, <i>Tradescantia fluminensis</i> trad, <i>Ageratina riparia</i> mistflower, <i>Ageratina adenophora</i> crofton weed	Sydney coastal dry sclerophyll forest	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program (Wallalong weavers)	L-LP
LCRA	Lane Cover River Area	Hampshire Ave	<i>Rubus fruticosus</i> agg. Blackberry, <i>Ligustrum sp.</i> Privet, <i>Tradescantia fluminensis</i> trad, exotic grasses	Sydney coastal dry sclerophyll forest	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program	L-LP
LCRA	Lane Cover River Area	Khartoum Road	<i>Lantana camara</i> , <i>Rubus fruticosus</i> agg. Blackberry, <i>Ligustrum sp.</i> Privet, <i>paspalum quadrifarium</i> tussock paspalum, garden escapes, exotic grasses	Sydney coastal dry sclerophyll forest	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program	L-LP
LCRA	Lane Cover River Area	Little Blue Bum creek	<i>Cardiospermum grandiflorum</i> balloon vine, <i>Ligustrum sp.</i> Privet, <i>Tradescantia fluminensis</i> trad,	Sydney coastal dry sclerophyll forest	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control.	L-LP

			<i>Ageratina riparia</i> mistflower, <i>Ageratina adenophora</i> crofton weed			Bushcare volunteer program	
LCRA	Parramatta River Regional Park * not yet fully managed by MNER	Bedlam Bay	Compile weed species list	European cultural heritage: Bedlam Bay road remains state significance  Aboriginal cultural heritage	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program. Biological control Madeira vine.	H-CH state  L-LP
LCRA	Wallumatta Nature Reserve	Wallumatta Nature Reserve	<i>Lantana camara</i> , <i>Asparagus asparagoides</i> ground asparagus fern, <i>Lonicera japonica</i> Japanese honeysuckle, <i>Rubus fruticosus</i> agg. blackberry, <i>Cinnamomum camphora</i> camphor laurel, <i>Ligustrum sinense</i> small leaf privet, <i>Ochna serrulata</i> ochna, <i>Senna pendula</i> var. <i>glabrata</i> senna, <i>Bryophyllum delagouense</i> mother of millions, <i>Chlorophytum comosum</i> spider plant, <i>Nephrolepis cordifolia</i> fishbone fern, <i>Tradescantia fluminensis</i> trad, <i>Ehrharta erecta</i> ehrharta, exotic grasses	Sydney Turpentine Ironbark Forest EEC (EPBC-ce TSC-e), <i>Epacris purpurascens</i> var. <i>purpurascens</i> (TSC-v)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program (group 24).	C-TSC BPWW-1 ID 2326  Lantana plan 1-61
LHA							
LHA	Berowra Valley Regional Park	Berowra Valley Regional Park ridgetops and urban interface Arthurs Crescent & Excelsior Road Mt Colah, Duneba Road	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> boneseed (class1)	Class 2 eradication program	Eradication class 2 boneseed  Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, Target weed control - boneseed eradication program (HNCMA/Hornsby LGA) Annual monitoring boneseed July - October	C-NE

		Thornleigh, Cootamundra Fire Trail & Pacific Highway Hornsby Hts to Berowra					
LHA	Berowra Valley Regional Park	Stewart Ave Hornsby Hts	<i>Lantana camara</i> , <i>Ligustrum sp</i> privet, <i>Cortaderia selloana</i> pampas grass, <i>Ageratina adenophora</i> crofton weed	<i>Tetratheca glandulosa</i> (EPBC-v, TSC-v), <i>Eucalyptus camfieldii</i> (EPBC-v TSC-v), Open Forest/ Woodland	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW-2 ID 1009  Lantana plan number not allocated
LHA	Berowra Valley Regional Park	Eloura Road	<i>Lantana camara</i>	<i>Tetratheca glandulosa</i> (EPBC-v TSC-v), Open Woodland	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW-4 ID 618
LHA	Berowra Valley Regional Park	Quarry Trail area south of Galston Rd  (Urban interface Hornsby heights to Tunks ridge rest area)	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>Araujia sericifera</i> moth vine, <i>Rubus fruticosus</i> agg. blackberry, <i>Ligustrum sp</i> privet, <i>Solanum mauritianum</i> wild tobacco, <i>Ricinus communis</i> castor oil plant, <i>Ageratina adenophora</i> crofton weed, <i>Andropogon virginicus</i> whiskey grass, <i>Paspalum dilatatum</i> paspalum	<i>Melaleuca deanei</i> (EPBC-v TSC-v), <i>Eucalyptus camfieldii</i> (EPBC-v TSC-v), <i>Galium australe</i> (TSC-e), <i>Darwinia biflora</i> (EPBC-v TSC-v), <i>Tetratheca glandulosa</i> (EPBC-v TSC-v), <i>Persoonia mollis</i> subsp. <i>maxima</i> (EPBC-e TSC-e), Sydney sandstone ridgetop forest, Sydney sandstone gully forest  Tunks Ridge rest area	Asset protection	Foliar spray, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW ID 952 not ranked  M-RA
LHA	Berowra Valley Regional Park	Beaumont Rd, Gundah Ridge trail, Mount	<i>Andropogon virginicus</i> whiskey grass, <i>Cynodon dactylon</i> couch, <i>Pennisetum clandestinum</i> kikuyu,	<i>Darwinia biflora</i> (EPBC-v TSC-v), <i>Tetratheca glandulosa</i> (EPBC-v TSC-v),	Asset protection	Foliar spray, physical / mechanical control	C-TSC BPWW ID 611



		Kuring-gai	<i>Sporobolus africanus</i> Parramatta grass, <i>Ageratina adenophora</i> crofton weed	<i>Lasiopetalum joyceae</i> (EPBC-v TSC-v), <i>Melaleuca deanei</i> (EPBC-v TSC-v), <i>Persoonia mollis</i> subsp. <i>maxima</i> (EPBC-e TSC-e), Sydney sandstone ridgetop forest			not ranked
LHA	Berowra Valley Regional Park	Calna Creek Catchment  (urban interface Calna creek & tributaries & surrounds Hornsby heights – Mt Kuring-gai)	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>Acetosa sagittata</i> turkey rhubarb, <i>Rubus fruticosus</i> agg. blackberry, <i>Lantana camara</i> , <i>Tradescantia fluminensis</i> trad, <i>Lonicera japonica</i> Japanese honeysuckle, <i>Senna pendula</i> var. <i>glabrata</i> senna, <i>Ligustrum</i> sp. privet, <i>Bryophyllum delagoense</i> mother of millions, <i>Cortaderia selloana</i> pampas grass, <i>Ehrharta</i> sp., <i>Eragrostis curvula</i> African lovegrass, <i>Paspalum dilatatum</i> paspalum, <i>Pennisetum clandestinum</i> kikuyu	<i>Darwinia biflora</i> (EPBC-v TSC-v), <i>Tetradlea glandulosa</i> (EPBC-v TSC-v), <i>Lasiopetalum joyceae</i> (EPBC-v TSC-v), <i>Persoonia mollis</i> subsp. <i>maxima</i> (EPBC-e TSC-e), <i>Leucopogon fletcheri</i> (TSC-e), Sydney sandstone gully forest, Sydney sandstone ridgetop forest.	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW ID 658 not ranked
LHA	Berowra Valley Regional Park	Sams Creek Catchment, Berowra	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>Acetosa sagittata</i> turkey rhubarb, <i>Lantana camara</i> , <i>Macfadyena unguis-cati</i> cats claw creeper, <i>Ligustrum</i> sp. privet, <i>Solanum mauritianum</i> wild tobacco, <i>Ageratina adenophora</i> crofton weed, <i>Agave</i> sp, <i>Bryophyllum delagoense</i> mother of millions, <i>Tradescantia fluminensis</i> trad, <i>Pennisetum clandestinum</i> kikuyu, exotic grasses	<i>Darwinia biflora</i> (EPBC-v TSC-v), <i>Darwinia peduncularis</i> (EPBC-v TSC-v), <i>Lasiopetalum joyceae</i> (EPBC-v TSC-v), <i>Persoonia mollis</i> subsp. <i>maxima</i> (EPBC-e TSC-e), <i>Melaleuca deanei</i> (EPBC-v, TSC-v), <i>Tetradlea glandulosa</i> (EPBC-v; TSC-v), Sydney sandstone gully forest, Sydney sandstone ridgetop forest.	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW ID 976 not ranked
LHA	Berowra Valley	Crosslands Reserve to	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>Acetosa sagittata</i>	<i>Tetradlea glandulosa</i> (EPBC-v TSC-v), <i>Darwinia</i>	Asset	Foliar spray, splatter gun, cut and paint, stem injection,	C-TSC BPWW

	Regional Park	Galston Gorge	turkey rhubarb, <i>Lantana camara</i> , <i>Lonicera japonica</i> Japanese honeysuckle, <i>Macfadyena unguis-cati</i> cats claw creeper, <i>Rubus fruticosus</i> agg. blackberry, <i>Senna pendula</i> var. <i>glabrata</i> senna <i>Ligustrum</i> sp. privet, <i>Solanum mauritianum</i> wild tobacco, <i>Ageratina adenophora</i> crofton weed, <i>Agave</i> sp, <i>Nephrolepis cordifolia</i> fishbone fern, <i>Tradescantia fluminensis</i> trad, <i>Andropogon virginicus</i> whiskey grass, <i>Cortaderia selloana</i> pampas grass, <i>Erharta</i> sp., <i>Eragrostis curvula</i> African lovegrass, <i>Paspalum dilatatum</i> paspalum, <i>Pennisetum clandestinum</i> kikuyu	<i>biflora</i> (EPBC-v TSC-v), <i>Persoonia mollis</i> subsp. <i>maxima</i> (EPBC-e TSC-e), <i>Melaleuca deanei</i> (EPBC-v TSC-v), open woodland, Sydney sandstone gully forest and Sydney sandstone ridgetop forest.  Crosslands Reserve high visitation, Galston Gorge lookout scenic values	protection	physical / mechanical control	ID 705 not ranked  M-RA
LHA	Berowra Valley Regional Park	Stringybark Ridge	<i>Ligustrum</i> sp. privet, <i>Salix</i> spp. willow, <i>Agave</i> sp., <i>Andropogon virginicus</i> whiskey grass exotic grasses	<i>Melaleuca deanei</i> (EPBC-v TSC-v), <i>Galium australe</i> (TSC-e), <i>Darwinia biflora</i> (EPBC-v TSC-v), <i>Tetratheca glandulosa</i> (EPBC-v; TSC-v), Sydney sandstone ridgetop forest  Stringybark Ridge rest area	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW ID 1011 not ranked  M-RA
LHA	Dural Nature Reserve	Dural Nature Reserve	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>Asparagus asparagoides</i> bridal creeper, <i>Lantana camara</i> , <i>Ligustrum</i> sp. privet, <i>senna pendula</i> var. <i>glabrata</i> senna, <i>Cinnamomum camphora</i> camphor laurel, <i>Ipomoea indica</i> morning glory,	Sydney Turpentine Ironbark Forest EEC (EPBC-ce TSC-e), <i>Epacris purpurascens</i> var. <i>purpurascens</i> (TSC-e), <i>Tetratheca glandulosa</i> (EPBC-v TSC-v), Open Forest	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, biological control	C-TSC BPWW-2 ID 1060  Lantana plan number not

							allocated
LHA	Ku-ring-gai Chase National Park	Bobbin Head Track	Exotic grasses	<i>Acacia bynoeana</i> (EPBC-v TSC-e), <i>Darwinia biflora</i> (EPBC-v TSC-v), <i>Genoplesium ruppilii</i>	Asset protection	Foliar spray. Monitor presence / absence threatened species	C-TSC BPWW-1 ID 634  KCNP National heritage list
LHA	Ku-ring-gai Chase National Park	Brooklyn Dam Trail	<i>Acacia saligna</i> , <i>Ageratina adenophora</i> crofton weed, <i>Ligustrum sp</i> privet, exotic grasses	<i>Corymbia eximia</i> open forest, <i>Melaleuca deanei</i> (EPBC-v TSC-v), <i>Callistemon linearifolius</i> (TSC-v)	Asset protection	Foliar spray, cut and paint, stem injection, physical / mechanical control,	C-TSC BPWW-1 ID 644
LHA	Ku-ring-gai Chase National Park	Chase Trail orchid site	Exotic grasses	<i>Genoplesium baueri</i> (TSC-v) <i>Darwinia biflora</i> (EPBC-v TSC-v), <i>Genoplesium ruppilii</i>	Asset protection  Eradication class 2 boneseed	Foliar spray. Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control  Monitor presence / absence threatened species	C-TSC BPWW-1 ID 684  KCNP National heritage list
LHA	Ku-ring-gai Chase National Park	Ku-ring-gai Chase Road opposite Powerlines trail	Exotic grasses	<i>Genoplesium baueri</i> (TSC-v), <i>Darwinia biflora</i> (EPBC-v TSC-v), <i>Epacris crassifolia</i> ROTAP, <i>Genoplesium ruppilii</i>	Asset protection	Foliar spray. Monitor presence / absence threatened species	C-TSC BPWW-1 ID 917  KCNP National heritage list
LHA	Ku-ring-gai Chase National Park	Cowan waterways Beaches and sites Bobbin	<i>lantana camara</i> , <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Erythrium x sykesii</i> coral tree, <i>Phyllostachys aurea</i>	Coastal Saltmarsh EEC (TSC-e), Narabeen slopes, sandstone gully forest, <i>Callistemon linearifolius</i>	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control,	C-TSC BPWW-2 ID 699

		Head to Hawkesbury River	Bamboo, <i>Ageratina adenophora</i> crofton weed, <i>Agave sp.</i> , garden escapes	(TSC-v)  Archaeological remains of dwellings, stone walls, foundations of local cultural heritage significance		biological control	KCNP National heritage list  H-CH
LHA	Ku-ring-gai Chase National Park	Porto Bay  Hawkesbury River	<i>Lantana camara</i> , <i>Erythrium x sykesii</i> coral tree, <i>Ageratina adenophora</i> crofton weed	<i>Darwinia peduncularis</i> , <i>Ancistrachne maidenii</i> (TSC-v), <i>Callistemon linearifolius</i> (TSC-v), Open Forest  Cultural heritage: oyster farm relics, huts	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control,	C-TSC BPWW-2 ID 940  Lantana plan 5-18  H-CH  KCNP National heritage list
LHA	Ku-ring-gai Chase National Park	Campbells Crater	<i>Lantana camara</i> , <i>Ageratina adenophora</i> crofton weed	Diatreme vegetation (regionally significant)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, biological control	C-TSC BPWW-2 ID 662  KCNP National heritage list
LHA	Ku-ring-gai Chase National Park	Warrimoo Track Timbarra Ave St Ives Chase	<i>Lantana camara</i> , <i>Cortaderia selloana</i> pampas grass, <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Senna pendula</i> var <i>glabrata</i> , senna, <i>Watsonia sp</i> garden escapes	Duffys Forest Ecological Community EEC (TSC-e)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, biological control	C-TSC BPWW-3 ID 1045  Lantana plan 4-5  KCNP

							National heritage list
LHA	Ku-ring-gai Chase National Park	Kalkari Discovery Centre	<i>Sagittaria platyphylla</i> , (Class 5) crofton weed <i>Ageratina adenophora</i>	Sydney Sandstone Ridgetop Woodland, Sydney Sandstone Gully Forest  High visitation, educational / interpretation function	Asset protection	Foliar spray, physical / mechanical control  Sagittaria has a positive value as frog habitat	C-TSC BPWW-3 ID 814  M-RA  KCNP National heritage list
LHA	Ku-ring-gai Chase National Park	Mt Colah works depot and Deadmans Trail	<i>Chrysanthemoides monilifera</i> subsp <i>monilifera</i> boneseed (class 2) <i>Acacia binervia</i> , <i>Ricinus communis</i> castor oil plant, <i>Senna pendula glabrata</i> senna, <i>Paspalum quadrifarium</i> tussock paspalum, <i>Hyparrhenia hirta</i> Coolatai Grass, <i>Cortaderia selloana</i> pampas grass exotic grasses	<i>E. camfieldii</i> (EPBC-v TSC-V), <i>Tetradlea glandulosa</i> , (EPBC-v TSC-V), Syd sandstone ridgetop woodland	eradication class 2 boneseed  Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control.  Target weed control – boneseed eradication program. Annual boneseed monitoring July-October	C-NE  C-TSC BPWW-4 ID 714  KCNP National heritage list
LHA	Ku-ring-gai Chase National Park	Cockle Creek catchment Warringah to Bobbin Head	<i>Lantana camara</i> , <i>Cortaderia selloana</i> pampas grass, <i>Ricinus communis</i> castor oil plant, <i>Erythrium x sykesii</i> coral tree <i>Elodea Canadensis</i> elodea, <i>Senecio petasitis</i> senecio	<i>Persoonia mollis</i> supsp. <i>maxima</i> (EPBC-e TSC-e), Sydney Sandstone Gully Forest, Estuarine complex  Aquatic biodiversity	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, biological control	C-TSC BPWW-4 ID 691  KCNP National heritage list
LHA	Ku-ring-gai Chase National	Cowan Creek St Ives Chase to	<i>Lantana camara</i> , <i>Cortaderia selloana</i> pampas grass, <i>Ricinus communis</i> castor oil plant,	<i>Persoonia mollis</i> supsp. <i>maxima</i> (EPBC-e TSC-e), Syd Sandstone Gully Forest,	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control,	C-TSC BPWW-4

	Park	Bobbin Head	<i>Erythrium x sykesii</i> coral tree, <i>Ludwigia peruviana</i> , <i>Agave sp.</i>	Estuarine complex		biological control	ID 698  KCNP National heritage list
LHA	Ku-ring-gai Chase National Park	Freeway House sites 1,2 &3	<i>Chrysanthemoides monilifera</i> subsp <i>monilifera</i> boneseed (class 2), <i>Lantana camara</i> , <i>Senna</i> <i>pendula</i> var <i>glabrata</i> senna, <i>Pinus</i> <i>sp.</i> pine trees <i>Cortaderia selloana</i> pampas grass, exotic grasses and annuals, , Garden escapes	Sydney Sandstone Ridgetop Woodland	Eradication class 2 boneseed	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control.  Target weed control – boneseed eradication program (HNCMA / Hornsby LGA). Annual monitoring boneseed July - October	C-NE  BPWW-4 ID 752  KCNP National heritage list
LHA	Ku-ring-gai Chase National Park	Mount Ku- ringgai Boundary	<i>Cestrum parqui</i> green cestrum, <i>Salix babylonica</i> weeping willow, <i>Senna pendula</i> var <i>glabrata</i> <i>Senna</i> , <i>Solanum mauritianum</i> wild tobacco, <i>Ochna serrulata</i> ochna, <i>Cortaderia selloana</i> Pampas grass, <i>Stenotaphrum secundatum</i> buffalo grass <i>Ageratina</i> <i>adenophora</i> crofton weed, <i>Parietaria judaica</i> asthma weed, Garden escapes, Exotic grasses and annuals	Syd sandstone ridgetop woodland, <i>Eucalyptus</i> <i>luehmanniana</i> ROTAP, <i>Darwinia biflora</i> (EPBC-v TSC-v), <i>Grevillea shiressii</i> (EPBC-v TSC-v)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW-5 ID 883  L-LP  KCNP National heritage list
LHA	Ku-ring-gai Chase National Park	North Turramurra entrance	<i>Acacia binervia</i> , <i>Ligustrum sp.</i> , privet, <i>Thunbergia alata</i> Black- eyed Susan, <i>Ageratina</i> <i>adenophora</i> crofton weed, <i>Nephrolepis cordifolia</i> fishbone fern, Exotic grasses and annuals,	Entrance to iconic park, high visitation.  Sydney Sandstone Ridgetop Woodland, southern brown bandicoot <i>Isodon obesulus</i> (EPBC-e, TSC-e), <i>Darwinia</i>	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, post fire control of <i>Acacia sp.</i>	C-TSC BPWW-5 ID 905  M-RA  KCNP National

				<i>biflora</i> (EPBC-v TSC-v)			heritage list
LHA	Ku-ring-gai Chase National Park	Apple Tree Creek Mt Colah to Apple Tree Bay	<i>Colocasia esculenta</i> purple elephant ears, <i>Andropogon virginicus</i> whiskey grass	Sydney sandstone gully forest	Asset protection	Foliar spray, cut and paint, stem injection, physical / mechanical control	BPWW-5 ID 600  KCNP National heritage list
LHA	Ku-ring-gai Chase National Park	Batching Plant site, Ku-ring-gai Chase Road	<i>Chrysanthemoides monilifera</i> subsp <i>monilifera</i> boneseed (class 2), exotic grasses, <i>Cortaderia selloana</i> pampas grass, <i>Senna pendula</i> var <i>glabrata</i> senna,	Syd sandstone ridgetop woodland	Eradication class 2 boneseed  Asset protection	Foliar spray, splatter gun, cut and paint, physical / mechanical control  Target weed control – boneseed eradication program (HNCMA / Hornsby LGA). Annual monitoring boneseed July - October	C-NE  BPWW-5 ID 610  KCNP National heritage list
LHA	Ku-ring-gai Chase National Park	Berowra Track-head, Berowra Station	<i>Cestrum parqui</i> green cestrum, <i>Erythrina x sykesii</i> coral tree, <i>Solanum mauritianum</i> wild tobacco, <i>Ochna serrulata</i> ochna, <i>Salix babylonica</i> weeping willow, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Cortaderia selloana</i> pampas grass, <i>Stenotaphrum secundatum</i> buffalo grass, thistles, <i>Ageratina adenophora</i> crofton weed, <i>Chamaesyce hirta</i> asthma plant	Syd sandstone ridgetop woodland	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	BPWW-5 ID 617  KCNP National heritage list
LHA	Ku-ring-gai Chase National Park	Freeway drainage lines	<i>Lantana camara</i> , <i>Ipomoea indica</i> morning glory, <i>Ricinus communis</i> castor oil plant, <i>Cortaderia selloana</i> pampas grass, <i>Ageratina</i>	Syd sandstone gully forest	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control,	BPWW-5 ID 751  KCNP

			adenophora crofton weed. exotic grasses, annuals				National heritage list
LHA	Ku-ring-gai Chase National Park	North Turramurra Boundary / APZ (Bobbin Head Road)	<i>Lantana camara</i> , <i>Acacia saligna</i> , <i>Ligustrum sp.</i> Privet, <i>Cortaderia selloana</i> pampas grass, thistles, exotic grasses	Sydney sandstone ridgetop woodland	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control,	BPWW-5 ID 903  KCNP National heritage list
LHA	Ku-ring-gai Chase National Park	North Turramurra Boundary / APZ (Gwydir Avenue)	<i>Lantana camara</i> , <i>Acacia saligna</i> , <i>Erythrium x sykesii</i> coral tree, <i>Ligustrum sp.</i> Privet, <i>Salix babylonica</i> weeping willow, <i>Cortaderia selloana</i> pampas grass, exotic grasses	Sydney sandstone ridgetop woodland	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	BPWW-5 ID 904  KCNP National heritage list
LHA	Ku-ring-gai Chase National Park	North Wahroonga Boundary (Curtin Avenue)	<i>Lantana camara</i> , <i>Acacia saligna</i> , <i>Ligustrum sp.</i> Privet, <i>Cortaderia selloana</i> pampas grass, thistle, exotic grasses,	Sydney sandstone ridgetop woodland	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	BPWW-5 ID 906  KCNP National heritage list
LHA	Ku-ring-gai Chase National Park	Tip site, Ku-ring-gai Chase Road	<i>Erythrina x sykesii</i> coral tree, <i>Cortaderia selloana</i> pampas grass, <i>Ageratina adenophora</i> crofton weed, <i>Senecio petasitis</i> senecio	Sydney sandstone ridgetop woodland, Sydney sandstone gully forest	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	BPWW-5 ID 1021  KCNP National heritage list



LHA	Ku-ring-gai Chase National Park	Sphinx memorial	<i>Lantana camara</i> , <i>Acacia binervia</i> , <i>Ligustrum sp.</i> privet, <i>Ageratina adenophora</i> crofton weed, <i>Hedychium gardnerianum</i> ginger lily, exotic grasses,	Sydney sandstone ridgetop woodland	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	H-CH  BPWW-6 ID 1007  KCNP National heritage list
LHA	Ku-ring-gai Chase National Park	Church street Mount Kuring-gai	<i>Cortaderia selloana</i> pampas grass, <i>Ageratina adenophora</i> crofton weed, <i>Nephrolepis cordifolia</i> fishbone fern, exotic grasses	<i>Epacris crassifolia</i>	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	L-LP  KCNP National heritage list
LHA	Ku-ring-gai Chase National Park	Bobbin Head picnic area	<i>Macfadyena unguis-cati</i> cats claw creeper, <i>Bryophyllum delagoense</i> mother of millions, <i>Ageratina adenophora</i> crofton weed	European cultural heritage: Bobbin Head picnic area shelters and plantings, Bobbin Inn, stone sea walls, cottage (Rangers residence).  High visitation: picnics & visitors information centre.	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control Biological control – cats claw creeper	H-CH local  M-RA  KCNP National heritage list
LHA	Lion Island Nature Reserve	Lion Island	Bitou bush <i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> , <i>lantana camara</i> , <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Acetosa sagittata</i> turkey rhubarb	Themeda ( <i>Themeda triandra</i> ) Grasslands on sea cliffs and coastal headlands in the Sydney Basin Bioregion EEC (TSC-e), little penguin ( <i>Eudyptula minor</i> ) (colony at northern extent of range), open forest & woodland	Asset protection	Aerial spray, foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, biological control	C-TSC BPWW-1 ID 838  Bitou Tap HN-1  Lantana plan 2-144

LHA	Long Island Nature Reserve	Long Island Nature Reserve	<i>Lantana camara</i>	Coastal Saltmarsh EEC (TSC-e), open forest	Asset protection	Confirm weed impact.  Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW-3 ID 841  Lantana plan 4-7
LHA	Maroota Historic Site	Maroota Historic Site	<i>Lantana camara</i> , <i>Bryophyllum delagoense</i> mother of millions, <i>Ageratina adenophora</i> crofton weed, <i>Watsonia</i> sp.	<i>Pimelea curviflora</i> var. <i>curviflora</i> (EPBC-v TSC-v), <i>Micromyrtus blakelyi</i> (EPBC-v TSC-v)  Aboriginal cultural heritage site: National Heritage Register  European cultural heritage: farming landscape local significance	Asset protection	Monitor threatened species presence / absence and weed threat  Foliar spray, splatter gun, cut and paint, physical / mechanical control	C-TSC BPWW ID 859 not ranked  H-CH NHR
LHA	Maroota Ridge State Conservation Area	Maroota Ridge	<i>Lantana camara</i>	<i>Olearia cordata</i> (EPBC-v TSC-v), <i>Zieria involucreta</i> (EPBC-v, TSC-e), <i>Pimelea curviflora</i> var <i>curviflora</i> (TSC-v), moist sclerophyll forest, Powerful owl <i>Ninox strenua</i> (TSC-v), Glossy Black-cockatoo <i>Calyptorhynchus lathami</i> (TSC-v), Yellow-bellied glider <i>Petaurus australis</i> (TSC-v)	Asset protection	Foliar spray, Cut and paint, splatter gun, physical/mechanical removal, naturally occurring biological controls, annual quadrat monitoring	C-TSC BPWW-1 ID 860  Lantana plan 1-37
LHA	Marramarra National Park	Gentlemans Halt	<i>Lantana camara</i>	Coastal Saltmarsh EEC (TSC-e), Swamp Oak Floodplain Forest EEC (TSC-e)  Cultural landscape – early	Asset protection	Foliar spray, Cut and paint, splatter gun, physical / mechanical removal, naturally occurring biological controls, implement Bushcare program	C-TSC BPWW-1 ID 756  Lantana

				river settlement (minimal evidence persists)			plan 1-97  H-CH local
LHA	Marramarra National Park	Marramarra Creek recreational area	<i>Lantana camara</i> Acetosa sagittata turkey rhubarb, <i>Araujia sericiflora</i> moth vine, <i>Solanum mauritianum</i> wild tobacco, <i>Tradescantia fluminensis trad</i>	Swamp Oak Floodplain Forest EEC (TSC-e)  Cultural landscape – early river settlement, orchards local significance	Asset protection	Foliar spray, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW -1 ID 862  H-CH local
LHA	Marramarra National Park	Marramarra Creek houses	<i>Lantana camara</i>	Sydney sandstone gully forest	Asset protection	Foliar spray, cut and paint, stem injection, physical / mechanical control	L-LP
LHA	Marramarra National Park	Singleton Rd, Laughtondale	<i>Lantana camara</i> , <i>Cortaderia selloana</i> pampas grass, <i>Rubus fruticosus</i> agg. blackberry	Coastal saltmarsh EEC (TSC-e), swamp oak floodplain forest EEC (TSC-e), Narrabeen slopes forest (regionally significant), dry sclerophyll forest  Sandstone cottage Laughtondale Gully Road. Local European heritage significance	Asset protection	Foliar spray, cut and paint, splatter gun, physical / mechanical removal  Ensure weeds are prevented from damaging historic building and associated stonework.	C-TSC BPWW new listing  H-CH local
LHA	Marramarra National Park	Laughtondale Gully Rd	<i>Ageratina adenophora</i> crofton weed, <i>Sonchus oleraceus</i> sow thistle  Recovery plan also identifies <i>Capra hircus</i> feral goat as potential threat	<i>Asterolasia elegans</i> (TSC-e) only occurs in northern hills of Sydney, 7 populations, <i>Zieria involucreta</i> (TSC-e), Narrabeen slopes forest (regionally significant), Sydney sandstone gully forest	Asset protection	Foliar spray, cut and paint, splatter gun, physical / mechanical removal  Monitor weed (& goat) encroachment	C-TSC BPWW new listing
LHA	Marramarra	Big Bay	<i>Erythrina x sykesii</i> coral tree, <i>Ageratina adenophora</i> crofton	Coastal Saltmarsh EEC	Asset	Foliar spray, cut and paint, stem injection, physical /	C-TSC BPWW

	National Park		weed	(TSC-e), Estuarine complex  Cultural landscape – early river settlement with various relics remaining	protection	mechanical control	ID 621 not ranked  H-CH local
LHA	Marramarra National Park	Weavers Ridge Trail	<i>Rubus fruticosus</i> agg. blackberry, <i>Cortaderia selloana</i> pampas grass	Sydney sandstone ridgetop woodland	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW ID 1047 not ranked
LHA	Mt Kuring-gai Aboriginal Area	Mt Kuring-gai Aboriginal Area	<i>Lantana camara</i> , <i>Cortaderia selloana</i> pampas grass, exotic grasses	Aboriginal cultural heritage	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	BPWW ID 886 not ranked
LHA	Muogamarra Nature Reserve	Peats Bight track	<i>Solanum viarum</i> tropical soda apple		Local eradication Alert weed	Foliar spray, cut and paint, physical/mechanical removal, monitor twice annually	C-NE
LHA	Muogamarra Nature Reserve	Peats Bight	<i>Lantana camara</i> <i>Ageratina adenophora</i> crofton weed	Coastal Saltmarsh EEC (TSC-e), Swamp Oak Floodplain Forest EEC (TSC-e), Diatreme Vegetation (regionally significant)	Asset protection	Foliar spray, splatter gun, cut and paint, physical/mechanical removal, naturally occurring biological controls, implement Bushcare program	C-TSC BPWW-1 ID 717 & ID 929  Lantana plan 2-135
LHA	Muogamarra Nature Reserve	Milsons Passage south	<i>Lantana camara</i> , <i>Anredera cordifolia</i> Madeira vine, <i>Cortaderia selloana</i> pampas grass, <i>Carpobrotus</i> sp South African pigface, <i>Agave</i> sp.	Coastal Saltmarsh EEC (TSC-e), Sydney Sandstone ridgetop Woodland, Sydney Sandstone Gully Forest	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical, landscaping / planting, implement Bushcare program	C-TSC BPWW-3 ID 877 Lantana plan 3-5
LHA	Muogamarra Nature Reserve	Peats Crater	<i>Lantana camara</i> , <i>Ageratina adenophora</i> crofton weed, <i>Rubus fruticosus</i> agg, blackberry, <i>Solanum mauritianum</i> wild	European cultural heritage landscape (farming)  Cultural heritage planting	Asset protection	Conserve cultural heritage plants but contain to site. Prune some as hedge.	H-CH  C-TSC BPWW-5

			tobacco, <i>Gomphocarpus fruticosus</i> cottonbush, <i>Xanthium occidentale</i> Noogoora burr	Osage Orange  Diatreme Vegetation (regionally significant)		Foliar spray, Cut and paint, splatter gun, physical / mechanical removal, naturally occurring biological controls, implement Bushcare program	ID 718 & ID 925
LHA	Muogamarra Nature Reserve	Flat Rock	<i>Andropogon virginicus</i> whiskey grass, <i>Eragrostis curvula</i> African lovegrass	<i>Micromyrtus blakelyi</i> (EPBC-v TSC-v)	Asset protection	Foliar spray, physical / mechanical control	C-TSC BPWW ID 714 not ranked
LHA	Muogamarra Nature Reserve	Bujwa Trail	<i>Lantana camara</i> , <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Rubus fruticosus</i> agg. blackberry <i>Andropogon virginicus</i> whiskey grass, <i>Cortaderia selloana</i> pampas grass, <i>Eragrostis curvula</i> African lovegrass, <i>Sporobolus africanus</i> Parramatta grass	Sydney sandstone ridgetop woodland and Sydney sandstone gully forest	Asset protection	Foliar spray, physical / mechanical control	L-LP
LHA	Muogamarra Nature Reserve	Djarra Crossing Trail	<i>Andropogon virginicus</i> whiskey grass	Sydney sandstone ridgetop woodland and Sydney sandstone gully forest	Asset protection	Foliar spray, physical / mechanical control	L-LP  C-TSC BPWW ID 720 not ranked
LHA	Muogamarra Nature Reserve	Glendale Road, Cowan	<i>Acetosa sagittata</i> turkey rhubarb, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Andropogon virginicus</i> whiskey grass, <i>Panicum antidotale</i> giant panic grass, <i>Ageratina adenophora</i> crofton weed	Sydney sandstone ridgetop woodland and Sydney sandstone gully forest	Asset protection	Foliar spray, cut and paint, stem injection, physical / mechanical control	L-LP  C-TSC BPWW ID 761 not ranked

LHA	Muogamarra Nature Reserve	Milsons Passage Houses	<i>Lantana camara</i>	Sydney sandstone gully forest	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, fire prescribed burn.	C-TSC BPWW ID 876 not ranked
LHA	Spectacle Island Nature Reserve	Spectacle Island Nature Reserve	<i>Lantana camara</i> , <i>Cortaderia selloana</i> pampas grass	Coastal Saltmarsh EEC (TSC-e), open forest	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Monitor weed distribution and density.	C-TSC BPWW-3 ID 1006  Lantana plan 4-6
LHA	Wisemans Ferry Historic Site	Wisemans Ferry Historic Site	<i>Lantana camara</i> , <i>bidens pilosa</i> cobblers pegs	<i>Olearia cordata</i> (EPBC-v, TSC-v), <i>Ancistrachne maidenii</i> , moist sclerophyll forest  Convict road camp associated with Old Great North Road (recommended for inclusion on <a href="#">State Heritage Register</a> )	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW-1 ID 1066  Lantana plan 1-94  H-CH SHR
NBA							
NBA	Northern Beaches Area	Nursery Group NBA depot		Endemic native plants	Asset protection	Bushcare volunteer program, seed collection & propagation	M-CP
NBA	Garigal National Park	Opposite Baha'i Temple Ingleside	<i>Lantana camara</i> , <i>Acacia saligna</i> , <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Cotoneaster glaucophyllus</i> cotoneaster, <i>Opuntia</i> sp. prickly pear, <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Ageratina</i>	Duffys Forest Ecological Community EEC (TSC-e), <i>Grevillea caleyi</i> (EPBC-e TSC-e), <i>Lomandra brevis</i> ROTAP, <i>Eucalyptus capitellata</i> , <i>Kennedia</i>	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Threatened species fire regime, post fire weed control. Annual monitoring 1 quadrat &	C-TSC BPWW-1 ID 2259

			<i>adenophora</i> crofton weed, <i>Paspalum quadrifarium</i> tussock paspalum	<i>prostrata</i> , <i>Phyllota grandiflora</i> locally threatened		photopoint July.	
NBA	Garigal National Park	Terreys Green Mona Vale rd	<i>Lantana camara</i> , <i>Acacia saligna</i> , <i>Cotoneaster glaucophyllus</i> cotoneaster, <i>Cortaderia selloana</i> pampas grass, <i>Hyparrhenia hirta</i> coolatai grass, <i>Paspalum quadrifarium</i> tussock paspalum	Duffys forest ecological Community EEC (TSC-e), <i>Grevillea caleyi</i> (EPBC-e TSC-e), <i>Lomandra brevis</i> ROTAP, <i>Eucalyptus capitellata</i> & <i>Logania pusilla</i> locally threatened	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Threatened species fire regime, post fire weed control.	C-TSC BPWW-2 ID 2300  Lantana plan 5-19
NBA	Garigal National Park	Bluff Track & Engravings track	<i>Lantana camara</i> , <i>Acacia saligna</i> , <i>Ageratina adenophora</i> crofton weed, <i>Andropogon virginicus</i> whiskey grass, <i>Eragrostis curvula</i> African lovegrass, <i>Paspalum quadrifarium</i> tussock paspalum	<i>Tetradlea glandulosa</i> (EPBC-v TSC-v), Coastal Heath  RWC grass weed control program	Asset protection	Foliar spray, splatter gun, cut and paint, physical / mechanical control	C-TSC BPWW-3 ID new
NBA	Garigal National Park	Cook Street	<i>Lantana camara</i> , <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Senna pendula</i> var <i>glabrata</i> senna <i>Cortaderia selloana</i> pampas grass, <i>Tradescantia fluminensis</i> trad	<i>Melaleuca deanei</i> (EPBC-v; TSC-v), <i>Leptospermum deanei</i> (EPBC-v TSC-v), <i>Angophora crassifolia</i> ROTAP	Asset protection	Foliar spray, splatter gun, cut and paint, physical / mechanical control	C-TSC BPWW-3 ID new
NBA	Garigal National Park	Andrew Street Borghis Street, Stone Parade, Cascades track entrance	<i>Lantana camara</i> , <i>Ludwigia peruviana</i> , <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Anredera cordifolia</i> Madeira vine, <i>Ligustrum</i> sp. privet, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Ageratina adenophora</i> crofton weed, <i>Cortaderia selloana</i> pampas grass, <i>Tradescantia fluminensis</i> trad, <i>Eucalyptus saligna</i> blue gums	<i>Melaleuca deanei</i> (EPBC-v; TSC-v), <i>Leptospermum deanei</i> (EPBC-v TSC-v)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Implement Andrew Street and Stone Parade Bushcare program. Monitoring: presence / absence threatened species	C-TSC BPWW-3 ID new  L-LP

NBA	Garigal National Park	Bare Creek track	<i>Ludwigia peruviana</i> , <i>Ligustrum sp.</i> privet, <i>Ageratina adenophora</i> crofton weed, exotic grasses	<i>Melaleuca deanei</i> (EPBC-v; TSC-v), <i>Leptospermum deanei</i> (EPBC-v TSC-v), Heath	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Monitoring: presence / absence threatened species	C-TSC BPWW-5 ID 2104 rank not published
NBA	Garigal National Park	Lockley Point	<i>Asparagus asparagoides</i> ground asparagus fern, <i>Lantana camara</i> , exotic grasses	Coastal saltmarsh EEC (TSC-e)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Barry Street Bushcare program.	C-TSC BPWW ID 2225 not ranked
NBA	Garigal National Park	Rocky Creek	<i>Tradescantia fluminensis</i> trad, <i>Stenotaphrum secundatum</i> buffalo grass, exotic grasses	Coastal saltmarsh EEC (TSC-e)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Barry Street Bushcare program.	C-TSC BPWW ID 2284 not ranked
NBA	Garigal National Park	East Killara Barry street Bushcare group	<i>Lantana camara</i> , <i>Cortaderia selloana</i> pampas grass, <i>Cinnamomum camphora</i> camphor laurel, <i>Nephrolepis cordifolia</i> fishbone fern, garden escapes	<i>Haloragodendron lucassi</i> , (EPBC-e TSC-e) <i>Tetratheca glandulosa</i> (EPBC-v TSC-v), <i>Lomandra brevis</i> ROTAP, <i>Angophora crassifolia</i> ROTAP, locally threatened  Aboriginal middens	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Barry Street Bushcare program.	C-TSC BPWW add to BPWW & rank
NBA	Garigal National Park	Near Burraneer Avenue	<i>Ligustrum sp.</i> privet, <i>Acetosa sagittata</i> turkey rhubarb, <i>Cortaderia selloana</i> pampas grass exotic grasses	<i>Haloragodendron lucassi</i> (EPBC-e TSC-e), Heath	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Burraneer Bushcare group.	C-TSC BPWW-5 ID 2250 not published
NBA	Garigal National Park	Wentworth St East Killara	<i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush  <i>Lantana camara</i> , <i>Acetosa</i>	Common vegetation association	Local eradication bitou bush	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control.	C-TSC BPWW ID 2331



			<i>sagittata</i> turkey rhubarb, <i>Dipogon lignosus</i> dolichos pea, <i>Solandra</i> sp chalice vine <i>Ligustrum</i> sp privet. <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Solanum mauritianum</i> wild tobacco		Asset protection	Bitou bush local eradication from GNP.  Annual monitoring bitou bush April to July	not ranked  C-NE
NBA	Garigal National Park	Timbergetters Track & Bullock Track	<i>Lantana camara</i> , <i>Acacia saligna</i> , <i>Lophostemon confertus</i> brush box, <i>Ageratina adenophora</i> crofton weed, <i>Paspalum quadrifarium</i> tussock paspalum	<i>Prostanthera marifolia</i> (Seaforth mintbush) (TSC-ce) previously believed extinct, <i>Tetratheca glandulosa</i> (EPBC-v TSC-v), <i>Pimelia curviflora</i> var <i>curviflora</i> (TSC-v)  Historic bullock track. Local significance  RWC grass weed control program	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Monitoring: presence / absence threatened species  Bullock track closed	C-TSC BPWW ID 2306 not ranked  H-CH local
NBA	Garigal National Park	Seaforth Oval	<i>Lantana camara</i> , <i>Paspalum quadrifarium</i> tussock paspalum, <i>Hyparrhenia hirta</i> Coolatai grass, <i>Ageratina adenophora</i> crofton weed	Duffys Forest Ecological Community EEC, <i>Prostanthera marifolia</i> (Seaforth mintbush) (TSC-ce) previously believed extinct, <i>Pimelea curviflora</i> var. <i>curviflora</i> (TSC-v) <i>Eucalyptus capitellata</i>	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Monitoring: presence / absence threatened species	C-TSC BPWW ID not published
NBA	Garigal National Park	Bantry Bay explosives depot	<i>Lantana camara</i> , <i>Cortaderia selloana</i> pampas grass, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Ageratina adenophora</i> crofton weed, exotic climbing fig	Bantry Bay explosives depot SHR 977, ammunition magazines, sandstone walls, trolley-way	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Keep structures free from weeds.	H-CH SHR 977
NBA	Garigal National	Bungaroo / Govenor Phillip	<i>Lantana camara</i> , <i>Asparagus aethiopicus</i> ground asparagus	Governor Philip landing site	Asset	Foliar spray, splatter gun, cut and paint, stem injection,	H-CH

	Park	crossing	fern, <i>Arundo donax</i> giant reed, exotic grasses, widespread weeds	local significance	protection	physical / mechanical control.	
NBA	Garigal National Park	Babbage Ravine – Davidson Park	<i>Acetosa sagittata</i> turkey rhubarb, <i>Lonicera japonica</i> Japanese honeysuckle, <i>Ligustrum sp.</i> privet, <i>Cinnamomum camphora</i> camphor laurel, <i>Ochna serrulata</i> ochna, <i>Olea europaea</i> subsp. <i>cuspidate</i> African olive, <i>Paspalum quadrifarium</i> tussock paspalum, <i>Tradescantia fluminensis</i> trad	Sydney sandstone gully forest  High visitation Picnic Area  RWC grass weed control program	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Babbage Ravine Bushcare group,	M-RA
NBA	Garigal National Park	Calool Crescent - Belrose	<i>Arundo donax</i> giant reed, <i>Cortaderia selloana</i> pampas grass, garden escapes	Sydney sandstone ridgetop woodland, Sydney sandstone gully forest	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Calool Crescent Bushcare group	L-LP
NBA	Garigal National Park	Ferguson Street East - Forestville	<i>Anredera cordifolia</i> Madeira vine, <i>Jasminum sp.</i> jasmine, <i>Thunbergia alata</i> black-eyed Susan, <i>Erythrina x sykesii</i> coral tree, <i>Ricinus communis</i> castor oil plant	Sydney sandstone ridgetop woodland	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Fergusson Street East Bushcare volunteer group	L-LP
NBA	Garigal National Park	Ferguson Street West - Forestville	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>Anredera cordifolia</i> Madeira vine, <i>Ipomoea indica</i> morning glory <i>Erythrina x sykesii</i> coral tree, <i>Psoralea pinnata</i> blue psoralea, <i>Paspalum quadrifarium</i> tussock paspalum	Sydney sandstone ridgetop woodland	Containment psoralea  Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Fergusson Street West Bushcare volunteer group.	L-LP
NBA	Garigal National Park	Starkey Street – Killarney	<i>Lantana camara</i> , <i>Acetosa sagittata</i> turkey rhubarb, <i>Cardiospermum grandiflorum</i>	<i>Tetradlea glandulosa</i> (EPBC-v TSC-v), <i>Angophora crassifolia</i> ROTAP,	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control.	C-TSC add to BPWW &

		Heights	balloon vine, <i>Rubus fruticosus</i> agg. blackberry, <i>Erythrina x sykesii</i> coral tree, <i>Ochna serrulata</i> ochna, <i>Ricinus communis</i> castor oil plant, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Bryophyllum delagoense</i> mother of millions, <i>Phyllostachys spp.</i> bamboo	Pseudophryne australis (TSC-v)		Starkey Street Bushcare group. Monitoring: presence / absence threatened species	rank L-LP
NBA	Garigal National Park	Tryon Road–East Lindfield	<i>Lantana camara</i> , <i>Rubus fruticosus</i> agg. blackberry, <i>Ligustrum sp.</i> privet, <i>Senna pendula</i> var <i>glabrata</i> senna	Sydney sandstone ridgetop woodland  Park entrance / track head	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control Support Tryon Road Bushcare group	L-LP
NBA	Garigal National Park	Killarney Drive – Killarney.Hts	<i>Lantana camara</i> , <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Senna pendula</i> var <i>glabrata</i> senna <i>Ligustrum sp.</i> privet, <i>Cinnamomum camphora</i> camphor laurel, garden escapes	Sydney sandstone ridgetop woodland  Park entrance / track head	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare group	L-LP
NBA	Garigal National Park	Davidson Park  Area 5	<i>Lantana camara</i> , <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Ipomoea cairica</i> coastal morning glory, <i>Lonicera japonica</i> Japanese honeysuckle, <i>Genista monspessulana</i> montpellier broom, <i>Solanum mauritianum</i> wild tobacco	Revegetation area, fishing and bushwalking	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control, planting / landscaping. Bayer corporate group volunteer program	L-LP
NBA	Garigal National Park	5 Mile Trail & ABC Site	<i>Lantana camara</i> , <i>Andropogon virginicus</i> whiskey grass, <i>Cortaderia selloana</i> pampas grass, <i>Eragrostis curvula</i> African lovegrass, <i>Paspalum quadrifarium</i>	ABC Film site rehabilitation  RWC grass weed control program	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	M-CP

			tussock paspalum, <i>Ricinus communis</i> castor oil plant				
NBA	Garigal National Park	Works depot & office	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>Ipomoea cairica</i> coastal morning glory, <i>Eucalyptus saligna</i> blue gum	Area office	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Autism program	M-RA
NBA	Garigal National Park	Flat rock – Downpatrick Road – Killarney Heights	<i>Rubus fruticosus</i> agg. blackberry, <i>Ligustrum</i> sp. privet, <i>Senna pendula</i> var. <i>glabrata</i> senna, <i>Tradescantia fluminensis</i> trad, <i>Phyllostachys</i> spp. Bamboo, <i>Nephrolepis cordifolia</i> fishbone fern	Sydney sandstone ridgetop woodland  Park entry/ track head	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare (Scouts) volunteer program.	L-LP
NBA	Garigal National Park	Fireclay Gully trail (off Heath Trail)	<i>Lantana camara</i> , <i>Erythrina crista-galli</i> cockspur coral tree, <i>Psoralea pinnata</i> blue psoralea, <i>Ageratina adenophora</i> crofton weed, <i>Cortaderia selloana</i> pampas grass	Coastal heath  <i>Isodon obesulus</i> subsp. <i>obesulus</i> southern brown bandicoot (EPBC-e, TSC-e) habitat, <i>Boronia serrulata</i> ROTAP	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control.	C-TSC add to BPWW & rank
NBA	Garigal National Park	Slippery Dip track Model Aircraft Club trail	<i>Paspalum quadrifarium</i> tussock paspalum, <i>Cortaderia selloana</i> pampas grass, exotic grasses	Coastal heath	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control.	M-CP
NBA	Ku-ring-gai Chase National Park	Valet stockpile	<i>Acacia saligna</i> , <i>Ageratina adenophora</i> crofton weed, <i>Andropogon virginicus</i> whiskey grass, <i>Eragrostis curvula</i> African lovegrass, <i>Paspalum quadrifarium</i> tussock paspalum, <i>Coreopsis lanceolata</i> coreopsis,	Stockpile site/rehabilitation site. Soil stockpiles to be kept clean of weeds.  Adjacent: Coastal Heath, <i>Isodon obesulus</i> subsp. <i>obesulus</i> southern brown bandicoot habitat, <i>Grevillea</i>	Containment  Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control  Soil stockpiles to be kept clean of weeds.	C -NE

				<i>caleyi</i> (EPBC-e, TSC-e)			
NBA	Ku-ring-gai Chase National Park	West Head peninsula: Commodore Heights, West Head gate, McCarrs Creek	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> boneseed (class1)	Class 2 eradication program. Boneseed believed to be eradicated.	Eradication class 2 boneseed	Foliar spray, splatter gun, cut and paint, physical / mechanical control. Boneseed eradication program (HNCMA). Annual monitoring July – October confirm absence.	C-NE
NBA	Ku-ring-gai Chase National Park	Towlers Bay - Lovett Bay	<i>Lantana camara</i> , <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Acetosa sagittata</i> turkey rhubarb, , <i>Senna pendula</i> var. <i>glabrata</i> senna, <i>Phyllostachys aurea</i> bamboo, <i>Ailanthus altissima</i> tree of heaven, exotic grasses	Pittwater Spotted Gum Forest EEC (TSC-e), Littoral rainforest EEC (EPBC-ce TSC-e), Coastal Saltmarsh EEC (TSC-e), <i>Isodon obesulus obesulus</i> southern brown bandicoot (EPBC-e TSC-e), <i>Petaurus norfolcensis</i> squirrel glider (TSC-v), <i>Ninox strenua</i> Powerful Owl (TSC-v)  Cultural heritage – aboriginal repatriation site.	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program, Corporate / YHA volunteer program.  Aboriginal repatriation site any work done to be in accordance with CCHD	C-TSC BPWW-1 ID 1025  Lantana plan 2-47  H-CH
NBA	Ku-ring-gai Chase National Park	South end of Lovett Bay	<i>Nephrolepis cordifolia</i> fishbone fern, garden escapes	Littoral rainforest EEC (EPBC-ce TSC-e)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW-4 ID 1000
NBA	Ku-ring-gai Chase National Park	Barrenjoey Headland	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>Lantana camara</i> , <i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush, <i>Cestrum parqui</i> green cestrum, <i>Erythrina x sykesii</i> coral tree, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Bougainvillea</i> sp., <i>Delairea odorata</i> cape Ivy, <i>Bryophyllum delagoense</i> mother	Littoral Rainforest EEC (EPBC-ce, TSC-e), Themeda grasslands EEC (TSC-e).  European cultural heritage: lighthouse precinct SHR 979, customs house precinct.  High visitation: scenic values		Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control Bushcare volunteer program, Pittwater LGA Asparagus Fern Out Days	C-TSC BPWW-1 ID 607 & 608  Bitou TAP cat-1 HN2  Lantana plan 2-159

			of millions				H-CH SHR 979
NBA	Ku-ring-gai Chase National Park	Tumbledown Dick Hill	<i>Acacia saligna</i> , <i>Ipomoea indica</i> Morning Glory, <i>Cortaderia</i> <i>selloana</i> pampas grass, <i>Hyparrhenia hirta</i> Coolatai grass, <i>Paspalum quadrifarium</i> tussock paspalum, <i>Ricinus communis</i> castor oil plant	Duffys Forest EEC (TSC-e), Grevillea caleyi (EPBC-e TSC-e), <i>Pimelea curviflora</i> var. <i>curviflora</i> (TSC-v), <i>Tetratheca glandulosa</i> (EPBC-v TSC-v), <i>Lomandra</i> <i>brevis</i> ROTAP, <i>Hakea</i> <i>bakeriana</i> & <i>Persoonia</i> <i>grandiflora</i> locally threatened, <i>Phyllota grandiflora</i> biogeographically significant	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Minor follow up only.	C-TSC BPWW-1 ID 1028
NBA	Ku-ring-gai Chase National Park	Diatreme Veg at Commodore Hts	<i>Lantana camara</i>	Diatreme Vegetation association (regionally significant)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW-1 ID 716
NBA	Ku-ring-gai Chase National Park	Resolute to West Head	<i>Lantana camara</i> , <i>Asparagus</i> <i>africanus</i> climbing asparagus fern, <i>Senna pendula</i> var. <i>glabrata</i> senna, <i>Cenchrus echinatus</i> Mossman River grass	Diatreme Vegetation association (regionally significant)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW-1 ID 962
NBA	Ku-ring-gai Chase National Park	West head Headland	<i>Lantana camara</i> , <i>Bryophyllum</i> <i>delagoense</i> mother of millions, <i>Senna pendula</i> var. <i>glabrata</i> senna, <i>Cenchrus echinatus</i> Mossman River grass	Themeda Grassland EEC (TSC-e)  WW11 military fortifications & infrastructure  West head lookout high visitation, scenic and	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Bushcare volunteer program.	C-TSC BPWW-2 ID 1052

				landscape values			
NBA	Ku-ring-gai Chase National Park	Par 3 Golf driving range Larool road, Mona Vale Road, Ryland Trail  Kierans creek	<i>Lantana camara</i> , <i>Cotoneaster glaucophyllus</i> cotoneaster, <i>Senna pendula</i> var. <i>glabrata</i> senna, <i>Ageratina adenophora</i> crofton weed, cestrum, <i>Solanum mauritianum</i> wild tobacco, <i>Ricinus communis</i> castor oil, <i>Andropogon virginicus</i> whiskey grass, <i>Eragrostis curvula</i> African lovegrass  <i>Ludwigia peruviana</i>	Duffys Forest ecological community (TSC-e), <i>Grevillea caleyi</i> (EPBC-e TSC-e), <i>Angophora crassifolia</i> , <i>Corybas undulatus</i> , <i>Lomandra brevis</i> ROTAP, <i>Eucalyptus capitellata</i> , <i>Logonia pusilla</i> & <i>Prasophyllum brevifolium</i> locally threatened, <i>Phyllota grandiflora</i> biogeographically significant, <i>Corybas undulatus</i> not known in any other DFEC remnant	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW-1 ID 766  Lantana plan 2 - 131
NBA	Ku-ring-gai Chase National Park	Perimeter trail	<i>Lantana camara</i> , <i>Cortaderia selloana</i> pampas grass, <i>Andropogon virginicus</i> whiskey grass, <i>Eragrostis curvula</i> African lovegrass, exotic grasses, <i>Erythrina x sykesii</i> coral tree, <i>Ageratina adenophora</i> crofton weed	Duffys Forest ecological Community(TSC-e), <i>Cardamine paucijuga</i> , <i>Gahnia radula</i> , <i>Logonia pusilla</i> , <i>Prostanthera denticulata</i> , <i>Pultenaea hispidula</i> & <i>Pultenaea scabra</i> var. <i>biloba</i> locally threatened, <i>Astrotricha floccosa</i> & <i>Phyllota grandiflora</i> biogeographically significant, <i>Amperea xiphoclada</i> var. <i>papillata</i> , <i>Cardamine paucijuga</i> not known in other DFEC	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control Duffys Forest Bushcare volunteer group  Herbicide trial site	C-TSC BPWW-2 not published
NBA	Ku-ring-gai Chase National Park	Mackerel Beach	<i>Asparagus africanus</i> climbing asparagus fern, <i>Asparagus aethiopicus</i> ground asparagus fern	Swamp Oak Floodplain Forest (TSC-e)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW-2 not published

NBA	Ku-ring-gai Chase National Park	Elvina Bay	<i>Lantana camara</i> , <i>Asparagus aethiopicus</i> ground asparagus fern, <i>Acetosa sagittata</i> turkey rhubarb, <i>Senna pendula</i> var. <i>glabrata</i> senna, annuals, <i>Nephrolepis cordifolia</i> fishbone fern, <i>Phyllostachys aurea</i> bamboo, exotic grasses, garden escapes	Pittwater Spotted Gum Forest (TSC-e)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Elvina Bay Bushcare volunteer group, Pittwater LGA Asparagus Fern Out Day	C-TSC BPWW-4 ID 736
NBA	Ku-ring-gai Chase National Park	Portuguese beach	<i>Lantana camara</i> , <i>Senna pendula</i> var. <i>glabrata</i> senna, <i>Cenchrus echinatus</i> Mossman River grass	Themeda ( <i>Themeda triandra</i> ) grasslands on sea cliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner bioregions EEC (TSC-e)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW-4 ID 941
NBA	Ku-ring-gai Chase National Park	Resolute beach	Lantana, <i>Ageratina adenophora</i> crofton weed	Themeda ( <i>Themeda triandra</i> ) grasslands on sea cliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner bioregions EEC (TSC-e)  High visitation beach	Asset protection	Spot spraying, (hand held), cut & paint, hand-weeding	C-TSC add to BPWW & rank  M-RA  M-NH
NBA	Ku-ring-gai Chase National Park	Hungry Beach	<i>Lantana camara</i> , <i>Eragrostis curvula</i> African lovegrass, <i>Cenchrus echinatus</i> Mossman River grass, <i>Bryophyllum delagoense</i> mother of millions	Themeda ( <i>Themeda triandra</i> ) grasslands on sea cliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner bioregions EEC (TSC-e)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW-2 ID 795



				WW11 military fortifications			
NBA	Ku-ring-gai Chase National Park	Ridgetop tracks west head peninsula  including Bairne track	<i>Acacia saligna</i> , <i>Ageratina adenophora</i> crofton weed, <i>Cortaderia selloana</i> pampas grass <i>Andropogon virginicus</i> whiskey grass, <i>Eragrostis curvula</i> African lovegrass	<i>Persoonia hirsuta</i> population (TSC-v), coastal heath (Bairne Track)  <i>Tetradlea glandulosa</i> (EPBC-v, TSC-v)  <i>Boronia serrulata</i> ROTAP	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC BPWW-4 ID 604 & ID1018
	Ku-ring-gai chase National Park	Cicada Glen	<i>Lantana camara</i> , <i>Ipomoea indica</i> morning glory, <i>Ageratina riparia</i> mistflower, <i>Ageratina adenophora</i> crofton weed, <i>Tradescantia fluminensis</i> trad	Littoral rainforest EEC  Park entry sign	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	C-TSC add to BPWW & rank  M-RA
NBA	Ku-ring-gai Chase National Park	The Basin campground & terraces	<i>Lantana camara</i> , <i>Cortaderia selloana</i> pampas grass, <i>Ageratina adenophora</i> crofton weed, <i>Senna pendula</i> var <i>glabrata</i> senna <i>Rubus fruticosus</i> agg. blackberry, <i>Nephrolepis cordifolia</i> fishbone fern,	The Basin historic heritage associations, state significance. The Basin terraces (sandstone walls).  High visitation camping and day use area	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control. Corporate volunteer program	H-CH state
NBA	Ku-ring-gai Chase National Park	Old YHA site (Morning Bay)	<i>Erythrina x sykesii</i> coral tree, <i>Pinus radiata</i> radiata pine, <i>Cestrum parqui</i> green cestrum, <i>Ageratina adenophora</i> crofton weed, <i>Tradescantia fluminensis</i> trad, garden escapes	House site – foundations, terraces (sandstone walls) & sandstone wharf. Local significance	Asset protection	Spot spraying, (hand held & splatter gun), cut & paint, hand-weeding	H-CH local
NBA	Ku-ring-gai Chase National	West Head Flannel Flower Beach to	<i>Lantana camara</i> , <i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> bitou bush,	military installations - observation post, gun emplacements, search light	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection,	H-CH local

	Park	Hungry Beach	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>Ageratina adenophora</i> crofton weed, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Bryophyllum delagoense</i> mother of millions, <i>Cenchrus echinatus</i> Mossman River grass	stations, trolley-way, huts and other structures		physical / mechanical control.  Control not currently feasible	
NBA	Ku-ring-gai Chase National Park	RSL caves	<i>Lantana camara</i> , <i>Cortaderia selloana</i> pampas grass, <i>Ageratina adenophora</i> crofton weed, <i>Gomphocarpus fruticosus</i> cottonbush	RSL cave- historic occupation, graffiti & relics & Aboriginal shelters & middens	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	H-CH local
NBA	Ku-ring-gai Chase National Park	Hunting site  Larool Road Terrey Hills	<i>Lantana camara</i> , <i>Senna pendula</i> var <i>glabrata</i> senna <i>Salix</i> sp. Willows, <i>Ageratina adenophora</i> crofton weed, <i>Erythrina x sykesii</i> coral tree, <i>Cortaderia selloana</i> pampas grass, <i>Ligustrum sinensis</i> small leaf privet	Aboriginal cultural heritage site: engravings	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	H-CH
NBA	Ku-ring-gai Chase National Park	House site White Horse Beach	<i>Lantana camara</i> , <i>Cestrum parqui</i> green cestrum, <i>Tecoma capensis</i> cape honeysuckle, <i>Ageratina adenophora</i> crofton weed, <i>Gomphocarpus fruticosus</i> cottonbush	House site - foundations, sandstone terraces,/ walls, bullock track. Local significance.	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	H-CH local  L-LP
	Ku-ring-gai chase National Park	Fishermans beach	<i>Erythrina x sykesii</i> coral tree, <i>lantana camara</i>	Sydney coastal dry sclerophyll forest	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	M-RA
NBA	Ku-ring-gai Chase National Park	Flint and Steel Beach & creek & track	<i>Lantana camara</i> , <i>Ageratina adenophora</i> crofton weed, <i>Senna pendula</i> var <i>glabrata</i> senna, <i>Gomphocarpus fruticosus</i> cottonbush, <i>Andropogon virginicus</i> whiskey grass,	Sydney coastal dry sclerophyll forest, Diatreme vegetation association	Asset protection	Spot spraying, (vehicle, hand held), cut & paint, drill, hand-weeding	M-RA  M-NH

			<i>Eragrostis curvula</i> African lovegrass	High visitation beach			
NBA	Ku-ring-gai Chase National Park	Terrey hills entrance (old VES & road island)	<i>Acacia saligna</i> , <i>Pennisetum sp</i> kikuyu, <i>Coreopsis lanceolata</i> coreopsis, <i>Cortaderia selloana</i> pampas grass, <i>Andropogon virginicus</i> whiskey grass, <i>Eragrostis curvula</i> African lovegrass	High profile park entrance  Liberator General San Martin's monument (cultural heritage)	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	M-RA
NBA	Ku-ring-gai Chase National Park	Cottage Point	<i>Asparagus aethiopicus</i> ground asparagus fern, <i>Nephrolepis cordifolia</i> fishbone fern, <i>tradescantia fluminensis</i> trad, mother of millions, <i>Rubus fruticosus</i> agg. blackberry, <i>Ehrharta erecta</i> ehrharta,	Sydney coastal dry sclerophyll forest	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control Cottage Point Bushcare volunteer group	L-LP
NBA	Ku-ring-gai Chase National Park	Coasters Retreat	<i>Lantana camara</i> , <i>Delairea odorata</i> cape ivy, Japanese honeysuckle, <i>Bryophyllum delagoense</i> mother of millions	Sydney coastal dry sclerophyll forest	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control Coaster's Retreat Bushcare volunteer group	L-LP
NBA	Ku-ring-gai Chase National Park	West head gate	<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> boneseed (class1), <i>Rubus fruticosus</i> agg. blackberry, <i>Ageratina adenophora</i> crofton weed, <i>Gomphocarpus fruticosus</i> cottonbush, <i>Paspalum quadrifarium</i> tussock paspalum, <i>Andropogon virginicus</i> whiskey grass, <i>Eragrostis curvula</i> African lovegrass	Sydney coastal dry sclerophyll forest,	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control see above C-NE ensure site is free of boneseed	L-LP
NBA	Ku-ring-gai Chase National	McCarrs Creek catchment, Wirrianda creek	<i>Cortaderia selloana</i> pampas grass, <i>lantana camara</i> , <i>ludwigia</i>	Sydney coastal dry	Asset	Foliar spray, splatter gun, cut and paint, stem injection,	L-PP

	Park	& tributaries	<i>peruviana</i> primrose	sclerophyll forest	protection	physical / mechanical control	
NBA	Ku-ring-gai Chase National Park	Smiths Creek catchment Perimeter trail, trail Nerang Ave	<i>Cortaderia selloana</i> pampas grass, <i>ludwigia peruviana</i> , <i>lantana camara</i> , <i>Ageratina adenophora</i> crofton weed	Coastal saltmarsh EEC (TSC-e), weeds in upper catchment  Sydney coastal dry sclerophyll forest	Asset protection	Foliar spray, splatter gun, cut and paint, stem injection, physical / mechanical control	L-PP

## 6. Consultation

The Metro North East Region Regional Pest Management Strategy was developed through consultation with external and internal stakeholders.

A Pest Management Strategy stakeholder forum for external stakeholders was conducted at Jenkins Hall Lane Cove on Tuesday 23<sup>rd</sup> August 2011. For invitees that could not attend on the day comment against two focus questions was invited via email. The Deputy Chief Executive of the Parks and Wildlife Group, MNER Regional Manager and the MNER Pest Management Officer represented NPWS. A diverse range of government and community representatives participated including representatives of the Sydney Metropolitan and Hawkesbury Nepean Catchment Management Authorities, the Cumberland Livestock Health and Pest Authority, local Councils and other state government land management agencies, the NSW Farmers Association, the Australian Deer Association, representatives from the NPWS Regional Advisory Committee, Bushcare volunteers, community group representatives and park neighbours.

Two focus questions were posed:

- What do you see as the most important issues that need to be addressed in the regional pest management strategy?
  - What do you see as some of the strategies to help address these important areas or issues in the regional pest management strategy

The key issues and strategies identified are outlined below with links or comments as to how these will be addressed by the strategy or at another level by NPWS. Part A section 6 of this strategy outlines pest management logic, provides seven principles of pest management and defines goals objectives and actions for the effective management of pests by NPWS. Key performance indicators are included so outcomes are measurable and reportable.

Issues and strategies identified:

- the need for prioritisation of pest management programs
  - identify high value assets at risk (objective 2.1)
  - identify vulnerability and capacity especially to new incursions and species (see objective 1.1)
  - set realistic management objectives (objective 2.1)
  - allocate resources for a long term commitment (objective 3.1)
  - prioritise at a state, regional and local scale (objective 2.1)
    - review existing plans, priorities and data
    - collect baseline data, including mapping and surveys
    - understand pest biology and the interaction between pests and assets to be protected
    - develop a priority matrix
    - ensure longevity of investment and sustainability of program
- the need for collaboration between stakeholders
  - investigate opportunities where stakeholder partnerships can add value to pest management (objective 3.2)
  - identify community engagement programs (objective 3.2)
  - identify links with other plans and strategies (objective 2.1 and Part A section 4 context)

- develop messages for communication and education programs (objective 3.2)
- liaise at a local, regional and state level (objective 2.2)
  - utilise existing committees RWC, UFAAG
  - volunteer involvement in control programs, surveys, activities
  - *regional liaison carried over to state stakeholders forum*
- the need for communication, education and awareness raising
  - Outline objectives for communications e.g. behavioural change, attitude change (objective 3.2)
  - develop simple key messages (objective 3.2)
  - identify knowledge gaps and opportunities for research (objective 1.1 & 2.2)
  - give ownership to stakeholders, community, neighbours (objective 3.2)
  - monitor, review and report on control programs and issues (objective 3.4)
    - engage specialists to develop messages
    - build on existing educational materials and programs (DPI, DET syllabus)
    - work with industry, business, tourism
    - utilise existing committees
    - utilise advertising, electronic media, word of mouth
    - provide government and educational institutions with list of programs and issues to guide potential research projects
    - promote achievements

A state level consultation forum was also facilitated by the Deputy Chief Executive and Pest Management Unit representatives. Some issues raised at the regional forum were carried over to the state forum for example collaboration on control programs involving state wide agencies and interest groups.

Internal liaison was also undertaken by way of workshops conducted with each operational Area. Area Managers, Senior Field Supervisors, Ranger's and Field officers were informed of the aims, objectives and prioritisation processes of the strategy and invited to provide input and comment in order to accurately identify and prioritise pest management programs. Staff input will be an ongoing commitment over the life of the strategy as pest programs and issues are subject to change and the table of prioritised programs will be kept live on the MNER share drive to facilitate updates.

*Following the preparation of the draft Pest Management Strategy, the document will be placed on public exhibition for 90 days and comments invited from the community, other government agencies and stakeholder groups. Further consultation with internal and external stakeholders will also be held during this period. Comments will be addressed and points of significance noted here.*

## **7. Pest species overviews**

Information about high profile pests for this region is summarised below. More details regarding the distribution, impacts and management options for these and other pest species can be found in other reference documents including the following web pages:

<http://www.dpi.nsw.gov.au/agriculture/pests-weeds/vertebrate-pests/general-information/pest-animal-survey>

<http://environment.gov.au/biodiversity/invasive/publications/humane-control.html>

<http://www.invasiveanimals.com/>

<http://www.environment.gov.au/biodiversity/invasive/ferals/index.html>

<http://www.environment.nsw.gov.au/threatenedspecies/KeyThreateningProcessesByDoctype.htm>

<http://www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/profiles>

<http://www.weeds.org.au/WoNS/>

[http://www.rirdc.gov.au/programs/national-rural-issues/weeds/weeds\\_home.cfm](http://www.rirdc.gov.au/programs/national-rural-issues/weeds/weeds_home.cfm)

<http://www.weeds.gov.au/>

## Red fox (*Vulpes vulpes*)

### Distribution and abundance

Foxes are widespread, they occur in most environments in Australia, however, they are generally most abundant in agricultural areas with patches of uncleared vegetation, because these areas provide abundant food, cover and denning sites. Foxes can also reach high levels of abundance and be widespread through urban areas. In contrast, foxes appear to be rare in closed forest distant from cleared land.

Foxes occur throughout the Metro North East Region, in both urban areas away from bushland and in parklands and bushland reserves.

### Impacts

The introduction of foxes into Australia has had a devastating impact on native fauna, particularly among medium-sized (450-5000 g) ground-dwelling and semi-arboreal mammals, ground-nesting birds and freshwater turtles. Recent studies have shown that predation by foxes continues to suppress remnant populations of many such species. Foxes have also caused the failure of several attempts to reintroduce native fauna into areas of their former range. Predation by foxes was the first *key threatening process* to be listed under the NSW Threatened Species Conservation Act 1995 and a Threat Abatement Plan has been prepared (Fox TAP). Foxes are also significant predators of domestic stock including lambs and poultry; predation by foxes has the potential to reduce lambing rates significantly although there is no statutory requirement under the Rural Lands Protection Act 1998 (RLP Act) for the control of foxes, they are classed as vermin. The National Parks and Wildlife Service is only responsible for the control of foxes on park estate and in accordance with set priorities predominantly those determined by the Fox TAP 2010.

The common native species most likely to be impacted at the population level in the Metro North East Region include brushtail possum (*Trichosurus vulpecular*), swamp wallaby (*Wallabia bicolor*), and ground-nesting birds such as superb lyrebird (*Menura novaehollandiae*). Of greater concern is the impact of fox predation to a number of threatened species that reside or periodically occur in the region, including: the endangered southern brown bandicoot (*Isoodon obesulus* subsp. *obesulus*), an endangered population of little penguin (*Sterna albifrons*) at Manly and an endangered population of long-nosed bandicoot (*Perameles nasuta*) at North Head, the endangered inner west population of long-nosed bandicoot and also to long-nosed bandicoot classed as common but considered to be uncommon in urban areas throughout their range e.g. Sydney Harbour National Park (HNA). Foxes may also pose a threat to bush-stone curlew (*Burhinus grallarius*) that nest occasionally at Careel Bay and also little tern (*Sterna albifrons*) and other endangered shorebirds that may nest occasionally on the northern shores of Botany Bay National Park. Fox predation will also reduce the likelihood of the successful reintroduction of native rats (*Rattus fuscipes*) and displacement of exotic rats in Sydney Harbour National Park a joint project with the University of Sydney.

There are no major agricultural impacts of foxes in Metro North East Region; however there are occasions when foxes cause significant impact to the core business of some park neighbours for example harm to captive populations of study animals at NSW University's field studies centre within Marramarra Nature Reserve.



## Priorities for control

Kuring-gai Chase and Garigal National Parks have been identified as priority sites in the NSW Fox Threat Abatement Plan (Fox TAP) for the conservation of the endangered (EPBC & TSC Act) southern brown bandicoot. Fox control is also a priority under the recovery plan and PAS for the species. Southern brown bandicoots are distributed patchily through Ku-ring-gai and Garigal NPs and despite their low numbers these populations are probably the best in NSW. Garigal is a treatment site and Ku-ring-gai is a non treatment site under the Fox TAP.

North Head / Manly is a priority site for the conservation of an endangered population of little penguins (*Eudyptula minor*) (TSC Act) and an endangered population of long-nosed bandicoots (TSC Act) under the Fox TAP and respective recovery plans and PAS.

Fox predation in conjunction with domestic dog and cat predation, habitat loss and road mortality is a key threat to the small, fragmented and disjunct inner west population of long-nosed bandicoots. Should long-nosed bandicoots be confirmed in Wolli Creek National Park the addition of the site to the Fox TAP and introduction of fox control be given due consideration.

Whilst PAS actions for eastern bent wing bat include fox control there is no quantifiable evidence that this is a significant effect to bat roosts in MNER at this time, bat roosts should be monitored and reactive fox control implemented where predation becomes evident.

Sydney University in conjunction with NPWS reintroduced native rats (*Rattus fuscipes*) to Sydney Harbour (north) National Park in August 2011. Fox control will be undertaken as a priority in Sydney Harbour (north) National Park to mitigate the effects of predation and promote best chance of success for native rats to re-establish, this project will be reassessed annually.

The Sydney North Regional Fox Control Program is a cross tenure multi agency program that aims to reduce fox numbers across the landscape of Northern Sydney to protect common species becoming uncommon in urban bushland and to create a buffer zone around Fox TAP sites. NPWS has invested in over 10 years of fox control in Lane Cove National Park and Sydney Harbour National Park with anecdotal evidence suggesting benefit to long nosed bandicoot, swamp wallaby and ground dwelling birds.

## Control

Control at each Fox TAP site will be as per approved Fox TAP site management plans. Principle methods of control at the Garigal and North Head Fox TAP sites are intensive broad-area 1080 ground baiting including the use of ejectors. Secondary methods including, ground shooting, den fumigation and cage trapping will be employed as per site plans. The use of Para-aminopropiophenone (PAPP) will be given due consideration should it become available.

## Monitoring

The impact of fox predation on southern brown bandicoots and the effectiveness of the control program are being assessed through long-term monitoring of southern brown bandicoot and fox populations. Bandicoot populations are measured annually in spring via cage trapping, annual camera monitoring in autumn may also be used. Fox and other medium-sized mammal populations are measured biannually via track counts on sand-pads in May and November. Data is analysed by the Pest

Management Unit and published periodically as part of the review of the Fox Threat Abatement Plan.

Long nosed bandicoot and little penguin are subject to annual monitoring under their respective recovery plans. A mortality register is kept for both species and cause of death investigated. Fox activity at North Head is monitored quarterly via track counts on sand-pads. Data is analysed by the Harbour North Area and threatened species officers of the biodiversity conservation section of the OEH.

Native bush rat survival rates and exotic rat displacement in Sydney Harbour National Park are being monitored and analysed by Sydney University students in 2012.

Monitoring data collected under these systematic monitoring programs will be submitted into the Biological Survey Subsystem of the Wildlife Atlas.

## **Rabbit (*Oryctolagus cuniculus*)**

### **Distribution and abundance**

Rabbits are found in most habitats throughout Australia below the tropic of Capricorn. The rabbit is considered one of the fastest colonising mammals in the world and can achieve high densities in some agricultural and urban areas.

Rabbits are common across the Metro North East Region, generally as scattered populations in areas of high protein grass availability. Rabbits are able to breed year round in Sydney due to usually good rainfall and resultant high protein grass, because of this they are most evident in and adjacent to cleared areas like picnic areas in National Parks and on bushland edges. Their numbers fluctuate in response to conditions (peaking in spring and summer) and also to outbreaks of naturally occurring myxomatosis (usually annually in February – March). Rabbits are also highly mobile and will disperse and colonise new areas when conditions are favourable.

### **Impacts**

Rabbits are one of Australia's major agricultural pests and the feral European rabbit is a declared pest animal under the RLP Act, its control is the responsibility of the land manager. In the Metro North East Region agricultural and economic impacts are minimal but rabbits do cause nuisance on lifestyle properties and to small business (rural and urban) and in some suburban neighbourhoods.

Competition and grazing by the feral European rabbit has been listed as a Key Threatening Process under the TSC Act.

Control of the domestic rabbit is not covered under legislation. However the impacts of feral domestic rabbits will be considered the same as the feral European rabbit and they will be subject to control on parks estate in the Region. Domestic rabbits interbreed with feral European rabbits, impact the environment and there may be implications for their control e.g. vaccination against Rabbit Haemorrhagic Disease.

Rabbits have significant impacts on native vegetation. Selective grazing and browsing of more palatable species leads to changes in species composition and habitat structure even at low rabbit densities. Rabbits can prevent the regeneration of impacted species through consumption of seed and seedlings, this is often worse in bushland regenerating after fire. Their digging activities scratch out seedlings and damage root systems, which can lead to decline in native species and increase soil erosion and degradation.

Native fauna may be impacted by rabbits through competition for food and shelter. Where topography and geology are non favourable for rabbits to burrow such as in Sydney Sandstone, rabbits occupy above ground harbour, such as tussock grasses and low growing shrubs, fallen timber, hollows and rock overhangs (Parker 2007). Ground dwelling species such as the long-nosed and southern brown bandicoot may be displaced. Rabbits can also provide a food source for cats and foxes, maintaining high numbers of these introduced predators, which in turn impact native prey species.

Damage caused by rabbits digging and the visual presence of rabbits in public open space reduces the amenity and recreational values of these areas. These impacts are often cause for complaint from park neighbours and include damage to residential gardens, footpaths and road verges, suburban parks, sports fields and golf courses, and to picnic areas in national parks. Rabbits can also cause damage to Aboriginal and European cultural heritages sites and undermine buildings. They are prevalent in local cemeteries and rabbit populations in Kamay Botany Bay and Sydney Harbour National parks and at Barrenjoey Headland have the potential to cause damage to cultural heritage sites of state significance.

### **Priorities for control**

Where rabbits are found to be significantly impacting upon threatened flora or Endangered Ecological Communities or upon European or Aboriginal cultural heritage their localised control will be given priority. Sites include North Head (EECs and European cultural heritage), Barrenjoey Headland lighthouse precinct (European cultural heritage), and the Kamay Botany Bay cemetery and repatriation site (Aboriginal and European cultural heritage).

Under the RLP Act when conditions lead to an over abundance of rabbits at a specific site that exceeds the threshold determined by the Cumberland LHPA (i.e. a score of 50 or greater out of 100 when applying the Rabbit Density Index) control will be given priority until numbers are reduced to a tolerable level.

Where rabbits are having a significant impact upon park amenity and recreational values rabbit control will be undertaken subject to feasibility of success to maintain rabbit numbers and impacts to low levels. Specific sites include Lane Cove National Park, Bradleys and Middle Head in Sydney Harbour National Park and the Bobbin Head picnic area and Kalkari Discovery Centre in Ku-ring-gai Chase National Park.

Rabbits on park boundaries will be prioritised according to impact and density (which can be expected to fluctuate over time) and also feasibility of success, including potential for collaborative cross tenure control necessary for success. The Urban Feral Animal Action Group – Sydney North coordinates strategic rabbit control including region wide RHDV releases by land management agencies.

### **Control**

Effective control of feral rabbits requires an integrated approach using several complementary control techniques. In the Metro North East Region, the main control techniques are Pindone carrot baiting where rabbit density is high, shooting in open areas, harbour removal where harbour comprises weed species, and when specific conditions are met the release of Rabbit Haemorrhagic Disease. Techniques are often timed to take advantage of the naturally occurring biological control myxomatosis. Cage trapping and humane euthanasia may be employed if feasible in areas where a risk assessment excludes other methods. The difficulty of rabbit control in suburban neighbourhoods where the application of traditional control techniques is often difficult or impossible must be acknowledged. Public education

campaigns are carried out as a tool for prevention particularly in relation to the dumping of domestic rabbits, and in response to requests for control by the community.

### **Monitoring**

Rabbit abundance and impact must be measured to determine the need for and response to control in the short term and over time. Abundance can be measured using the Cumberland LHPA daytime rabbit density index (based upon daytime observations of scats and signs) or night spotlight counts. Records are kept at the Area level and will be subject to periodic analysis by the Pest Management Officer.

Where rabbits are impacting on threatened species or endangered ecological communities consideration will be given to monitoring vegetation recovery by photopoints, transects or quadrats.

## **Bitou bush (*Chrysanthemoides monilifera* subsp. *rotundata*) and Boneseed (*Chrysanthemoides monilifera* subsp. *monilifera*)**

### **Distribution and abundance**

Bitou bush has invaded over 80% of the NSW coastline and has the potential to spread further into coastal areas of Queensland and Victoria. Boneseed currently occurs in coastal and inland areas in NSW, and other states and it has the potential to spread across large areas of NSW and southern Australia.

In the Metro North East Region bitou bush occurs in each of the coastal parks and boneseed occurs as scattered infestations in coastal parks and to the west in Kuring-gai Chase National Park, Berowra Valley Regional Park and Lane Cove National Park.

### **Impacts**

The species significantly impacts upon biodiversity in NSW and has been listed as a Key Threatening Process under the TSC Act and a TAP and PAS are being implemented (at time of writing the Bitou TAP is under review). Bitou bush and boneseed are jointly considered a Weed of National Significance. Bitou bush is widespread and is listed as control class 3 in the region; boneseed because it has not yet reached its full potential in NSW has been listed as class 2 requiring a program for eradication. Both weeds are considered as high priority weeds by the Sydney Regional Weeds Committee (RWC).

Bitou bush and boneseed are highly invasive and have potential to spread beyond their current distribution, particularly boneseed. They are fast growing and produce large amounts of seed. Bitou bush and boneseed invade native bushland and form dense thickets that smother native plants and prevent regeneration. They alter habitat and displace native food sources for native birds and provide a food source for pest animals for example foxes and Indian mynas.

Bitou bush degrades coastal environments valued for recreation and can restrict public access to beaches, dunes and trails.

### **Priorities for control**

The Bitou TAP identifies and prioritises sites for control. Priority 1 sites include Lion Island, Barrenjoey Headland and Cape Banks for the conservation of Themeda Grasslands (*Themeda triandra*) on Coastal Sea Cliffs and Headlands (TSC-e) and

Jennifer Street Kamay Botany Bay National Park for Eastern Suburbs Banksia Scrub (TSC-e).

Boneseed will be subject to an eradication program. In recent years boneseed is believed to have been eradicated from the west head peninsula in Ku-ring-gai Chase National Park and a program is in place for its eradication in the Mount Colah, Mount Kuring-gai vicinity of Ku-ring-gai Chase National Park and Berowra Valley Regional Park in association with Hornsby Council and the Hawkesbury Nepean CMA. Eradication is also feasible in Lane Cove National Park. Local eradication in Sydney Harbour NP is also a critical priority and is undertaken in association with neighbouring councils but in some locations control will be less feasible because of difficult terrain i.e. sea cliffs.

### **Control**

Control at TAP sites will be subject to a staged approach as outlined in Bitou TAP site specific plans. The staged approach follows a principle of working within the EEC (or other asset) as stage 1 and then creating a bitou free buffer zone around the EEC. Under the TAP control programs also consider treatment of associated and successive invasion of other weed species including lantana, asparagus fern, turkey rhubarb and exotic grasses. Works in Kamay Botany Bay National Park are also done in accordance with the Botany Bay National Park Bitou Bush Management Plan which defines precincts for control.

Control involves multiple integrated techniques, including hand removal, herbicide application by cut and paint and ground spraying including by splatter gun and aerial spraying (spot and boom). Two biological control agents have established in the region; tip moth (*Comostolopsis germana*) and seed fly (*Mesoclanis polana*); and an area of monoculture bitou bush on disturbed lands within Kamay Botany Bay National Park is being managed jointly by NPWS and NSW DPI as a national nursery for bitou bush biological controls including the leaf-rolling moth (*Tortrix* sp).

### **Monitoring**

Monitoring requirements are defined in site plans and monitoring techniques will be employed in accordance with the "Monitoring manual for bitou bush control and native plant recovery". Bitou bush density and distribution at TAP priority sites has been mapped and maps will be updated periodically. Before and after photographs from set points are also collected to document works and the response of native vegetation to bitou bush removal.

Boneseed distribution will be collected and recorded as waypoints and held in Area and a Regional database and mapped. Known sites including sites where boneseed is believed extinct will be subject to presence absence monitoring annually between July and October when the plant is generally in flower.

The AMS will be used to record works undertaken against specific sites.

## **Lantana (*Lantana camara*)**

### **Distribution and abundance**

There are 29 morphologically defined variants of *Lantana camara* generally accepted to be naturalised in Australia and new forms may be evolving (DEC 2006). Lantana is widespread along the East Coast of Australia and has potential for further spread. It is widespread across the Metro North East Region but its habit, vigour and impact varies according to its location.

## Impacts

Lantana is considered to be one of the 10 worst weeds worldwide. It is a Weed of National Significance, and has been listed as a Key Threatening Process under the TSC Act. The National Lantana Management Group developed the [Plan to Protect Environmental Assets from Lantana](#) 2010 which established national conservation priorities for the control of lantana, including identifying species, populations and ecological communities most at risk from invasion by lantana. In addition to its impacts to biodiversity lantana has significant and costly impacts upon agriculture, and commercial forestry. The councils of the Sydney RWC have listed lantana as a control class 4 weed under the NW Act, and it is a priority weed for control.

Lantana readily invades bushland especially in disturbed areas. It has an impact on a large number of native species and communities including species, populations and ecological communities listed as threatened under the EPBC and TSC Act. It is fast growing and readily spread by birds, the fruit is also attractive to the pest animal the European red fox. It forms dense thickets that smother native vegetation, dominate understoreys and prevent regeneration. It has an allelopathic effect i.e. is toxic to other plants, preventing their germination and growth. It may change soil microhabitat through shading, self-mulching, and alter water and nutrient balances and have effects upon soil invertebrates and micro-organisms. It can increase the intensity of wildfires and conversely can be difficult to ignite during hazard reduction burns or can suppress low intensity burns. It can impede access to tracks and trails or infrastructure. It also impacts upon the amenity of picnic and scenic areas and sites of Aboriginal and European cultural significance and can cause damage to these sites.

It should be noted that Lantana has limited benefits; it provides habitat particularly to small birds, ground dwelling birds and small mammals, and insects (native butterflies and bees) and it may also act as a buffer, preventing invasion by a suite of other weeds.

## Priorities for control

The [Plan to Protect Environmental Assets from Lantana](#) 2010 lists priority species, populations, and ecological communities for control. In NSW, site priorities from the lantana plan have been incorporated into the [Biodiversity Priorities for Widespread Weeds](#) and MNER priorities are listed in this strategy Section 5 the table of prioritised regional pest programs. Priority species and endangered ecological communities identified in MNER are:

*Acacia terminalis* subsp. *Terminalis* (EPBC-e, TSC-e), *Allocuarina portuensis*, (EPBC-e, TSC-e); *Olearia cordata* (EPBC-v, TSC-v), *Zieria involucre* (EPBC-v, TSC-e,) *Pimelea curviflora* var *curviflora* (TSC-v) and *Grevillea caleyi* (TSC-e).

Blue Gum High Forest (EPBC-ce, TSC-e), Coastal Saltmarsh (TSC-e), Duffys Forest Ecological Community (TSC-e), Eastern Suburbs Banksia Scrub (EPBC-ce, TSC-e), Freshwater wetlands (TSC-e), Littoral Rainforest (EPBC-ce, TSC-e), Pittwater Spotted Gum Forest (TSC-e), Swamp Oak Floodplain Forest (TSC-e), Sydney Turpentine Ironbark Forest (EPBC-ce, TSC-e), Themeda (*Themeda triandra*) grasslands on sea cliffs and coastal headlands (TSC-e).

Because of its climbing habit lantana (and other vines and scramblers) has the potential to negatively impact microbat foraging and roosting including over winter roosts of *Miniopterus schreibersii oceanensis* eastern bent-wing bat (TSC-v). Where roost sites are known flight paths should be kept clear of all weeds.

Lantana is generally predominant amongst suites of weeds that impact European and Aboriginal cultural heritage sites. Because of its quick growing and aggressive habit cultural heritage sites of significance should generally be kept clear of lantana. Where appropriate site management plans for cultural heritage sites should be referred to for specific management actions, actions are also provided in brief in section 5 of this strategy table of prioritised regional pest programs. Lantana or other weed growth that limits public access to sensitive European or Aboriginal sites may be considered advantageous.

### **Control**

Similarly to Bitou and Fox Tap sites control at priority sites identified under the lantana plan and BPWW must be done in accordance with a site specific management plan that follows a staged approach to control.

Control is dependent on the situation and size of the infestation and integrated control techniques yields best results. Control may consist of hand removal or herbicide application by the cut and paint method where small areas or scattered plants are to be treated, including gradual or mosaic clearing of large infestations. Herbicide application utilising hand held sprayer, splatter gun or vehicle mounted spray equipment can be utilised for larger infestations and aerial spraying (spot and boom) may be considered in some scenarios. Where access and negligible off target effects permit removal by mechanical means i.e. slashing or grubbing has proved a cost-effective method. Fire can be a useful tool although lush lantana will require pre burn herbicide treatment; fire can also allow a window of opportunity for the control of lantana but this weed does readily regenerate and colonise post fire. A number of naturally occurring biological control agents occur across the region; the most recently introduced lantana rust has had limited success establishing but is present in Dalrymple Hay Nature Reserve.

As a minimum annual follow up for three to five years is essential for success and control should not be implemented without resources for follow up. Control must also consider successive weed invasion by a suite of other species.

### **Monitoring**

Where lantana control is undertaken at sites identified as a critical priority monitoring will be undertaken in accordance with guidelines outlined in the "Monitoring manual for bitou bush control and native plant recovery". This may include mapping the density and distribution of lantana over time to determine effectiveness of control, photographic records from fixed photo-points of lantana removal and native vegetation response, and transect or quadrat measurements of the response of native vegetation to control.

Where lantana is controlled to protect cultural heritage a written and photographic record of works undertaken and site condition over time should be kept.

The AMS will be used to record works undertaken against specific sites.

## **Exotic perennial grasses**

Including but not limited to:

**African feather grass (*Pennisetum macrourum*), African lovegrass (*Eragrostis curvula*), buffalo grass (*Stenotaphrum secundatum*) Chilean needle grass (*Nassella neesiana*), columbus grass (*Sorghum x alpinum*), Coolatai grass (*Hyparrhenia hirta*), fountain grass (*Pennisetum setaceum*), giant Parramatta**

grass (*Sporobolus fertilis*), giant reed (*Arundo donax*), Johnson grass (*Sorghum halepense*), kikuyu (*Pennisetum clandestinum*), Mossman River grass (*Cenchrus echinatus*), pampas grass (*Cortaderia spp.*), panic veldgrass (*Ehrharta erecta*), Rhodes grass (*Chloris gayana*), serrated tussock (*Nassella trichotoma*), tussock paspalum (*Paspalum quadrifarium*), whiskey grass (*Andropogon virginicus*)

### **Distribution and abundance**

Exotic perennial grasses both deliberately and accidentally introduced have naturalised across much of Australia and can be found in all reserves in the Metro North East Region. Most have the potential to increase their distribution and or abundance. For specific species distribution and abundance see section 7 Pest distribution tables.

In general exotic grasses in the Sydney North Region proliferate in disturbed areas and edges such as road verges and track heads or around infrastructure including utilities, but many of these species have invaded or are capable of invading otherwise undisturbed “good” bush.

### **Impacts**

Exotic perennial grasses have been listed as a Key Threatening Process under the TSC Act and many of the grasses listed here are declared noxious at the state or local level. Many species can limit the productivity of pasture as they readily invade but are unpalatable to stock, however their impact upon primary production in the region is limited.

Exotic grasses are primarily of concern in the Metro North East Region because of their impact to biodiversity. They can invade and dominate native plant communities or out-compete and displace native plant species. Exotic grasses impact upon a number of EECs in the Sydney North Region. Perennial grasses are generally characterised by fast growth, prolific seed production and effective seed dispersal and if uncontrolled are able to form dense monocultures. Exotic grasses can change the fuel load in plant communities and some species can significantly increase flammability, for example tall tussock grasses like Coolatai grass that retain dead foliage. Such impacts may result in adverse effects on native fauna including invertebrates. In addition many exotic tussock grasses provide harbour for rabbits and exotic mice (*Mus musculus*) on bushland verges and some exotic grasses provide a high protein food source that promotes rabbit reproduction. Many grasses have positive impacts as soil stabilisers and in some situations measures must be implemented to prevent erosion when undertaking control.

### **Control priorities**

Where grasses impact upon an EEC they should be given priority for control, this is particularly critical when a vegetation community is distinguished by its grass or ground layer. Generally grass weeds at priority sites for the conservation of high value biodiversity occur as secondary weeds and their control is part of a staged approach dictated by a site plan. The control of kikuyu in Themeda Grasslands on Coastal Sea Cliffs and Headlands at the Cape Banks Bitou TAP site is an example. In MNER exotic grasses are also identified as a threat to the floristic diversity of:

Blue Gum High Forest (EPBC-ce, TSC-e), Coastal Saltmarsh (TSC-e), Duffys Forest Ecological Community (TSC-e), Eastern Suburbs Banksia Scrub (EPBC-ce, TSC-e), Freshwater wetlands (TSC-e), Pittwater Spotted Gum Forest (TSC-e), Swamp Oak Floodplain Forest (TSC-e), Sydney Turpentine Ironbark Forest (EPBC-ce, TSC-e).



Widespread grasses like African lovegrass and whiskey grass have been identified as impacting threatened species that grow in the immediate vicinity of tracks and trails including: *Acacia bynoeana* (EPBC-v TSC-e), *Darwinia biflora* (EPBC-v TSC-v), *Epacris crassifolia* ROTAP, *Genoplesium baueri* ROTAP, *Lasiopetalum joyceae* (EPBC-v TSC-v), *Persoonia hirsuta* population (TSC-v), *Persoonia mollis* subsp. *Maximus*, and *Tetratheca glandulosa* (EPBC-v TSC-v).

The control of new incursions of species new to the state, region or reserve is of critical importance to prevent the establishment and spread of highly invasive species with potential for significant impact to biodiversity or to agriculture. Coolatai grass is currently limited to the northern part of the region and considerable resources and effort are being invested by member land management agencies across Sydney (via the RWC) to prevent its further spread. Likewise Northern Beaches Area staff undertake control programs targeting Mossman River grass on headlands and beaches in Ku-ring-gai Chase National Park including within or adjacent themeda grasslands (TSC-e) to contain and reduce the impact of a weed that is relatively new to the Sydney basin. Tussock paspalum has also been subject to strategic targeted control across northern Sydney particularly along arterial roads, tracks and trails in association with the Sydney RWC; in recent years its distribution and the density of core infestations have been significantly reduced. The gains achieved should be capitalised upon and a continued targeted spray program in reserves north of the harbour endorsed. The control of pampas grass (under a previous RWC group project) in Ku-ring-gai Chase National Park should also be continued to maintain past investment. Ku-ring-gai chase was given priority over northern Sydney National Parks for pampas control because of its listing on the National Heritage Register for its wildflowers and waterways.

### **Control**

Coordinated, consistent and timely control is needed in order to effectively control exotic perennial grasses. Control is most effective when the target grass is actively growing and ideally should be undertaken before seed is set. Control can be extremely difficult as some species set seed very rapidly (every 6 weeks) and in Sydney many species are able to grow and set seed year round. Timely control is the key to preventing the establishment of new infestations.

In general, physical removal is very effective at eradicating small and isolated clumps before they seed or when working in areas where native grasses or herbs dominate. Herbicide spot spraying is generally effective but care must be taken to avoid non-target native grasses, and follow up control or other measures (eg mulching, planting) maybe required as grasses will readily re colonise bare ground. Shading and out competing grasses by encouraging regeneration or by planting ground, shrub and canopy layer species can be used to good effect and is sometimes the only effective methodology on disturbed sites. Mowing, slashing or burning is often advantageous prior to spraying to remove dead foliage that may prevent herbicide from contacting new growth.

Soil, seed and vegetative matter should be removed from people, vehicles and plant when moving out of infected areas by washing, brushing or blowing (with compressed air) to prevent further spread, this is especially important when controlling new, small and isolated infestations. Control of grasses generally requires ongoing effort and control should not be implemented without an assessment of feasibility of success and adequate resources for follow up.

Regular spraying of tracks and trails is undertaken as part of routine park maintenance programs and does serve to limit further spread and maintain park amenity.

### **Monitoring**

New incursions should be recorded (gps waypoints) and specific species that are controlled in association with other agencies as part of Sydney RWC Weed Action Program are periodically surveyed for and mapped especially where they occur along major arterial roads; periodic updates are used to ascertain changes in distribution and measure response to control. Opportunistic surveying of internal tracks and trails and hot spots for new weed grass incursions is undertaken by staff whilst undertaking grass spraying or other routine duties. In this way new incursions or significant changes in distribution can be noted and control can be prioritised. AMS will be used to record and report on grass control including routine maintenance spraying.

### **Exotic vines and scramblers**

Including but not limited to:

Balloon vine (*Cardiospermum grandiflorum*), blackberry (*Rubus fruticosus*), black-eyed Susan (*Thunbergia alata*), bridal creeper (*Asparagus asparagoides*), cape honeysuckle (*Techoma capensis*), cape ivy (*Delairea odorata*), cats claw creeper (*Macfadyena unguis-cati*), climbing asparagus fern (*Asparagus plumosus*), coastal morning glory (*Ipomoea cairica*), corky passion flower (*Passiflora suberosa*), dipogon or dolichos Pea (*Dipogon lignosus*), English ivy (*Hedera helix*), ground asparagus fern (*Asparagus aethiopicus*), Japanese honeysuckle (*Lonicera japonica*), kudzu (*Pueraria lobata*), Madeira vine (*Anredera cordifolia*), morning glory (*Ipomoea indica* and *I. purpurea*), moth vine (*Araujia sericiflora*), Pampas lily of the valley (*Salpichroa organifolia*), trad (*Tradescantia fluminensis*), turkey rhubarb (*Acetosa sagittata*),

#### **Distribution and abundance**

Exotic vines and scramblers are widespread, and locally abundant in the eastern part of NSW (DECC 2005 Scda0605).

They occur across the Metro North East Region particularly on disturbed edges and in riparian zones, but some like the asparagus species have invaded otherwise undisturbed bushland. Many have the potential to increase their distribution and abundance and some species not yet naturalised in the Region have the potential to become established. For specific species distribution and abundance see section 7. Pest distribution tables.

#### **Impacts**

Invasion and establishment of exotic vines and scramblers has been listed as a Key Threatening Process under the TSC Act and many of the species listed here have been declared noxious under the NW Act at the state or local level. Bridal creeper and blackberry are WONS ground and climbing asparagus are under consideration as part of the WONS review. Vines and scramblers impact upon a number of EECs in the Region.

Exotic vines and scramblers can smother native vegetation, on the ground, or in the shrub layer and canopy and if uncontrolled can dominate and significantly alter the health and composition of native plant communities. Where they form a dense cover, exotic vines and scramblers suppress native plant vigour, growth and seed germination. The weight of exotic vines in a canopy can cause branches to break and

in severe situations total canopy collapse. They can alter light levels, and promote a more humid microclimate, affecting soil biota and plant dwelling invertebrates, altering soil moisture, nutrient levels, and favouring pathogens. As many vines and scramblers have a mesic effect they can alter fire behaviour and fire regimes especially in sclerophyll communities. Exotic vines and scramblers can affect fauna including threatened species by restricting the movement of some species, damaging or restricting access to habitat trees and providing favourable habitat for others. They can also overrun damage or restrict access to cultural heritage sites or infrastructure.

### **Priorities for control**

Where vines and scramblers individually or as suites of weeds impact upon an EEC they should be given priority for control.

This is particularly critical when a vegetation community is distinguished by its canopy and hollow bearing trees including the following:

Blue Gum High Forest (EPBC-ce, TSC-e), Duffys Forest Ecological Community (TSC-e), Pittwater Spotted Gum Forest (TSC-e), Swamp Oak Floodplain Forest (TSC-e), Sydney Turpentine Ironbark Forest (EPBC-ce, TSC-e).

Asparagus fern is widespread particularly in the east and has significant negative impact in Coastal Saltmarsh (TSC-e), Pittwater Spotted Gum Forest and Littoral Rainforest (EPBC-ce, TSC-e) and control is a priority in these EECs where there is feasibility of success. Turkey rhubarb is a secondary weed requiring control in Themeda Grasslands on Lion Island as identified in the Lion Island bitou TAP site plan.

Vines have also been identified as impacting upon specific threatened species including *Darwinia biflora*, *Tetradlea glandulosa*, *Epacris purpurea* var *purpurea*.

Threatened species reliant upon habitat trees that are susceptible to vine invasion on parks estate include the Hornsby endangered population of gang gang cockatoos and powerful owl (*Ninox strenua*); canopy vines also negatively impact the foraging and roosting behaviour of a number of microbats including threatened species and grey headed flying fox (TSC-v), and these bats in turn are important for the health of many forest trees.

Any new incursions of species not currently recorded in the region will be a critical priority (subject to a risk/feasibility assessment) for control to prevent new weeds establishing. Staff are to be vigilant in promptly identify and respond to new incursions. Kudzu is an example of an extremely aggressive invasive vine not yet present in the region that has potential to establish here.

Similarly vines that may be widespread in some reserves but present only as small and isolated infestations in other reserves should be given priority for control for example corky passionfruit is reasonably established in Dalrymple Hay Nature Reserve but local eradication is a possibility in Lane Cove National park and Wolli Creek Regional Park.

Reduction in ground asparagus fern (and its propagules) on private property in the Pittwater LGA through "Asparagus Out" community weeding days (a joint initiative of NPWS and Pittwater Council) is a continuing priority for this project.

### **Control**

Coordinated, consistent and timely control is needed in order to effectively control exotic vines and scramblers. Methodology is dependent on species and situation. Hand removal of seedlings or crowning (e.g. asparagus fern) is acceptable for control of small, scattered infestations, or in sensitive areas. The removal (bag and dispose) of propagules eg berries, pods, aerial tubers can be undertaken in association with other methods or as a means to slow spread if full treatment of the plant is not achievable at that time. Where vines occur in canopy they are best treated by cutting or scraping and painting with herbicide, care should be taken not to pull vines from trees as this can cause canopy damage or disturb fauna; rather, vines should be left to die in situ. Foliar application of herbicides are useful to control mass seedlings, regrowth or as primary control especially on ground layer species. Several herbicides are registered for use on climbers and scramblers, although timing is important (ie application during active growth is best practice). Bridal creeper rust fungus (*Puccinia myrsiphylli*) is available, generally effective and has been released with good effect in Lane Cove NP and at Davidson Picnic Area in Garigal NP. Biological controls for Madeira vine and cats claw creeper will be released under trial in association with the DPI.

Community education and awareness re the impacts of vines and scramblers will be achieved by participation in Weed Buster and other Sydney RWC events and targeted events like Asparagus Out community weeding days in the Pittwater LGA.

### **Monitoring**

Where the control of vines and scramblers is undertaken at sites identified as a critical priority monitoring will be undertaken in accordance with guidelines outlined in the "Monitoring manual for bitou bush control and native plant recovery". This may include mapping the density and distribution of species or suites of weeds over time photographic records from fixed photo-points or data collected from transects or quadrats. New incursions will be recorded (gps waypoints). The AMS will be used to record works undertaken against specific sites.

## **Myrtle Rust (*Uredo rangelii*)**

### **Distribution and abundance**

Myrtle rust is a plant disease caused by the exotic fungus *Uredo rangelii*. It was first detected in Australia on 23 April 2010 on the NSW Central Coast. It has established in coastal NSW from the Clyde River north into Queensland and is present in the Sydney basin. Myrtle rust is likely to spread rapidly to the extent of its biological range as the spores are dispersed readily by wind. Eradication is unfeasible.

*Uredo rangelii* belongs to a group of closely-related fungi known as the guava or eucalyptus rust complex. The complex includes the fungus *Puccinia psidii* which has had severe impacts on eucalypt plantations in Brazil and has been found in other parts of the Americas, Hawaii and Japan. *P. psidii* was considered as a potential biocontrol agent in the Florida everglades for the invasive plant *Melaleuca quinquenervia*, but it has since been found to attack some native American species, including a threatened species.

### **Impacts**

Myrtle rust affects plants in the family Myrtaceae, including the genera Eucalyptus, Angophora, Callistemon, and Melaleuca. Infection occurs on young growing shoots, leaves, flower buds and fruits. It produces masses of powdery bright yellow or orange-yellow spores on the infected areas. Leaves may become buckled and

twisted and die as a result of infection.

The likely impacts of myrtle rust on biodiversity in Australia are unknown. Like *P. psidii*, infection with myrtle rust may cause significant mortality among younger plants and hence reduce recruitment into adult populations. This may contribute to the decline and extinction of species, which is of immediate concern for those species already at high risk, i.e. threatened species. Reduced recruitment may also have severe impacts on the structure and function of the many natural ecosystems that depend on Myrtaceae. As at 28 March 2011, myrtle rust had been detected in 68 species of Myrtaceae, spanning 27 genera. Severe infection had been observed in relatively few species (most notably scrub turpentine *Rhodamnia rubescens* and native guava *Rhodomyrtus psidoides*) but the number of species so affected may increase as new strains of rust evolve. All five threatened species of Myrtaceae exposed to myrtle rust under laboratory test conditions became infected.

The 'Introduction and establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae' is listed as a KTP under the TSC Act

### **Priorities for control**

The *Management Plan for Myrtle Rust on National Parks* outlines how myrtle rust will be managed on national park estate in NSW, including the potential impacts of myrtle rust on threatened species. The plan also provides guidance to managers of other bushland and threatened species sites.

The objectives of the Plan are to:

1. Slow the establishment of myrtle rust on national park estate.
2. Minimise the impacts of myrtle rust on threatened species and ecological communities on national park estate.

### **Control and monitoring**

The *Management Plan for Myrtle Rust on National Parks* includes 8 action areas to manage Myrtle Rust on the NPWS estate:

1. Identify high value assets at risk
2. Limit the spread of myrtle rust
3. Monitor the spread of myrtle rust
4. Manage infections
5. Research the impacts of myrtle rust
6. Training, extension and external communication
7. Record the incidence of myrtle rust
8. Liaise and report on the spread and impacts of myrtle rust

Myrtaceae are a component of most endangered ecological communities in the Metro North East Region and myrtle rust has been identified in the vicinity of littoral rainforest (EPBC-ce, TSC-e) in Ku-ring-gai Chase National Park where further surveying is required to confirm its full extent and impact. Myrtle rust has also been identified in Blue Gum High Forest (EPBC-ce, TSC-e) in Dalrymple Hay Nature Reserve on the commonly affected species *Rhodamnia rubescens*. A control program using systemic fungicides is being implemented under trial. The health of affected plants and response to treatment is being monitored and other Myrtaceae species in the reserve are being monitored for presence absence of the rust. Presence/absence data will be entered into the Biological Survey Subsystem of the

Wildlife Atlas.

The identification of other endangered ecological communities and threatened species that may be affected by myrtle rust is ongoing. Control will be implemented based on feasibility of success.

## Plant Pathogen *Phytophthora* (*Phytophthora cinnamomi*)

See also the NSW Statement of Intent 1: Infection of native plants by *Phytophthora cinnamomi*

<http://www.environment.nsw.gov.au/resources/threatenedspecies/08119soipc.pdf>

### Distribution and abundance

*Phytophthora cinnamomi* is believed to have evolved in south-east Asia and was first described by a Dutch expert of plant disease in 1922. Whilst dieback was not discovered in Australia until 1922, it is believed that it was probably introduced in to Western Australia prior to the 1900's when quarantine procedures were not in place. There are 32 *phytophthora* species in Australia.

*Phytophthora* is present in reserves across the Metro North East region but its impacts are generally location dependant and influenced by other factors such as nutrients and soil moisture.

There is no way of visually telling if the pathogen is present in the soil at any one site, however laboratory analysis of soil can determine if the organism is present.

### Impacts

*Phytophthora cinnamomi* is a microscopic soil borne organism, invisible to the naked eye, which causes root rot of a wide variety of plant species including many native and introduced plants. Infection often results in the death of the plant, with early symptoms including wilting, yellowing and retention of dried foliage and darkening of young feeder roots and occasionally the larger roots. *Phytophthora* requires moist soil conditions and warm temperatures to be active, but damage is most evident in summer when plants are also prone to drought stress.

The spores can be dispersed over relatively large distances by surface and subsurface water flows and can also be readily transported in contaminated soils. Humans have the potential to spread *Phytophthora cinnamomi* further and faster than any other vector through the movement of infested soil, water or plant material. *Phytophthora* is able to survive in dead plant tissue and in the soil for extended periods.

*Phytophthora cinnamomi* is the most widespread and destructive of the 32 *Phytophthora* species that occur in Australia and is listed as key threatening process under both State and Federal legislation. Infection of native plants by *Phytophthora cinnamomi* has been identified as a key threatening process for a

number of threatened species resulting in a [national threat abatement plan for Phytophthora](#) was prepared in 2001 and a [Statement of Intent](#) was prepared for NSW in 2008.

### **Priorities for control**

There are 3 key priorities for the control of Phytophthora in MNER: Prevent the spread of Phytophthora from current known locations to non-infected areas; Identify presence/absence of Phytophthora by conducting surveys and sampling areas of poor tree health or dieback Identify and implement appropriate containment and hygiene protocols for affected areas.

### **Control**

Currently there is no single method for controlling Phytophthora. A combination of hygiene protocols, good horticultural management, selective use of some fungicides and the addition of organic matter to soils can be used to retard the activity of *Phytophthora*. Hygiene protocols should be implemented in every reserve to prevent the spread of *Phytophthora*, even if the organism has not been identified in a reserve

### **Monitoring**

Presence / absence data collected under these programs will be submitted into the Wildlife Atlas.

## 8. Pest distribution tables

The following pest distribution tables give an overview of significant pest species for each reserve within the Region. The data derived from a combination of systematic surveys, consultation with staff and other agencies and through planning processes. The tables are not comprehensive lists of all pest species within the Region. The density ratings used in the pest distribution tables are subjective and have not been determined by scientific monitoring. These rating are therefore not suitable as indicators for comparisons between regions. The tables will be updated throughout the life of the strategy.

- Denotes established widespread populations throughout a reserve
- Denotes scattered populations throughout a reserve
- ⊙ Denotes isolated populations restricted to a small geographic area of a reserve

### Vertebrate pests

	Wild dog	Fox	Feral pig	Feral rabbit	Feral goat	Feral deer	Cat	Black rat	House mouse	Indian myna	Domestic fowl	Carp
<b>Harbour North Area</b>												
Sydney Harbour National Park		●		○			○	●		⊙		
<b>Harbour South Area</b>												
Kamay Botany Bay National Park		●		○			○	○		⊙		
Sydney Harbour National Park		●		○			○	○		⊙		
Wolli Creek Regional Park		●		○			○	○		⊙		
<b>Lane Cove Area</b>												
Lane Cove National Park		●		●			○	●	●	⊙	⊙	○
Dalrymple Hay Nature Reserve		●		○			○	⊙		⊙		
Wallumatta Nature Reserve		●		○			○	⊙		⊙		
<b>Lower Hawkesbury Area</b>												
Berowra Valley Regional Park		●		○			○	⊙		⊙	⊙	○
Dural Nature Reserve		●					○					
Ku-ring-gai Chase National Park		●		○			○	⊙		⊙		
Lion Island Nature Reserve												
Long Island Nature Reserve		●					○	⊙				
Spectacle Island Nature Reserve												
Mt Ku-ring-gai Aboriginal Area		●					○					
Marramarra National Park	⊙	●		⊙	⊙		○	⊙		⊙		
Muogamarra Nature Reserve		●		⊙			○					
Maroota Historic Site		●		⊙			○			⊙		
Maroota Ridge State Conservation Area		●		⊙			○			⊙		
Wisemans Ferry Historic Site		●					○					
<b>Northern Beaches Area</b>												
Garigal National Park		●		○			○	⊙	⊙	⊙	⊙	
Ku-ring-gai Chase National Park		●		⊙			○	⊙		⊙		



## Weeds – perennial grasses

	African feather grass	African lovegrass	Buffalo grass	Chilean needle grass	Columbus grass	Coolatai grass	Ehrharta		Fountain grass	Giant Parramatta gr.	Giant reed	Johnson grass	Kikuyu	Mossman River grass	Pampas grass	Rhodes grass	Serrated tussock	Tussock paspalum	Whiskey grass
<b>Harbour North Area</b>																			○
Sydney Harbour National Park		○	○				○						⊙		○			○	
<b>Harbour South Area</b>																			○
Kamay Botany Bay National Park		○	○				○						○		⊙				○
Sydney Harbour National Park		○					○						○		⊙				○
Wolli Creek Regional Park		○					○						○		○				○
<b>Lane Cove Area</b>																			
Lane Cove National Park		○	○				○				○	⊙	○		○	⊙		○	○
Dalrymple Hay Nature Reserve		⊙	⊙				○									⊙			⊙
Wallumatta Nature Reserve		⊙	○				○									⊙		⊙	○
<b>Lower Hawkesbury Area</b>																			
Berowra Valley Regional Park			⊙				⊙			⊙			⊙		⊙			⊙	⊙
Dural Nature Reserve		⊙	⊙				⊙						⊙		⊙			⊙	⊙
Ku-ring-gai Chase National Park		○				⊙	○		⊙		⊙				○			⊙	○
Lion Island Nature Reserve							○												
Long Island Nature Reserve															○				
Spectacle Island Nature Reserve																			
Mt Ku-ring-gai Aboriginal Area																			
Marramarra National Park		⊙													⊙				⊙
Muogamarra Nature Reserve		⊙	⊙			⊙												⊙	⊙
Maroota Historic Site		⊙																	⊙
Maroota Ridge State Conservation Area										⊙					⊙				⊙
Wisemans Ferry Historic Site																			
<b>Northern Beaches Area</b>																			
Garigal National Park		○	⊙			⊙	○			⊙	⊙		⊙		○			○	○
Ku-ring-gai Chase National Park		○	⊙			⊙	○			⊙	⊙		⊙	⊙	○	⊙		○	○

## Weeds – vines and scramblers

	Balloon vine	Blackberry	Black-eyed Susan	Bridal creeper	Cape honeysuckle	Cape ivy	Cats claw creeper	Climbing asparagus	Coastal morning glory	Corky passion flower	Dipogon	English ivy	Ground asparagus	Japanese honeysuckle	Kudzu	Madera vine	Morning glory	Moth vine	Pampas lily of the valley	Tradescantia	Turkey rhubarb
<b>Harbour North Area</b>																					
Sydney Harbour National Park		○				○			⊙		⊙	⊙	●	○		⊙	⊙	⊙	⊙	○	○
<b>Harbour South Area</b>																					
Kamay Botany Bay National Park		○				○							○			⊙				⊙	○
Sydney Harbour National Park		○				○			⊙				●				⊙		⊙	○	○
Wolli Creek Regional Park	○	⊙		○						⊙			○			○	○	○	⊙	○	○
<b>Lane Cove Area</b>																					
Lane Cove National Park	●	○	○	○	⊙	○	○	○	⊙	⊙	○	○	●	○		○	○	○		●	●
Dalrymple Hay Nature Reserve	○	○	○	⊙		○		⊙		○	○	○	●	○		○	○	○		○	○
Wallumatta Nature Reserve		○	⊙	○		○		⊙			⊙	○	●	○		⊙	○	○		○	○
<b>Lower Hawkesbury Area</b>																					
Berowra Valley Regional Park	⊙	⊙	⊙	⊙			⊙	⊙					⊙	○			⊙	○		○	○
Dural Nature Reserve	⊙	⊙											⊙				⊙			⊙	
Ku-ring-gai Chase National Park			⊙		⊙		⊙														
Lion Island Nature Reserve													○								⊙
Long Island Nature Reserve													○								
Spectacle Island Nature Reserve													○								
Mt Ku-ring-gai Aboriginal Area																					
Marramarra National Park		⊙																⊙		⊙	⊙
Muogamarra Nature Reserve		⊙			⊙			⊙						⊙				⊙		⊙	
Maroota Historic Site																					
Maroota Ridge State Conservation Area																					
Wisemans Ferry Historic Site																					
<b>Northern Beaches Area</b>																					
Garigal National Park	⊙	⊙		⊙	⊙	⊙		⊙	⊙		⊙	⊙	○	⊙		⊙	⊙	⊙		●	⊙
Ku-ring-gai Chase National Park	⊙	⊙		⊙	⊙	⊙	⊙	⊙				⊙	○	⊙		⊙	⊙	⊙		⊙	⊙

## Weeds –noxious and environmental weeds

	African boxthorn	African olive	Agave	Asthma weed	Bathurst/ Noogoora burr	Bitou bush	Boneseed	Box elder	Camphor laurel	Cape broom	Castor oil plant	Celtis	Chinese tallow	Cockspur coral tree	Coral tree	Cotoneaster	Crofton weed	Date palm	Fishbone fern	Ginger lily
<b>Harbour North Area</b>																				
Sydney Harbour National Park		○	⊙	⊙		⊙	⊙		⊙		⊙				⊙		⊙	⊙	⊙	⊙
<b>Harbour South Area</b>																				
Kamay Botany Bay National Park			⊙	⊙		○									⊙		⊙	⊙	⊙	⊙
Sydney Harbour National Park		○	⊙	⊙			⊙				⊙						⊙	⊙	⊙	⊙
Wolli Creek Regional Park		○	⊙	⊙					⊙		⊙						⊙		⊙	⊙
<b>Lane Cove Area</b>																				
Lane Cove National Park		○	⊙	○	○			○	●	○	●	○	○	○	⊙	○	●	○	○	○
Dalrymple Hay Nature Reserve		○	⊙	○				○	●	⊙		○	○		⊙	○			○	○
Wallumatta Nature Reserve		○	⊙	○					●	⊙		○	⊙		⊙	○			○	○
<b>Lower Hawkesbury Area</b>																				
Berowra Valley Regional Park			⊙	⊙			⊙		○	⊙	⊙			○	○	○	⊙		○	⊙
Dural Nature Reserve			⊙						○		⊙						○		⊙	
Ku-ring-gai Chase National Park				⊙		⊙	○				⊙				⊙		○			
Lion Island Nature Reserve						○														
Long Island Nature Reserve																				
Spectacle Island Nature Reserve																				
Mt Ku-ring-gai Aboriginal Area																				
Marramarra National Park															⊙		⊙			
Muogamarra Nature Reserve			⊙		⊙										⊙		⊙			
Maroota Historic Site																				
Maroota Ridge State Conservation Area																				
Wisemans Ferry Historic Site																				
<b>Northern Beaches Area</b>																				
Garigal National Park		⊙	⊙	⊙		⊙	⊙	⊙	○	⊙	⊙	⊙		○	○	⊙	○	○	⊙	⊙
Ku-ring-gai Chase National Park		⊙	⊙	⊙		○	⊙		⊙		⊙				○	⊙	○		⊙	⊙

## Weeds – other noxious and environmental weeds

	Gleditsia / Honey locust	Green cestrum	Mistflower	Montbretia	Mother of millions	privet	Ochna	Polygala	Prickly pear	Rhizomatous bamboo	Rhus tree	Scotch/Engli sh broom	Senna	Spider plant	St. Johns wort	Tree of Heaven	Wild tobacco	Willow spp
<b>Harbour North Area</b>																		
Sydney Harbour National Park			⊙		⊙	○	⊙	⊙	⊙	⊙			⊙	⊙				
<b>Harbour South Area</b>																		
Kamay Botany Bay National Park			⊙		⊙	⊙	⊙		⊙									
Sydney Harbour National Park			⊙		⊙	⊙	⊙		⊙									
Wolli Creek Regional Park			⊙		⊙	○	⊙											○
<b>Lane Cove Area</b>																		
Lane Cove National Park		⊙	●	○	○	●	○	⊙	⊙	⊙	○		○	●	⊙	○	○	○
Dalrymple Hay Nature Reserve		⊙	○	○		●	○	⊙		⊙	○		○	○			○	○
Wallumatta Nature Reserve		⊙	○	○	○	●	○				○		○	○			○	○
<b>Lower Hawkesbury Area</b>																		
Berowra Valley Regional Park			○	⊙	⊙	○	○				⊙			○			⊙	⊙
Dural Nature Reserve						○							○				⊙	
Ku-ring-gai Chase National Park		⊙	⊙		⊙	⊙		⊙										
Lion Island Nature Reserve																		
Long Island Nature Reserve																		
Spectacle Island Nature Reserve																		
Mt Ku-ring-gai Aboriginal Area																		
Marramarra National Park		⊙											⊙					
Muogamarra Nature Reserve													⊙					
Maroota Historic Site					⊙													
Maroota Ridge State Conservation Area										⊙								
Wisemans Ferry Historic Site																		
<b>Northern Beaches Area</b>																		
Garigal National Park		⊙	○	⊙	⊙	○	○	○		⊙	⊙		○	⊙			⊙	⊙
Ku-ring-gai Chase National Park		⊙	○	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙		⊙	⊙		⊙	⊙	

## Weeds – aquatic weeds and natives that may be considered as weeds\*

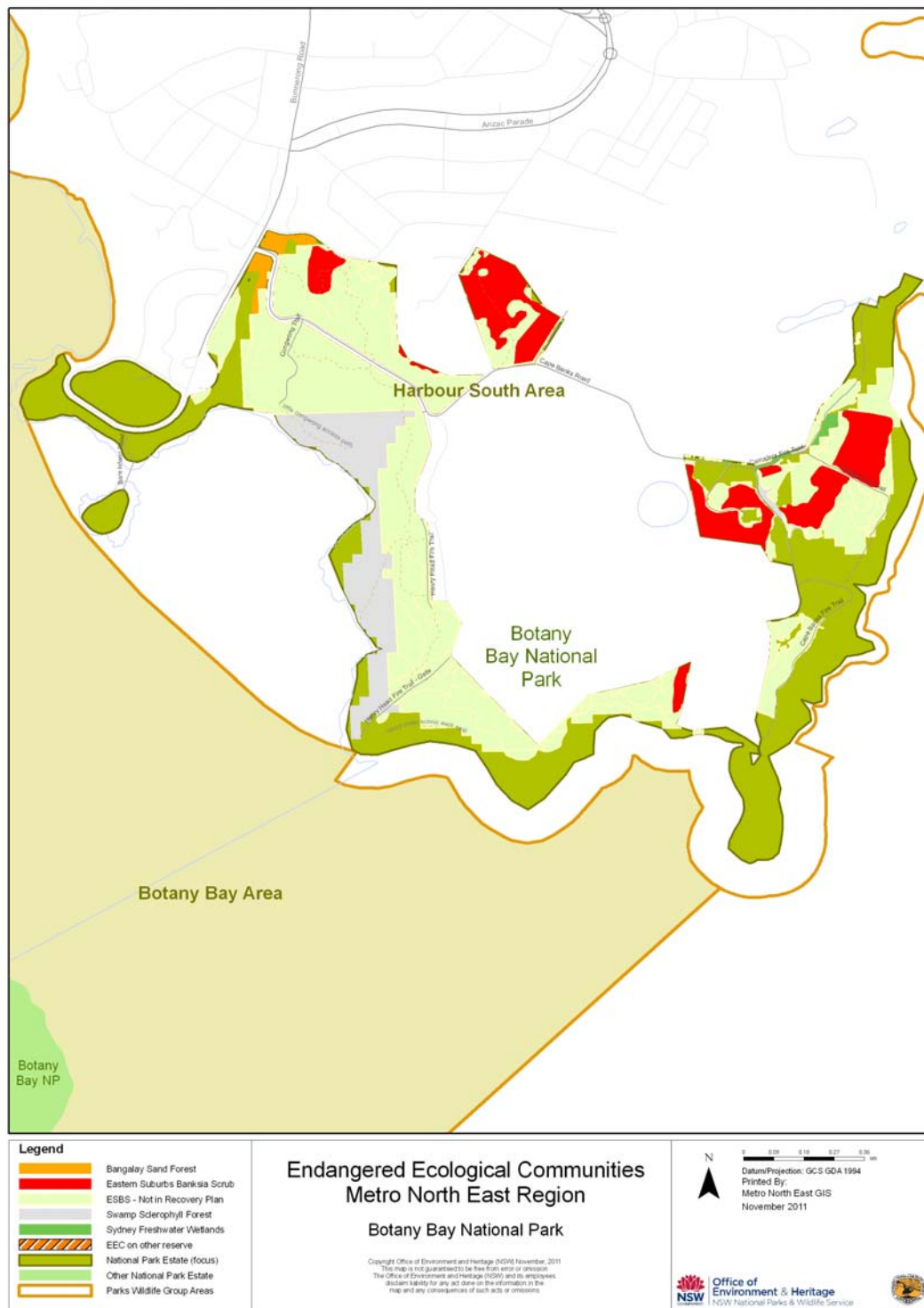
	Alligator weed	Egeria densa	Elodea	Ludwigia longifolia	Ludwigia peruviana	Ludwigia repens	Sagittaria montevidensis	Sagittaria platyphylla	Salvinia
<b>Harbour North Area</b>									
Sydney Harbour National Park	○								
<b>Harbour South Area</b>									
Kamay Botany Bay National Park					○				
Sydney Harbour National Park					○				
Wolli Creek Regional Park					○				
<b>Lane Cove Area</b>									
Lane Cove National Park	⊙	○			⊙	⊙	○	○	
Dalrymple Hay Nature Reserve									
Wallumatta Nature Reserve									
<b>Lower Hawkesbury Area</b>									
Berowra Valley Regional Park					⊙				
Dural Nature Reserve									
Ku-ring-gai Chase National Park									
Lion Island Nature Reserve									
Long Island Nature Reserve									
Spectacle Island Nature Reserve									
Mt Ku-ring-gai Aboriginal Area									
Marramarra National Park									
Muogamarra Nature Reserve									
Maroota Historic Site									
Maroota Ridge State Conservation Area									
Wisemans Ferry Historic Site									
<b>Northern Beaches Area</b>									
Garigal National Park					⊙	○			
Ku-ring-gai Chase National Park			⊙	⊙	⊙		⊙		

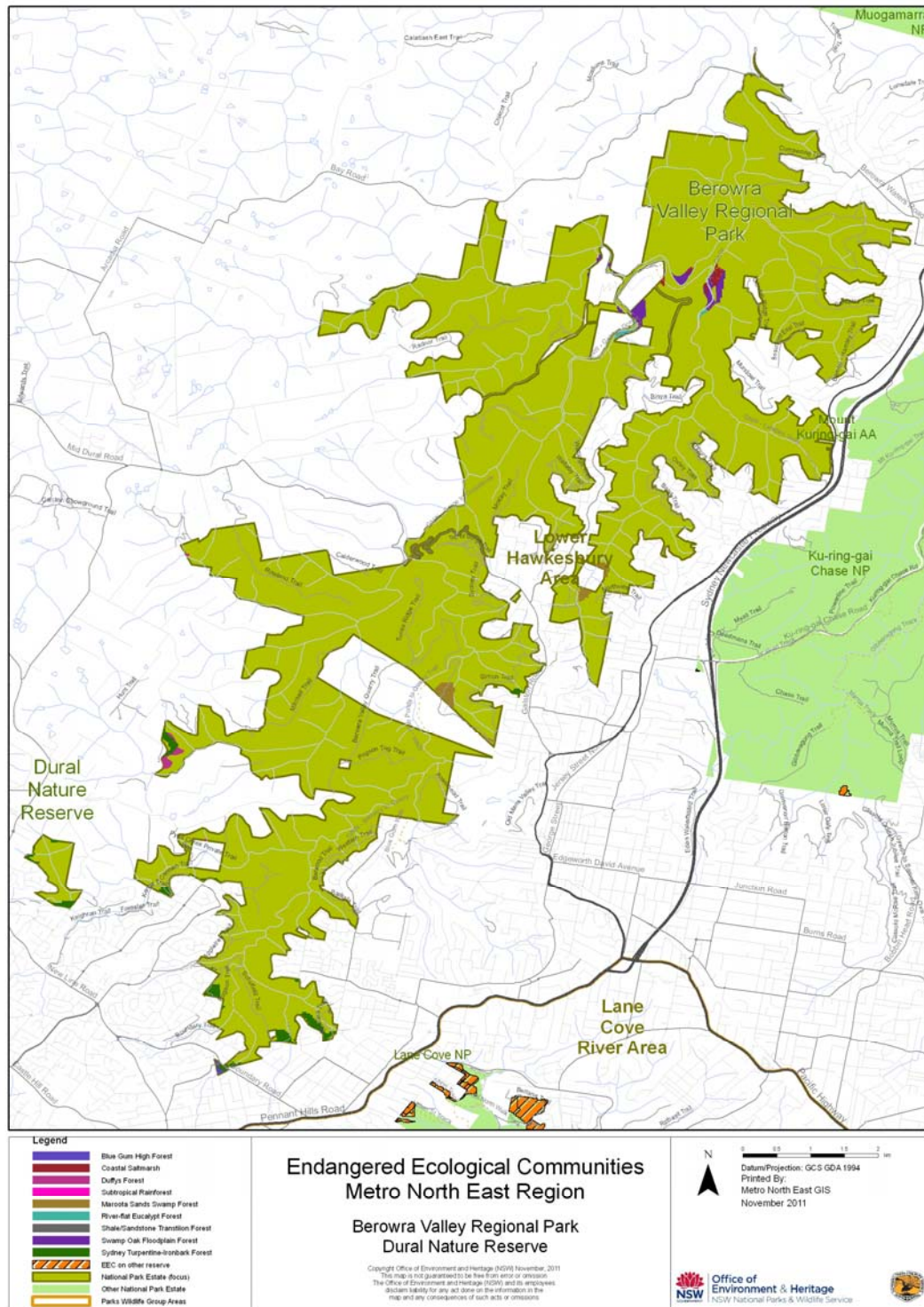
\* Not all reserves have been analysed for all weed



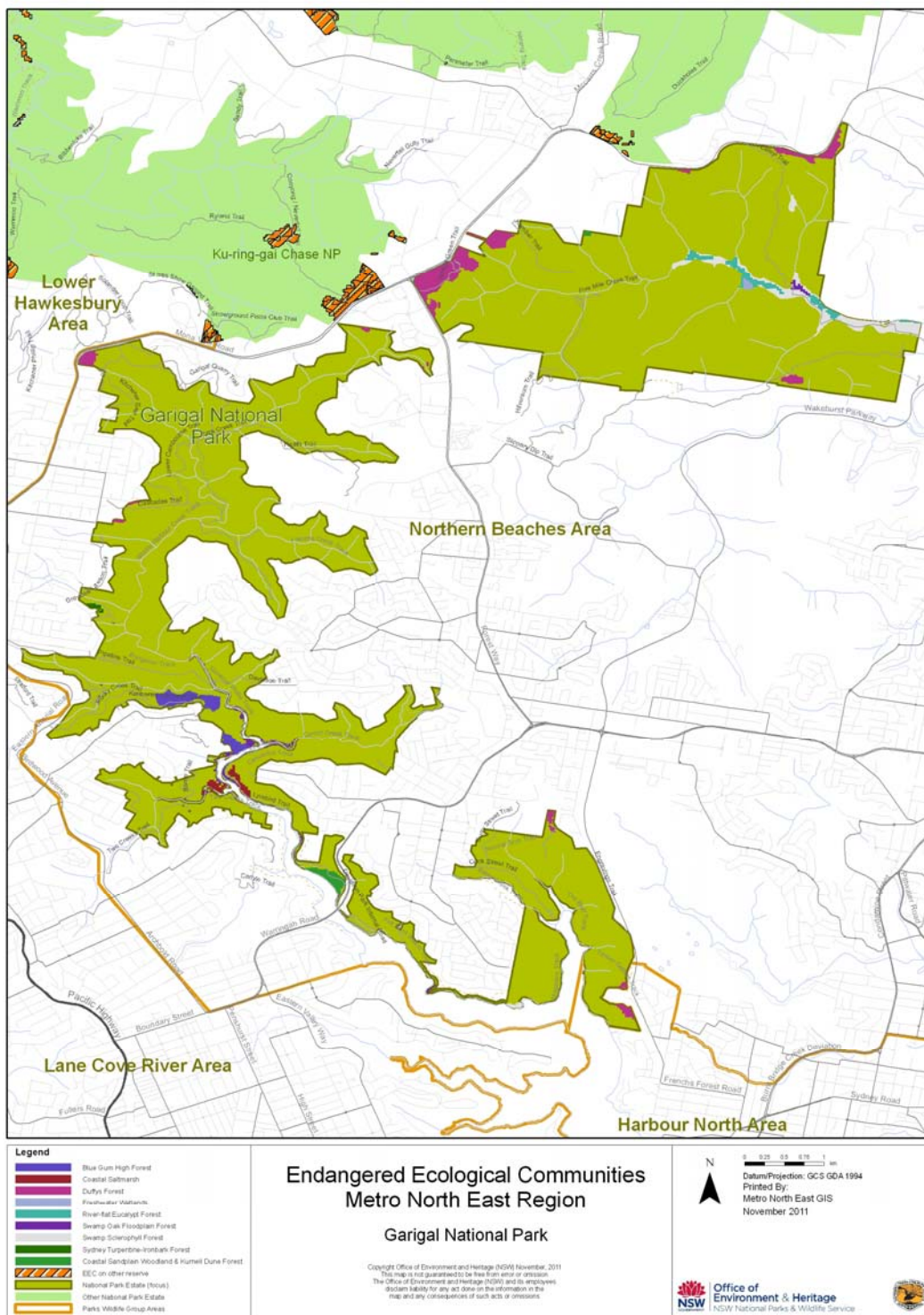
## Appendix 1: Maps of endangered ecological communities across the region

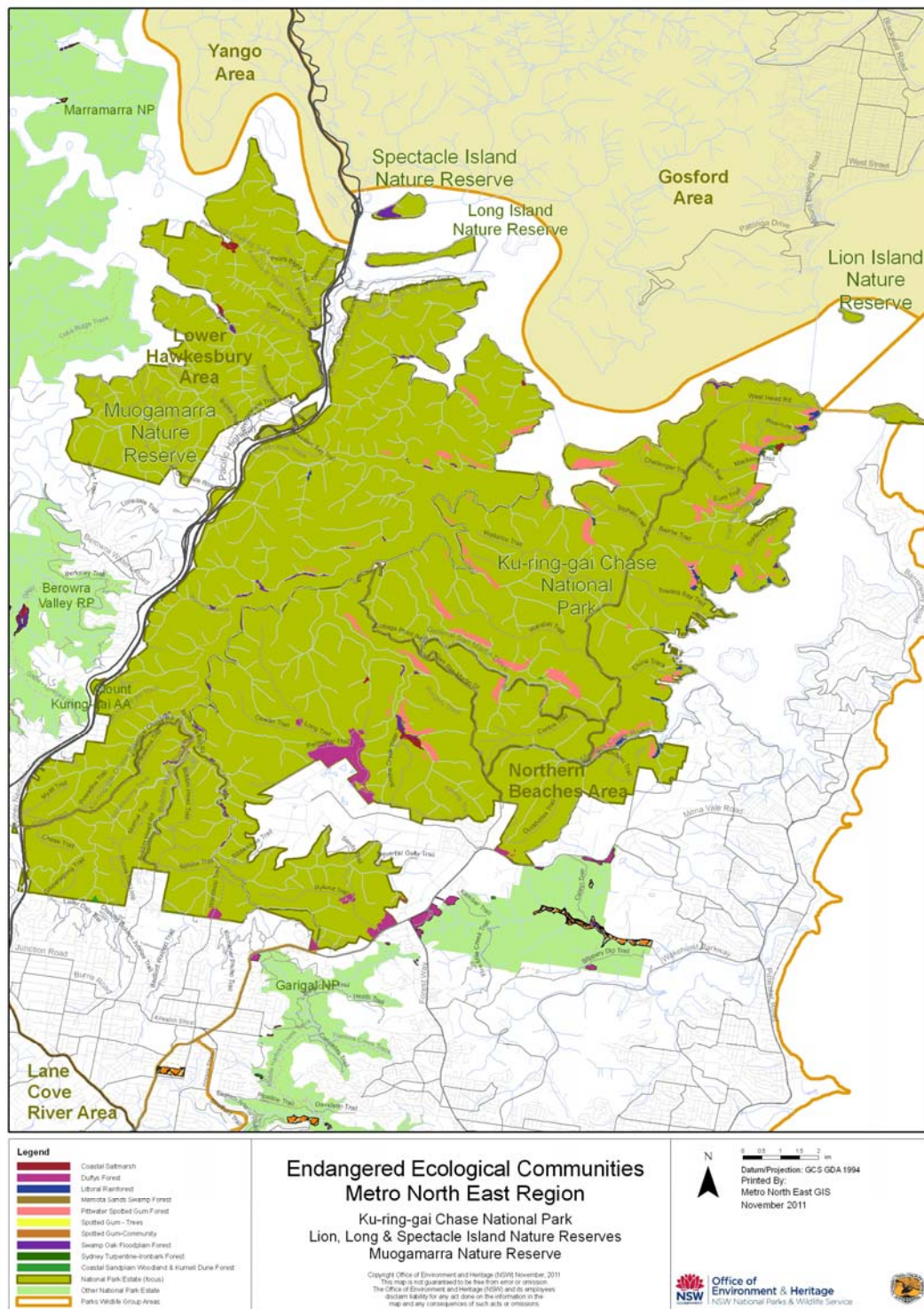
\* Not all areas and not all endangered ecological communities have been comprehensively mapped across MNER



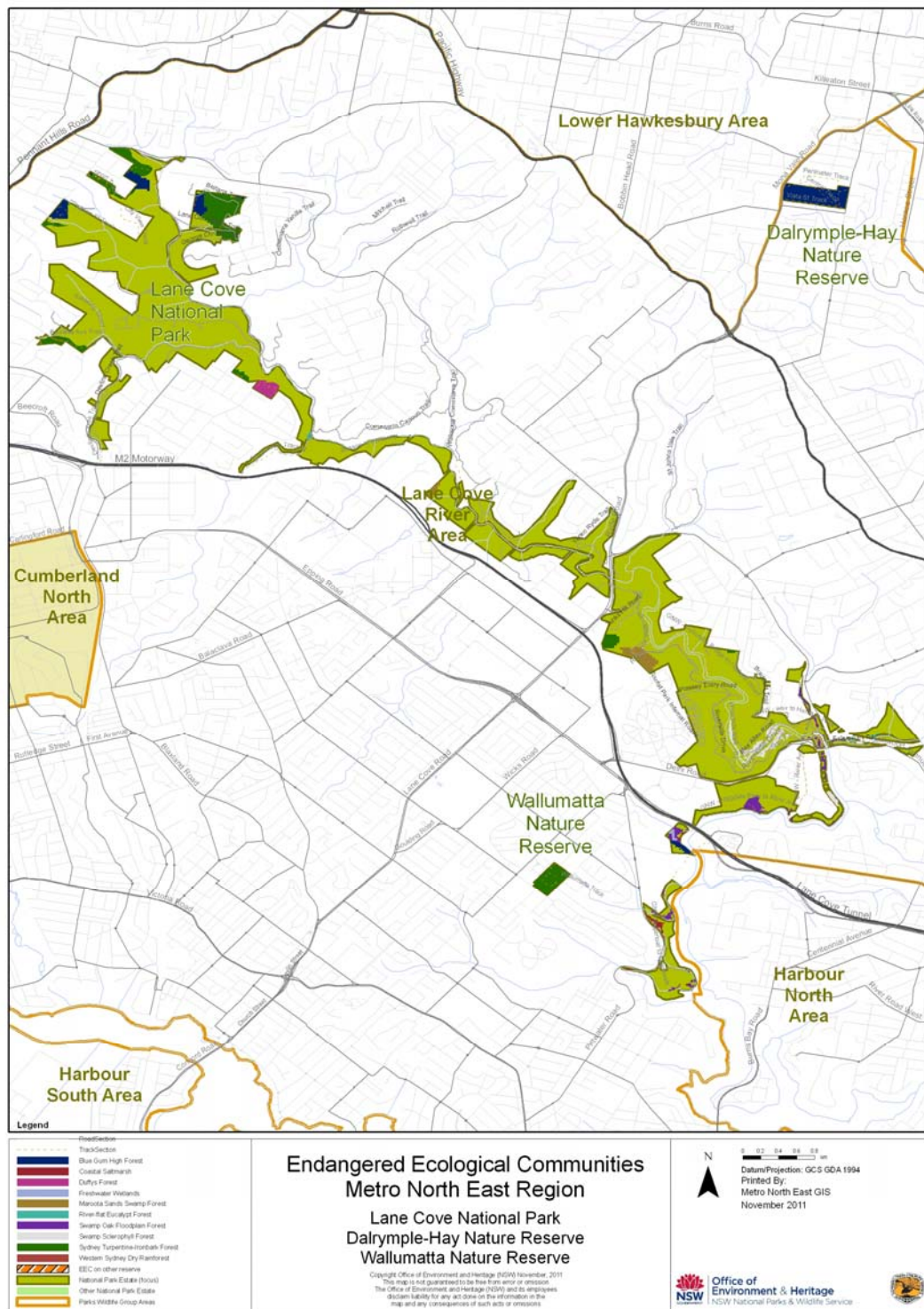


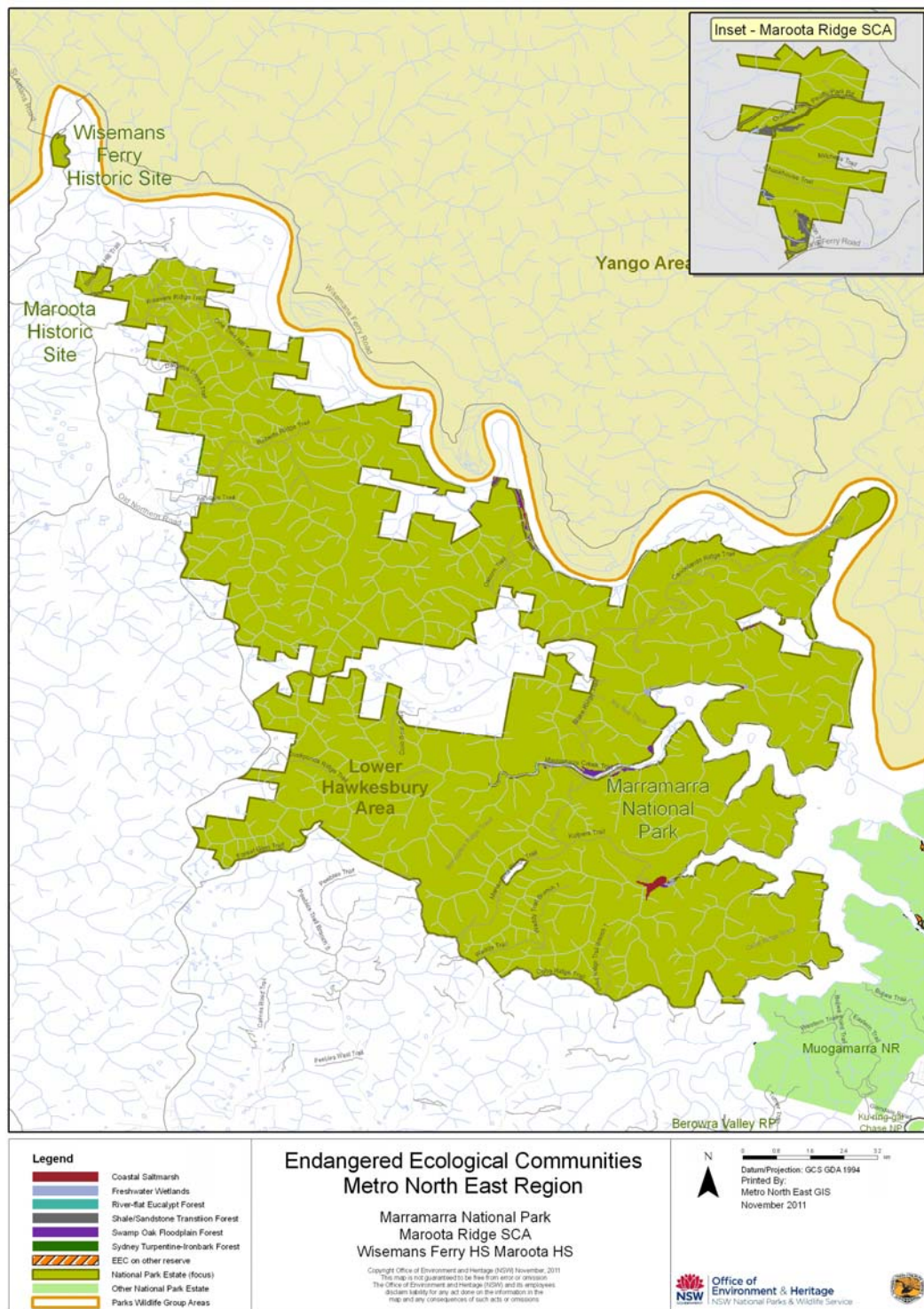




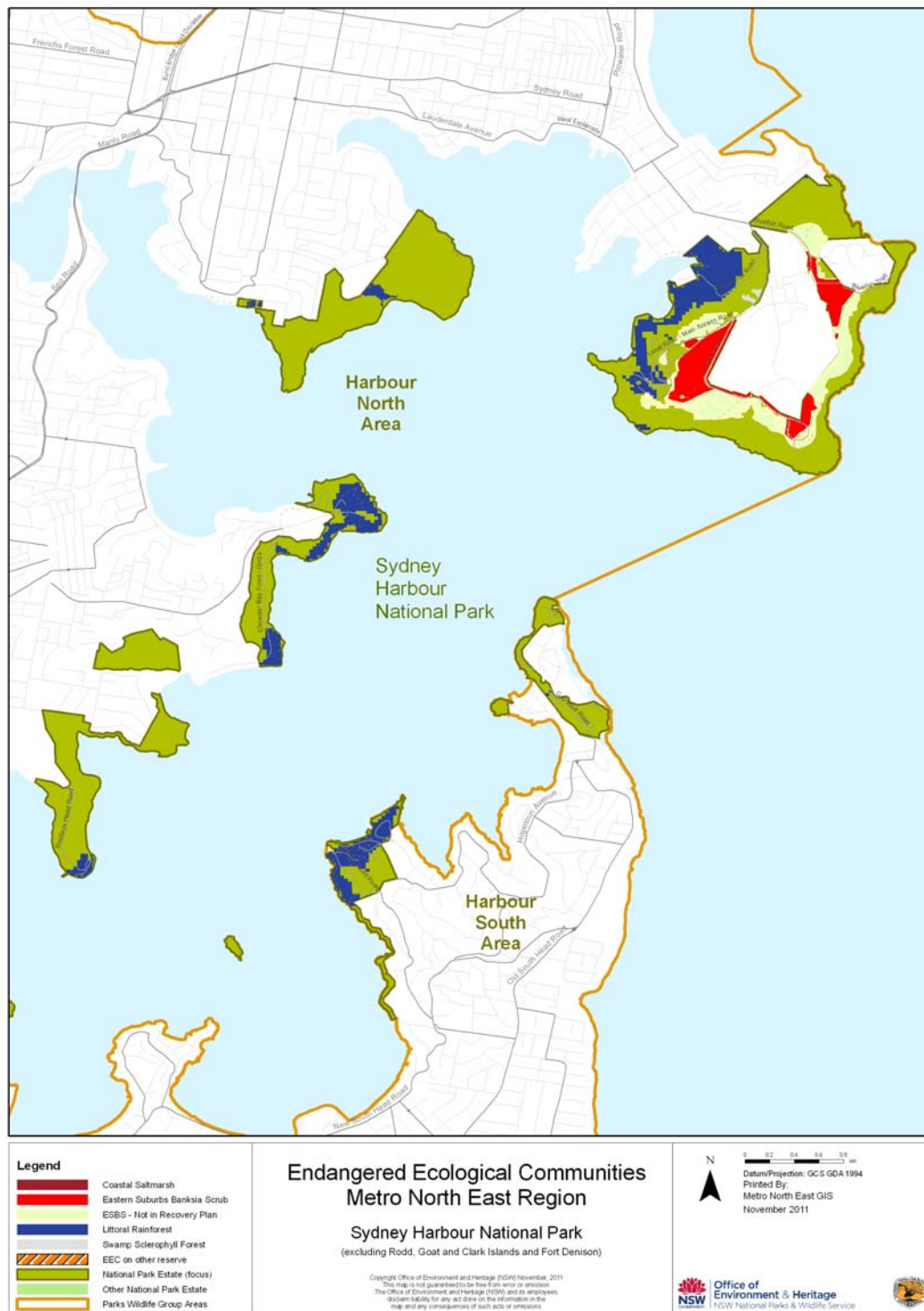


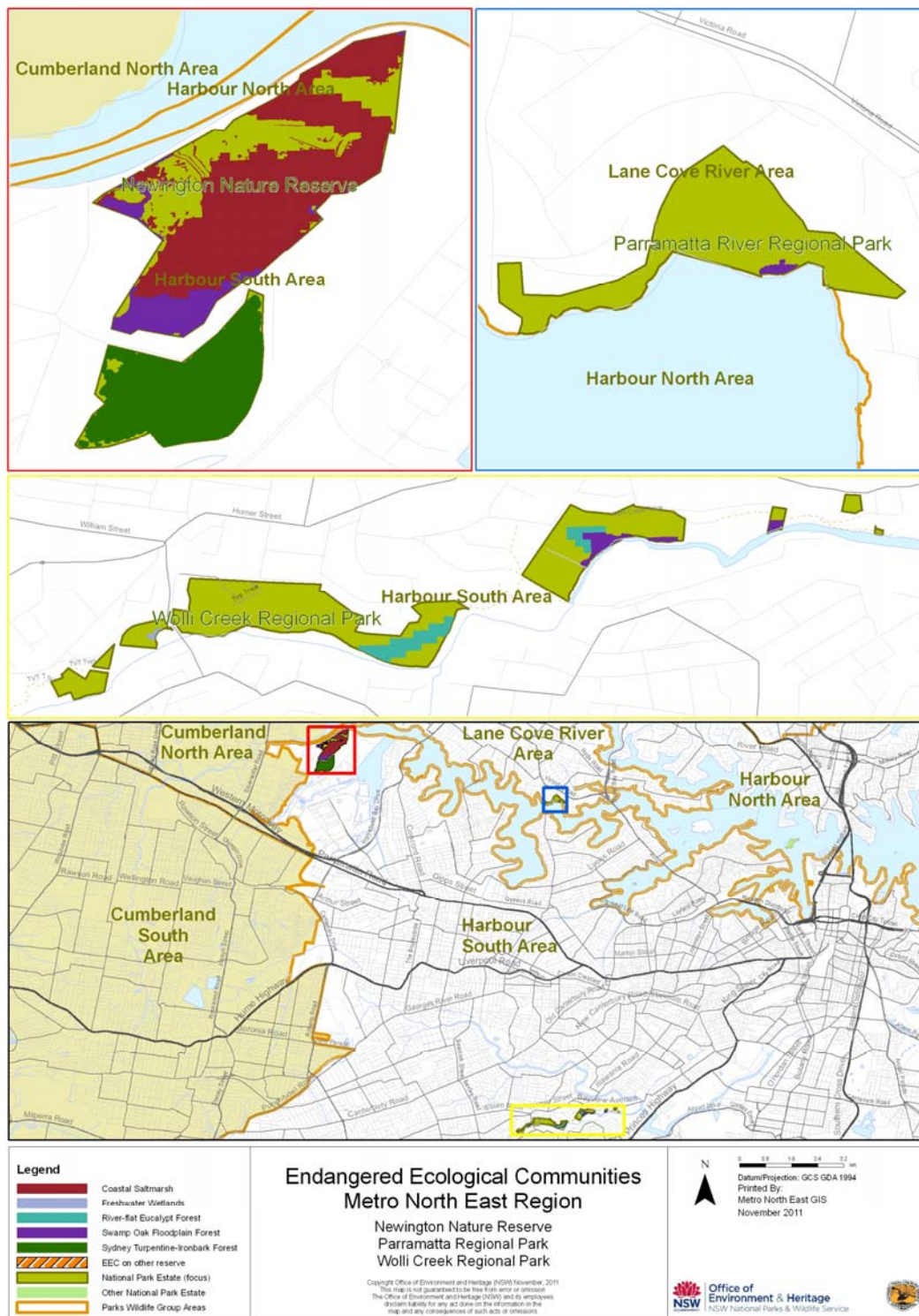












**Appendix 2: Summary of pest related key threatening process in NSW relevant to the Sydney North Region.**

For further details and a full list of determinations by the NSW Scientific Committee see:

<http://www.environment.nsw.gov.au/committee/ListOfScientificCommitteeDeterminations.htm>

Name	Determination	Gazette date	
Anthropogenic climate change	Final	17/11/2000	
Clearing of native vegetation			
Competition and grazing by the feral European Rabbit	Final	10/05/2002	
Competition and habitat degradation by Feral Goats	Final	12/11/2004	
Competition from feral honeybees <i>Apis mellifera</i>	Final	29/11/2002	
Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners	Final	28/10/2008	
High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition	Final	24/03/2000	
Herbivory and environmental degradation caused by feral deer	Final	17/12/2004	
Importation of red Imported Fire Ants into NSW	Final	23/08/2002	
Infection by <i>psittacine circoviral</i> (beak and feather) disease affecting endangered <i>psittacine</i> species and populations	Final	06/12/2002	
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis	Final	22/08/2003	
Infection of native plants by <i>Phytophthora cinnamomi</i>	Final	13/12/2002	
Introduction and establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae	Final	15/04/2011	
Introduction of Large Earth Bumblebee, <i>Bobus terrestris</i> (L)	Final	13/02/2004	
Invasion and Establishment of Escaped Exotic Garden Plants	Preliminary		
Invasion and establishment of exotic vines and scramblers	Final	21/04/2006	
Invasion and establishment of Scotch broom <i>Cytisus scoparius</i>	Final	09/11/2007	
Invasion and establishment of the Cane Toad <i>Bufo marinus</i>	Final	21/04/2006	
Invasion of native plant communities by African Olive <i>Olea europaea</i> L. subsp. <i>cuspidata</i>	Final	01/10/2010	
Invasion, establishment and spread of Lantana <i>Lantana camara</i>	Final	08/09/2006	
Invasion of native plant communities by <i>Chrysanthemoides monilifera</i>	Final	12/03/1999	
Invasion of native plant communities by exotic perennial grasses	Final	12/09/2003	
Invasion of the Yellow Crazy Ant, <i>Anoplolepis gracilipes</i> into NSW	Final	19/08/2005	
Loss of hollow-bearing trees	Final		
Predation and hybridisation of feral dogs ( <i>Canis lupus familiaris</i> )	Final	31/07/2009	
Predation by the European Red Fox	Final	20/03/1998	
Predation by the Feral Cat	Final	24/03/2000	
Predation by <i>Gambusia holbrooki</i> Plague Minnow	Final	29/01/1999	
Predation, habitat degradation, competition and disease transmission by Feral Pigs <i>Sus scrofa</i>	Final	27/08/2004	
Removal of dead wood and dead trees	Final	12/12/2003	

### Appendix 3: Weeds of National Significance (WONS)

Available at the Australian Government website:

<http://www.weeds.gov.au/weeds/lists/index.html>

The 20 Weeds of National Significance WONS were listed based on 4 criteria, invasiveness, impacts, potential for spread and socio and environmental values and were developed as a means of prioritising weed control at a national level and over a range of land uses.

Individual landowners and managers are responsible for managing WONS. State and territory governments are responsible for overall legislation and administration.

Each WONS has a strategic plan that outlines strategies and actions required to control the weed, and identifies responsibilities for each action.

Each WONS has a [Management Coordinator](#) and a National Management Group/Steering Committee to oversee implementation of the goals and actions of the WONS strategic plans and to develop and coordinate priority actions. The WONS are currently (2011) under review.

The strategic control of WONS where they significantly impact park values is a priority for NPWS.

Scientific Name	Common Name	Known to occur on NPWS estate in MNER
Acacia nilotica	Prickly acacia	
Alternanthera philoxeroides	Alligator weed	LCNP, SHNP, WRP
Annona glabra	Pond apple	
Asparagus asparagoides	Bridal creeper	MNER
Cabomba caroliniana	Cabomba	
Chrysanthemoides monilefera subsp. monilifera & subsp. rotundata	Boneseed & bitou bush	MNER
Cryptostegia grandiflora	Rubber vine	
Hymenachne amplexicaulis	Hymenachne	
Lantana camara	Lantana	MNER
Mimosa pigra	Mimosa	
Nassella neesiana	Chilean needle grass	
Nassella trichotoma	Serrated tussock	
Parkinsonia aculeata	Parkinsonia	
Parthenium hysterophorus	Parthenium weed	
Prosopis spp.	Mesquite	
Rubus fruticosus agg.	Blackberry	MNER
Salix spp. except S. babylonica, S.x reichardtiji, S. x calodendron	Willows except Weeping willow, Pussy willow and sterile Pussy willow.	
Salvinia molesta	Salvinia	
Tamarix aphylla	Athel pine	
Ulex europaeus	Gorse	



#### **Appendix 4: National Environmental Alert List (the Alert List)**

Available at the Australian Government website:

The National Environmental Alert was developed to identify plant species that are in the early stages of establishment and have the potential to become a significant threat to biodiversity if they are not managed. Species were identified for the Alert List based on three criteria, posing a high or serious potential threat to the environment, having limited distribution within Australia at present, being amenable to successful eradication or containment programs.

New incursions of alert list weeds in the Metro North East Region should be recorded and reported to the Pest Management Officer and a control program developed.

<b>Scientific Name</b>	<b>Common Name</b>	<b>Known to occur in MNER</b>
<i>Barleria prionitis</i>	Porcupine flower	
<i>Cynoglossum creticum</i>	Blue hounds tongue	
<i>Nassella hyalina</i>	Cane needle grass	
<i>Koeleria elegans</i> ssp. <i>formosana</i>	Chinese rain tree	
<i>Asystasia gangetica</i> subspecies <i>micrantha</i>	Chinese violet	
<i>Acacia catechu</i>	Cutch tree	
<i>Cyperus teneristolon</i>	Cyperus	
<i>Dittrichia viscosa</i>	False yellowhead	
<i>Pelargonium alchemilloides</i>	Garden geranium	
<i>Calluna vulgaris</i>	Heather	
<i>Senecio glastifolius</i>	Holly leaved senecio	
<i>Equisetum</i> spp.	Horsetail species	Warringah LGA adjacent GNP
<i>Acacia karroo</i>	Karoo thorn	
<i>Kochia scoparia</i>	Kochia	
<i>Lagarosiphon major</i>	Lagarosiphon	
<i>Thunbergia laurifolia</i>	Laurel clock vine	
<i>Pereskia aculeata</i>	Leaf cactus	
<i>Nassella charruana</i>	Lobed needle grass	
<i>Hieracium</i> spp.	Orange hawkweed	
<i>Praxelis clematidea</i>	Praxelis	
<i>Tipuana tipu</i>	Rosewood	
<i>Gymnocoronis spilanthoides</i>	Senegal tea plant	
<i>Chromolaena odorata</i>	Siam weed	
<i>Trianoptiles solitaria</i>	Subterranean cape sedge	
<i>Piptochaetium montevidense</i>	Uruguayan rice grass	
<i>Cytisus multiflorus</i>	White Spanish broom	
<i>Retama raetam</i>	White weeping broom	
<i>Lachenalia reflexa</i>	Yellow soldier	

## Appendix 5: Control Classes of Noxious Weeds

Weeds are declared noxious under the Noxious Weeds Act 1993 based on three criteria, the potential to cause harm to the community and individuals, have the potential to spread within an area and to other areas and can be controlled by reasonable means.

All Noxious Weeds in NSW are listed in the noxious weeds database which can be searched by species or LGA: <http://www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/noxweed>

There are five classes of noxious weeds identified, each requiring differing levels of control.

Control class	Weed type	Example control requirements
Class 1	Plants that pose a potentially serious threat to primary production or the environment and are not present in the State or are present only to a limited extent.	<p>The plant must be eradicated from the land and the land must be kept free of the plant.</p> <p>The weeds are also "notifiable" and a range of restrictions on their sale and movement exist.</p>
Class 2	Plants that pose a potentially serious threat to primary production or the environment of a region to which the order applies and are not present in the region or are present only to a limited extent.	<p>The plant must be eradicated from the land and the land must be kept free of the plant.</p> <p>The weeds are also "notifiable" and a range of restrictions on their sale and movement exist.</p>
Class 3	Plants that pose a potentially serious threat to primary production or the environment of a region to which the order applies, are not widely distributed in the area and are likely to spread in the area or to another area.	<p>The plant must be fully and continuously suppressed and destroyed.*</p>
Class 4	Plants that pose a potentially serious threat to primary production, the environment or human health, are widely distributed in an area to which the order applies and are likely to spread in the area or to another area.	<p>The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority.*</p>
Class 5	Plants that are likely, by their sale or the sale of their seeds or movement within the State or an area of the State, to spread in the State or outside the State.	<p>There are no requirements to control existing plants of Class 5 weeds.</p> <p>However, the weeds are "notifiable" and a range of restrictions on their sale and movement exists.</p>

NOTE: All Class 1, 2 and 5 weeds are prohibited from sale in NSW.

\* In some cases the following wording has also been inserted "the plant may not be sold, propagated or knowingly distributed.