HAWKESBURY NEPEAN CATCHMENT WEED MANAGEMENT STRATEGY

2007 – 2011

The development of this strategy was funded by the Natural Heritage Trust, with the assistance of the Hawkesbury Nepean Catchment Management Authority and the NSW Department of Primary Industries

Hawkesbury-Nepean CMA CATCHMENT MANAGEMENT AUTHORITY

Natural Heritage Trust
Helping Communities Helping Australia
A Commonwealth Government Initiative

NSW DEPARTMENT OF PRIMARY INDUSTRIES

Funding to develop this strategy was provided under the Australian Government's Interim Natural Heritage Trust scheme, while the HNCMA was being established. The NSW Department of Primary Industries co-ordinated the consultation and development of the first draft of this strategy document during 2006.

The strategy provides direction for a co-ordinated approach to weed management across the HNCMA region (spreading over 23 local government areas). It complements the Hawkesbury Nepean *Catchment Action Plan* by addressing specific targets in that plan.

Authors
The strategy was prepared in 2006 by Rebecca Coventry, NSW Department of Primary Industries, after consultation with representatives from regional weed committees, local councils, community groups and individuals.
Members of the steering committee who assisted with the development of this strategy throughout 2006:

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Contacts for Weed Management in the Hawkesbury Nepean Catchment

Local Government (Local Control Authority for noxious weeds except where covered by a County Council, many also have an environmental weeds capacity)			
Baulkham Hills Shire Council	9843 0555	Lithgow City Council	6354 9999
Blacktown City Council	9839 6000	Liverpool City Council	9821 9222
Blue Mountains City Council	4780 5000	Oberon Council	6336 1100
Campbelltown City Council	4645 4000	Penrith City Council	4732 7777
Camden Council	4654 7777	Pittwater Council	9970 1111
Cessnock City Council	4993 4100	Singleton Shire Council	6578 7290
Fairfield City Council	9725 0222	Upper Lachlan Shire Council	4830 1000
Gosford City Council	4325 8222	Warringah Council	9942 2111
Goulburn Mulwaree Council	4823 4444	Wingecarribee Shire Council	4868 0888
Hawkesbury City Council	4560 4444	Wollondilly Shire Council	4677 1100
Hornsby Shire Council	9847 6666	Wollongong City Council	4227 7111
Ku-Ring-Gai Council	9424 0888		
County Councils			
Hawkesbury River County Council	4587 0230	Upper Hunter County Council	6549 3802
Illawarra District Noxious Weeds Authority	4233 1129	Upper Macquarie County Council	6333 1375
NSW DPI Regional Weed Control Coordinators			
Richmond	4588 2161	Goulburn	4828 6617
Catchment Management Authority Offices			
Goulburn	4828 6747	Moss Vale	4868 3829
Lithgow	6350 3110	Windsor	4587 0050

Contents

Executive Summary

The Hawkesbury Nepean Catchment contains a highly diverse system of landscapes, from intensely urbanised suburbs and cities to rugged wilderness; agricultural land uses from irrigated intensive horticulture to extensive grazing, all within the framework of a complex river system. Each landscape represents different challenges for management to meet the biodiversity, production, healthy living, natural and built needs of its inhabitants. Similarly, the weed issues across the catchment reflect this diversity, and are in turn served by many plans and strategies.

The Hawkesbury Nepean Weed Management Strategy crosses many of the divides between land uses and landscapes to address weed management in the catchment at a strategic level.

This strategy was developed during 2006 in consultation with representatives from state and local government, community and industry from different regions within the Hawkesbury Nepean catchment. These regions reflect current patterns of cooperation and regional identity. For each region, there were intensive discussions and workshops to develop the vision, values, recommended actions and regional weed lists which formulated this strategy.

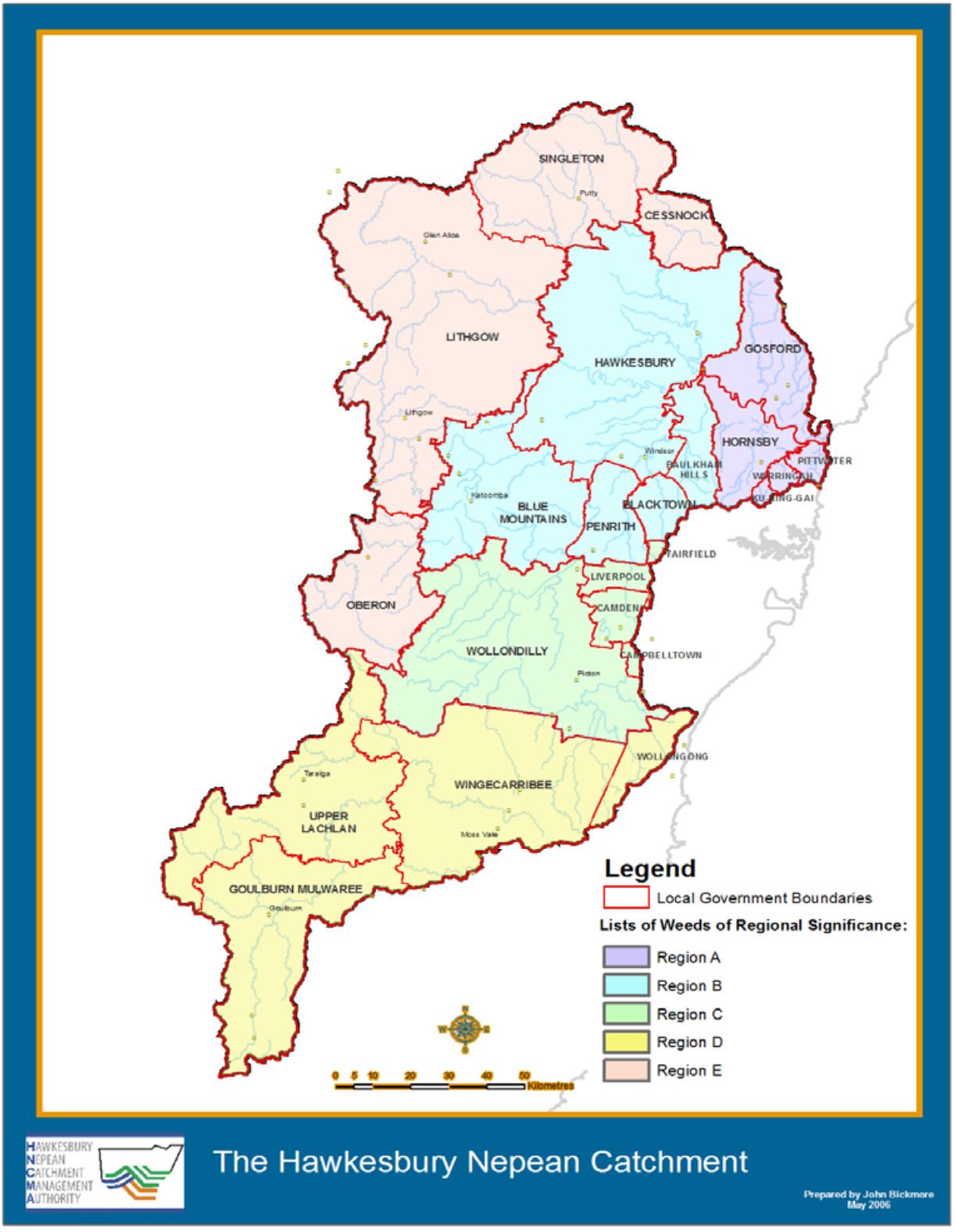
During the consultation, consistent themes appeared across the regions: involve and educate the community; act early on new weed incursions; enforce the existing legislation; reduce the impacts of weeds on biodiversity, socio-economic and production values; ensure institutional arrangements reflect weed management needs (new weed reporting, timely funding rounds, support structures and processes); improve coordination and cooperation; have effective protocols developed and enacted.

Under the *Noxious Weeds Act 1993*, responsibility for noxious weed management lies with the land owner or occupier. That notion, however, only covers a portion of the issues relating to the impacts of weeds in the catchment. Many weeds are not declared noxious, or only declared in certain areas. Some weeds have the capacity to rapidly invade beyond the ability of the owner to control. Funds are not always available. People are not always capable of action. Weeds are not always recognised. New weeds may appear.

The development of effective partnerships targeted to priorities as promoted by the recommended actions and model projects within this strategy presents a means for achieving some successful outcomes given limited resources. There is a particular need for community participation on taskforces for widespread noxious weeds to raise the political support for increased funding for weed control programs.

This strategy is designed to inspire and guide actions by weeds officers in councils, state government agencies and authorities with regard to weed management activities across the Hawkesbury Nepean catchment over the next 5 years.

The strategy has been developed in consultation with the users and practitioners, particularly the regional weed committees through workshop sessions and meetings held in 2006.



Map: The Hawkesbury Nepean Catchment – The regions used in the weed strategy (based on existing regional partnerships, regional identities and common weed management issues).

Refer to www.hn.cma.nsw.gov.au for further details about the catchment.

1. Background

1.1 Weed Management Issues in the Hawkesbury Nepean Catchment

The Hawkesbury–Nepean catchment covers 21,400km^2 and supplies water, power, agricultural and fisheries produce, tourism and mining resources with vast areas of High Conservation Value landscapes ranging from rainforests to open woodlands to grasslands and wetlands. In the catchment there are approximately 300 threatened species known or predicted to be found as indicated by their listing under the NSW *Threatened Species Conservation Act 1995* (NSW) and the Australian Government's *Environment Protection and Biodiversity Conservation Act 1999.*[1]

The catchment contains a highly diverse system of landscapes and land uses from intensely urbanised suburbs and cities to rugged wilderness; agricultural land uses from irrigated intensive horticulture to extensive grazing. Each landscape represents different challenges for weed management to meet the environmental, production, healthy living, natural and built expectations of its inhabitants.

To address the challenge of such a wide range of weed issues, a regional approach was taken in developing this strategy. This meant looking at the priorities in five main regions within the Hawkesbury Nepean catchment. These regions (as shown on the map in the previous page) were determined by existing boundaries of regional weed committees and local government boundaries, and broadened a little to cover the northern parts of the catchment.

1.2 The purpose of this Strategy

The purpose of this strategy for the HNCMA region is to support the integrated management of weeds between local councils, state government agencies and industry and the community.

The Hawkesbury Nepean Catchment Management Authority recognises the significant work that has already been done by staff, volunteers and contractors working for local government and state agencies, and private landholders, to manage weeds throughout the catchment.

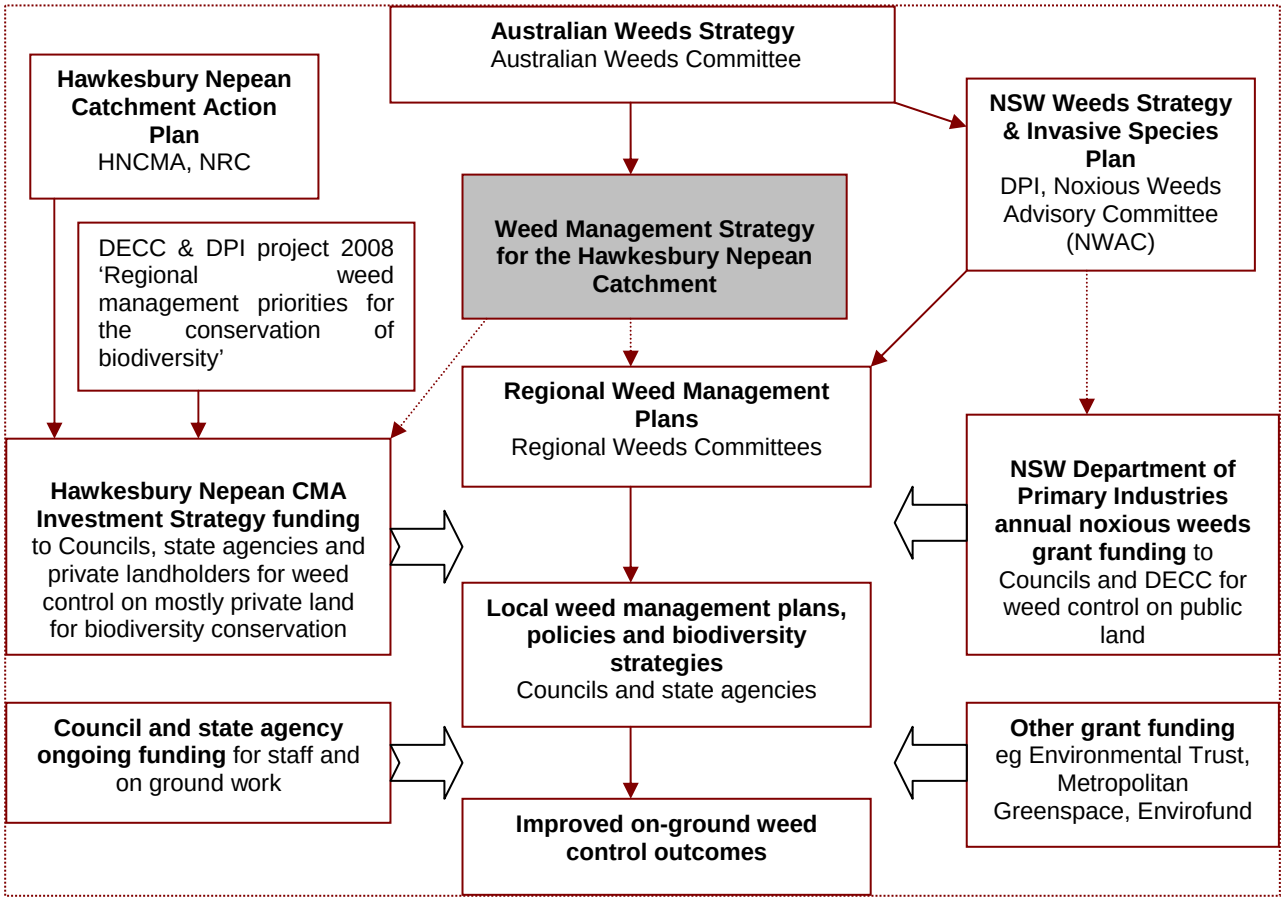
This strategy aims to facilitate the most efficient use of available funding and resources, and to enhance the work that has already been done by:

- Promoting recognition of weed management as an essential part of natural resource management for land, water and biodiversity
- Providing direction for decision makers, justifying current and future priority weed issues
- Identifying regional priorities for HNCMA, NSW and Australian Government investment
- Providing a framework to plan, assist and monitor cooperative weed management efforts across regions and in smaller scale planning
- Providing direction for local government planning such as local environment plans, development control plans, biodiversity strategies and plans of management for bushland
- Facilitating consistency in cooperative efforts across regions
- Providing opportunities to develop partnerships and communication between stakeholders

[1]. *Hawkesbury–Nepean Catchment Action Plan* 2007 – 2016.
The CAP is a statutory document to provide direction for future natural resource management through the provision of incentives, education, planning and partnership development. The CAP document can be found at www.hn.cma.nsw.gov.au

This strategy complements other key strategic documents:

1. The Australian and NSW Weed Strategies[2]
2. The regional weed management plans[3] already being developed and implemented by the regional weeds committees
3. The Hawkesbury Nepean *Catchment Action Plan* (draft 2007) particularly the following three targets:
   - o Biodiversity Management Action Target MT B5-1 Weed control "By 2016, there has been a 5% reduction in coverage of target weeds identified in the Hawkesbury-Nepean Weed Strategy through primary weed control measures and effective processes are in place to eradicate new weed outbreaks and emerging weed threats."
   - o Biodiversity Management Action Target MT B5-2 Maintenance of weed control "By 2016, 50% of areas treated for invasive plant control (under projects supported by the HNCMA) since 2006/07 report sustained success."
   - o BIODIVERSITY RESOURCE CONDITION TARGET CT B6 Conditions Favouring Invasive Species "By 2016, there is a reduction in the conditions which favour invasive species primarily through improvement in ecosystems as indicated by: An increase in native vegetation; Maintenance of groundcover; Reduction in erosion and land degradation; Use of Current Recommended Practices. Diversity of in-stream habitat; A reduction in sediment loads; A reduction in nutrient loads; A reduction in streambank degradation (erosion)"



[2] A NSW Invasive Species Plan is also being developed through 2007

[3] Regional weed management plans are developed by Regional Weeds Committees, with the assistance of NSW Department of Primary Industries, for class 4 noxious weeds (high priority weeds of regional significance). The function of the plans is to coordinate the control and management of these weeds across land management boundaries in order to reduce their impacts in parks, bushland, suburban gardens and pastures.

1.3 Developing this Strategy

This strategy was developed in consultation with members of the regional weed committees and community. The vision, recommended actions and regional weed lists were derived from interviews, intensive discussions and contributions at 9 workshops and meetings held at Richmond, Camden, Moss Vale, Lithgow and Ku-ring-gai National Park from September 2005 to May 2006.

The workshop discussions looked at the challenges of developing a strategy to address the weed management issues across such a large catchment, with so many different landscapes, land uses and natural environments. A vision and common set of values was developed by the workshop participants.

Vision

"Weed impacts across the catchment are reduced through active partnerships involving all land managers to protect biodiversity, maintain productivity and sustain catchment health"

Components of this vision

"Weed impacts are reduced across the catchment" …that weed infestations and/or their impacts are minimised, and this is a measurable or reportable reduction.

"Through active partnerships involving all land managers" …that the community and all levels of government are able to work cooperatively together in a number of different ways to achieve weed management goals.

"To protect biodiversity" … that actions incorporate the possibility of improving landscape functions to include greater biodiversity. This statement refers to choices for weed management options and also to consideration of timeframes – consideration of the impacts of management decisions over time can create positive biodiversity outcomes.

"Maintain productivity"…that the ongoing productivity of land used for agriculture and horticulture is recognised as an important motivator for and beneficiary of weed management.

"Sustain catchment health" …that the overriding vision of a healthy catchment is recognised - with an active and educated community participating in catchment management.

Values

We value the biodiversity of the Hawkesbury Nepean catchment
We value the efforts of the community in preventing and managing weed infestations
We value the principles of ecological sustainable development
We value the diversity of land use and productivity of the catchment

Themes for discussion

Consistent themes and necessary actions appeared in the workshops and meetings across each region:

- Involve and educate the community
- Act early on new weed incursions
- Prioritise existing weed problems through weed risk assessments
- Enforce the existing legislation
- Reduce the impacts of weeds on biodiversity, socio-economic and production values
- Ensure institutional arrangements reflect weed management needs (reporting, funding, timing, support structures and processes)
- Weed infestations and their impacts are minimised
- Changes over time are measured and reported
- Improve coordination and cooperation between community and all levels of government
- Work toward the goal of weed resilient landscapes over all land use types
- Refining weed management approaches in varying situations [4]
- Identification of priority areas:
    - Areas of high conservation value (eg. for Aboriginal heritage, threatened species, bushland quality, habitat value, land stability)
    - Riparian zones (Refer to the Hawkesbury Nepean River Health Strategy[5])
    - Corridor and Buffer zones (eg. areas adjacent to and between National Parks/ Bushlands and rural lands, roadsides/ railway/easements)

Constraints

Throughout the consultation phase, many constraints were identified. The recommended actions in the following pages aim to address many of these current constraints.

- Lack of knowledge and skills to identify and report on new weeds
- Lack of knowledge and skills to identify weeds of national, state and regional significance
- Some weeds are already well established before they are discovered or declared noxious
- Inconsistencies in noxious weed declarations across neighbouring local government areas
- Lack of knowledge and consideration of weed seed spread when undertaking activities such as road maintenance, engineering works, development, earthworks and recreational activities
- Inadequate resources for private property inspections
- Grant funding time frames do not match logistics and seasons for weed management
- High risk plants are still being grown and sold to the public
- Education programs tend to reach the already ‘converted’ people
- Different systems of data collection and storage across organisations
- Lack of awareness among general managers and senior managers about their organisation’s weed management responsibilities
- Many state agencies do not have adequate resources to treat weeds on their lands
- Grant funding is limited, restricted, and not secured for multi-year regional projects
- High level of administration required to coordinate weed management across many councils and state agencies
- Too many different application and reporting formats required for the different funding bodies

[4] Generally, there are two approaches to weed management: (i) a bush regeneration approach which works with the natural resilience of a site and aims to restore a functioning, self sustaining ecosystem, and (ii) a weed control approach which aims to control a particular weed species or range of species at a particular site or across a larger area. Each approach is valid and needs to be weighed up against available time frames, resources, resilience of a site and impacts on biodiversity- soil- land assets, sustainable agriculture and amenity.

[5] http://www.hn.cma.nsw.gov.au/topics/2201.html accessed 1 June 2007

Recommended Actions
The following pages include a series of recommended actions with the organisations and groups responsible for their implementation.

Completion of all actions is recommended within the 5 year life of this strategy.

This strategy is a **guide**. Each Council, government agency and private landowner and occupier is responsible for managing weeds on their land, according to the *Noxious Weeds Act 1993*.

1.4 Reviewing this Strategy

This strategy will be reviewed within its 5 year life to ensure ongoing relevance and to reflect changes and achievements.

Comments or feedback about this strategy document may be sent to:

Community Support Officer (Landcare - Weeds)
Hawkesbury Nepean Catchment Management Authority
PO Box 544
Windsor NSW 2756
Phone 02 4587 0050

2. Implementing this Strategy

Organisations and groups with an interest in developing and implementing the recommended actions in this Strategy:

Hawkesbury Nepean Catchment Management Authority

The Hawkesbury Nepean Catchment Management Authority will facilitate the implementation of this strategy by:

- Encouraging endorsement of the strategy and its recommended actions by each Council in the Hawkesbury Nepean catchment (this will assist in raising awareness among councillors and senior managers of the importance of funding weed management)
- Participating in planning at regional weeds committee meetings, to review and determine the priority actions for the coming year
- HNCMA will integrate weed management into all its on-ground delivery programs

Regional Weeds Committees

These are funded by DPI to support coordination and best practice transfer amongst neighbouring councils for the control of noxious weeds. Membership is DPI, all regional councils and public land managers. Regional Weeds Committees with an interest in the Hawkesbury Nepean catchment are:

- Southern Tablelands & South Coast Noxious Plants Committee - Wollongong, Wingecarribee, Goulburn Mulwaree and Upper Lachlan Councils.
- Sydney North RWC– Hornsby, Ku-Ring-Gai, Warrringah, Pittwater Councils
- Sydney West Blue Mountains RWC– Hawkesbury, Baulkham Hills, Blacktown, Penrith, Blue Mountains Councils
- Sydney South West RWC – Fairfield, Liverpool, Camden, Campbelltown, Wollondilly Councils
- Upper Hunter Noxious Plants Advisory Committee – for Singleton Council
- Hunter and Central Coast Weed Management Committee – for Gosford and Cessnock
- Upper Macquarie County Council – for Oberon & Lithgow Councils. There is no Regional Weed Committee.

Local Councils

All Councils are required under the *Noxious Weeds Act 1993* to control noxious weeds on land under their control and to inspect all private property for the presence of any noxious weeds. Many plants introduced to Australia that are not declared noxious, may also become weeds (known as “environmental weeds”). It is in the interest of all Councils to also control these weeds that may pose a threat to the environment. To obtain a list of declared noxious weeds in a specific council area, contact the local council directly or view a list of declared weeds and their classes at www.dpi.nsw.gov.au/agriculture/noxweed

- Baulkham Hills Shire Council
- Blacktown City Council
- Blue Mountains City Council
- Camden Council
- Campbelltown City Council
- Cessnock City Council
- Fairfield City Council
- Gosford City Council
- Goulburn-Mulwaree Shire Council
- Greater Lithgow City Council
- Hawkesbury City Council
- Hornsby Shire Council
- Ku-ring-gai Municipal Council
- Liverpool City Council
- Oberon Council
- Penrith City Council
- Pittwater Council
- Singleton Council
- Upper Lachlan Shire Council
- Warringah Council
- Wingecarribee Shire Council
- Wollondilly Shire Council
- Wollongong Council

County Councils

Some councils have delegated their responsibility for noxious weeds to county councils.

- Hawkesbury River County Council – Baulkham Hills, Blacktown, Hawkesbury and Penrith Councils
- Illawarra District Noxious Weeds Authority – Wollongong Council
- Upper Hunter County Council – Singleton Council
- Upper Macquarie County Council – Lithgow and Oberon Councils

State Government Agencies

All state government agencies responsible for managing land are members of regional weeds committees. All state agencies that are occupiers of land to which a weed control order applies must control noxious weeds on such land as required under the order, to the extent necessary to prevent the weeds from spreading to adjoining land.

- NSW Department of Primary Industries (DPI)
- NSW Department of Environment and Climate Change - National Parks and Wildlife (DECC)
- Rural Lands Protection Boards
- Sydney Water Corporation
- Railcorp
- Roads and Traffic Authority
- NSW Department of Lands
- Department of Defence (Commonwealth)
- Integral Energy/ electricity line easement owners.

Community and Non-government groups

- Community volunteers working as part of Bushcare/ Landcare programs, councils, state agencies and incorporated community groups
- Indigenous community volunteers working with Aboriginal Land Council programs, Aboriginal incorporated groups and non-government organisations
- Nursery & Garden Industry Association NSW & ACT - “Grow Me Instead” project
- Australian Association of Bush Regenerators (AABR), contractors

Owners and occupiers of private land

- Private owners and occupiers of land to which a weed control order applies must control noxious weeds on the land. Owners and occupiers are also encouraged to control other weeds.

Recommended Actions

The Goals of this Strategy

The 3 goals and 10 objectives of this strategy, listed below, are aligned with those set out in the *Australian Weeds Strategy,* Australian Weeds Committee, 2006)[6].

Goal One: Prevent new weed problems
This goal is about ensuring new weeds are found and can be acted on quickly, because controlling new weed infestations is cheaper than controlling large infestations. "New weeds" are weeds that show up for the first time in an area.

1.1 Ensure early detection of, and rapid action, against new weeds
1.2 Reduce the spread of weeds to new areas
1.3 Keep up to date with new information on potential invasive weeds species and vectors

Goal Two: Reduce the impact of existing priority weed problems
This goal is about identifying and prioritising weed problems that already exist. Whilst the Hawkesbury Nepean catchment will never be free from the effects of weeds, much can be done to reduce the impacts of existing weeds, particularly those identified as priority weeds.

2.1 Identify and prioritise weeds and weed management problems in the Hawkesbury Nepean catchment
2.2 Implement coordinated and cost-effective solutions for priority weeds and weed problems
2.3 Develop approaches to managing weeds based on the protection of values and assets

Goal Three: Enhance our capacity and commitment to solve weed problems
This goal is about strengthening the capacity and commitment of all stakeholders involved with weed management so weed problems can be acted on with consistency and monitoring over time.

3.1 Raise awareness and motivation among the community to strengthen their commitment to act on weed problems
3.2 Strengthen the capacity and partnerships between public land managers and the community to address weed problems and improve weed management
3.3 Manage weeds within consistent policy, legislative and planning frameworks
3.4 Monitor and evaluate the progress of weed management efforts throughout the Hawkesbury Nepean catchment

[6] *Australian Weeds Strategy. A National Strategy for Weed Management in Australia.* June 2006. Natural Resource Management Ministerial Council. Australian Weeds Committee.

Action Table

Each goal and objective of this strategy is supported by a desired strategic outcome and realistic actions. Completion of all actions is recommended within the 5 year life of this strategy.

The priority column values in the table were derived by subjectively analysing the strategic priority (importance) of an action and adjusting it based on the likelihood (given various constraints eg. funding) of it being implemented. For example:

Strategic priority of an action	Likelihood of it being implemented	Final 'Realistic' **Priority** score
High	High or Med	**High**
High	Low	**Med**
Med	High or Med	**Med**
Med	Low	**Low**
Low	High	**Low**

In general:

- **"High"** priority refers to actions which must be done and are very or reasonably possible.
- **"Medium"** priority refers to actions which should be implemented and are very or reasonably possible.
- **"Low"** priority actions are those which should be implemented, but may be hampered by lack of resources or some other constraint.

Goal 1: Prevent new weed problems

1.1 Ensure early detection of, and rapid action against, new weeds			
Strategic outcome	Actions	Priority	Organisations with an interest in this action
i. Weed preventative land management is practised by most stakeholders	• The earliest possible action against new weeds is prevention of weed germination: o Minimise site clearing & disturbance o Promote competitive desirable vegetation cover if disturbance has occurred • Training promoted to rural landholders[7] on weed resilient landscapes such as DPI courses- Prograze, Landscan, Property planning; MLA[8] course- 'Weed Removers Pasture Improvers' • Training in bush regeneration promoted to all bushland managers on maximising opportunities for native species to out-compete germinating weeds	High	**All LCAs** DPI HNCMA All
ii. New incursions are detected and controlled rapidly by all land managers	• Survey areas at risk from invasion by the highest priority weeds such as: o Downstream/ downwind/ locally of existing infestations depending on the dispersal vector o Where weed supportive factors exist such as high nutrients, good soils- eg. Intensive agriculture, stormwater, golf courses and nursery run-off areas o Areas disturbed by development o Areas subject to changing landuses such as	High	**Weeds Committees** DPI LCAs State agencies Contractors

[7] Comment: Hornsbys Rural Lands Incentives Program could be a good model to achieve this as it trains property owners in weed ID and management and good land practices and is already running in the area. This could be adopted/modified for other councils. This program has already lead to the discovery of a new incursion of Senegal Tea.

[8] Meat & Livestock Australia

	farming land converted to rural residential use • Adopt a web based reporting system[9],[10] to be developed by Sydney Weeds Committees for new incursions for staff, contractors and community to use based on: o Confirmation of ID with Royal Botanic gardens o Report weed to DPI o Prioritise new weed incursions using an objective weed risk assessment system[11] o Map distribution o Seek technical advice to treat new incursions o Disseminate information and photos via regional weed committees, websites, email networks o Seek DPI funding allocated specifically for new incursions o Control new weed infestations and monitor over time • Ensure stakeholders are informed of this system and ready to use it • Until such a system is operational, the actions above should act as a guide for managing all new incursions		
iii. LCA and state agency officers are trained and able to recognise new weeds	• Seek assistance from DPI for training in identification-reporting of Class 1, 2 and 5 noxious weeds and national/state weed alerts for LCA/agency weed officers and Council staff working outdoors in other service areas	High	**Weeds Committees** DPI LCAs State agencies
iv. The sale of potentially 'weedy' garden plants is reduced in areas where they pose a threat	• Assist with the ongoing implementation of the "Grow Me Instead" project[12] (ie. risk assessment of plants still available for sale and education program) • Circulate information to and from the "GMI" Steering Committee to the Weeds Committees about potential new weeds infesting natural areas and still available for sale	Medium	**Weeds Committees** HNCMA DPI
	• Annual inspections of all nurseries, pet shops and aquaria		**All LCAs**

1.2 Reduce the spread of weeds to new areas			
Strategic outcome	Actions	Priority	Organisations with an interest in this action
i. Weed spread prevention protocols are developed, promoted and adopted across the catchment	• Utilise existing weed spread prevention information and protocols developed by other states, until NSW specific material is developed • Protocols are promoted by targeted education (eg- self auditing process) to high risk industries (eg earthmoving, transport, recreational boating, maintenance machinery operators including lawn mowing and slashing contractors, earthmoving contractors, boat and waterway users) especially where vulnerable sites concerned	High	**DPI** LCA's HNCMA State agencies Contractors

[9] Include potentially invasive species in this system – refer to Action 1.3i

[10] This will be developed by and for the Sydney Weeds Committees but will be available for transfer to other Regional Weed Committees in the Hawkesbury Nepean Catchment.

[11] The table in Appendix 1 was used at the time of developing this strategy

[12] Administered by the Nursery & Garden Industry Association (NSW and ACT)

	• Target inspections at high risk industries • Promote protocols to high risk industries for high risk weeds at vulnerable sites (eg- Alligator Weed in the new SW Growth Centre, Sydney) • Consider options for incentives/assistance to encourage industries to adopt weed spread protocols		

1.3 Keep up to date with new information on potential invasive weeds species and vectors			
Strategic outcome	Actions	Priority	Organisations with an interest in this action
i. All land managers and the bush regeneration industry have up to date information on potential invasive species and vectors	• Evaluate potential invasive species using an objective weed risk assessment system (see Appendix 1) • Maintain contact with research organisations (CSIRO, Weeds CRC, NSW Weeds Society, plant societies, Royal Botanic Gardens, universities) • Include potentially invasive species in the web based reporting system for new weeds • Distribute new information about environmental changes and implications for weed management and research	Medium	**Weeds Committees** DPI

Goal 2: Reduce the impact of existing priority weed problems

2.1 Identify and prioritise weeds and weed management problems in the Hawkesbury Nepean catchment			
Strategic outcome	Actions	Priority	Organisations with an interest in this action
i. Existing weeds and plants of concern are assessed, prioritised and reviewed regularly for each region	• Annually update the Weeds of Regional Significance (WORS) lists, using a consistent and objective weed risk assessment system[13] • Adopt the pro forma WORS list in Appendix 2 to give an easily visible snapshot of why the weed is a priority • Where appropriate, categorise weeds into groups to streamline planning, funding and on-ground management actions (eg. invasive grasses, berry-bearing woody weeds, vines, aquatics) • Develop a short list of priority weed sites	High	**Weeds Committees**

2.2 Implement coordinated and cost-effective solutions for priority weeds and weed problems.			
Strategic outcome	Actions	Priority	Organisations with an interest in this action
i. Priority weeds are effectively controlled	• For the priority weeds identified in 2.1i: o Inspect to confirm presence (see 2.2ii-iii below) o Establish a baseline map of weed extent & density and bushland/ pasture condition.	High	**All**

[13] The table in Appendix 1 was used at the time of developing this strategy

2.2 Implement coordinated and cost-effective solutions for priority weeds and weed problems.			
Strategic outcome	Actions	Priority	Organisations with an interest in this action
	o Distribute map to stakeholders. o Plan control works and include all stakeholders. o Apply for funding (see 2.2iv-v below). o Implement control (include education & awareness, use best management practices - particularly encouraging competition from desirable species). o Monitor success of control efforts and update baseline map. o Ensure control sites are maintained in future years.		
ii. Noxious weeds on private lands are managed according to the requirements of the Noxious Weeds Act	• Implement the Noxious Weeds Act to private landholders, targeting weeds or sites identified in Action 2.1i: o Inspections to confirm presence o Education & training concerning weed identification, impacts, best practice management & control, landholder responsibilities o Monitor (to establish success of landholder control actions) o Enforce the Act as a last but real resort	High	**All LCAs**
iii. Noxious weeds on public lands are managed according to the requirements of the Noxious Weeds Act	• Councils and state agencies fulfil their weed management responsibilities on land under their care, targeting weeds or sites identified in Action 2.1i	High	**All LCAs** State agencies
	• Liaise with specific government agencies that are not taking action • Encourage agencies to plan weed management budgets in advance, including maintenance of weed control over time	Medium	**Weeds Committees**
	• Promote collaborative partnership projects with neighbouring land managers including for transport corridors and service easements	High	**Weeds Committees** All LCAs State Agencies
	• Lobby local members of parliament and councillors		**Weeds Committees** Community
iv. Regional Weed Management Plans (RWMP) and grant applications for noxious weeds • match the identified priority weeds • are developed in consultation with all relevant land managers • are endorsed by all	• Review and update RWMPs and regional projects, to reflect identified priorities (see 2.1i) and groups of weeds (eg- grasses, berry forming trees) • Seek endorsement and commitment from all land managers involved in the RWMPs • Analyse commitment made in RWMPs to the priorities in 2.1i	High	**Weeds Committees**

2.2 Implement coordinated and cost-effective solutions for priority weeds and weed problems.			
Strategic outcome	Actions	Priority	Organisations with an interest in this action
land managers involved			
v. Grant applications for environmental weeds match identified priorities	• Ensure actions reflect current priorities (see 2.1i) and groups of weeds (eg- grasses, berry forming trees) • Develop mapped information • Seek endorsement and commitment from all relevant land managers	High	**All LCAs** Weeds Committees
vi. Existing weeds are contained	• Contain edges then reduce extent of existing infestations of more widespread WORS. • Regularly inspect areas at risk of invasion identified in 1.1ii.	High	**Weeds Committees** LCAs DPI State agencies
vii. Community based task forces are established to drive political support (hence funding support) and management of the highest priority widespread WORS (eg Serrated Tussock on the Southern Tablelands, African Olives in SW Sydney)	• Determine stakeholders and establish task forces using community weed management models[14] for the highest priority widespread WORS o Establish initial funding for project officer o Develop a strategy o Secure funding and key project support (housing, personnel, mapping & data management systems etc) o Establish consistent media publicity o Co-ordinate program implementation based on the strategy	Medium (this High strategic priority is lowered to medium due to a serious current funding constraint)	**Weeds Committees** NSW DPI HNCMA Landholders

[14] Examples of taskforces and weed management models led by the community

(i) In response to the uncoordinated control of widespread Camphor Laurel, the North Coast Weeds Advisory Committee established a taskforce and secured project officer funding from the Regional Weed Action Program run by the NSW Noxious Weed Advisory Committee. A hands-on **Camphor Laurel Kit** was developed to assist Landcare groups, local control authorities, Councils, government departments, public utilities, bush regenerators and individuals. The **taskforce** comprises experts and stakeholders from throughout the region. The taskforce's role is to have direct input into the Kit and management strategies, and oversee their implementation into the future. www.northcoastweeds.org.au

(ii) In Victoria in 1995 members of the community were concerned with the spread of serrated tussock, a devastating weed that had invaded 130,000ha of land. In response to that community concern, a strategy for the control of serrated tussock in Victoria was produced, which called for the development of the community-managed and driven **Victorian Serrated Tussock Working Party**. The Working Party is a partnership with the Victorian Department of Primary industries and Department of Sustainability and Environment, Landcare groups and Councils to establish and maintain support (amongst all stakeholders) for and guide the program delivery: undertake research, produce extension material, provide incentives to land managers and community groups and a comprehensive mapping, extension, monitoring and compliance regime. www.serratedtussock.com

(iii) In Victoria over the last two years, more communities with the support of Vic DPI are adopting the Community Weed Model (established with serrated tussock) for other widespread weeds such as Ragwort and Blackberry. The **North East Blackberry Action Group** was formed to bring landholders and government together to tackle blackberries in the Upper Murray catchment. The group is developing a landholder information kit, field days and a voluntary compliance program. They are also mapping areas of Blackberry and identifying areas under threat across several land tenures. The group is also working with other stakeholders to trial different chemicals, timing and rate of application and spraying techniques. Heavily infested sites in the upper catchments will be targeted to protect high conservation values downstream. www.dpi.vic.gov.au

2.3 Develop approaches to managing weeds based on the protection of values and assets.			
Strategic outcome	Actions	Priority	Organisations with an interest in this action
i. Weeds are managed to protect the biodiversity and conservation needs of bushland, especially threatened or endangered species /communities	• Target weed management in bushland areas focusing on: o Priority actions and sites for specific endangered species and communities using the DECC Priorities Action Statements[15] (PAS), Threat Abatement Plans[16] (TAP), Recovery Plans[17], DECC identified biodiversity and fauna corridors[18] and results from a current study by DECC due in June 2008[19]. o Species posing the greatest controllable threat to quality of bushland o Strategic areas where control is most effective o Maintaining integrity/viability of remnants o The consolidation of gains made from previous efforts	High	**Weeds Committees** All LCAs DECC
ii. Weed management is integrated with development and asset management programs	• Incorporate weed management issues into planning and on ground work of other land management efforts: o development assessment, subdivisions o road making and maintenance o construction impact management o park management o sporting amenity building	Medium	**All**
iii. Weed management is integrated with other natural resource management programs	• Incorporate weed management issues into the planning and on ground work of other natural resource management efforts: o Use of fire as a weed management tool o Vertebrate pest management o Stormwater management o Aquatic and terrestrial habitat management o HNCMA programs such as the Riparian Restoration Program, Bushland Conservation Program, Catchment Protection Scheme.	High	**All**
iv. Weed management is sensitive in/near known areas and sites of Aboriginal significance Weed management is carried out under the guidance of Indigenous advisors	• Develop communication links and information sharing with Aboriginal advisory staff in DECC, CMAs and Aboriginal Land Councils[20] • Facilitate cultural heritage training for staff and volunteers of LCAs and state agencies • Facilitate direct liaison between contractors and indigenous advisors	High	**HNCMA** DECC Weeds Committees Aboriginal Land Councils Contractors

15 http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/pas_cma_recovery_details.aspx?cma=Hawkesbury/Nepean&type=habitat%20management:%20weed%20control&sort=&priority=high Accessed June 2007

16 http://www.nationalparks.nsw.gov.au/npws.nsf/Content/Threat+abatement+plans+by+doctype

17 http://www.nationalparks.nsw.gov.au/npws.nsf/Content/Recovery+plans

18 See the Hawkesbury Nepean Catchment Action Plan http://www.hn.cma.nsw.gov.au/multiattachments/3346.html Accessed June 2007

19 This project will ensure that priorities (weed species and sites) and priority & monitoring protocols are developed for the HN catchment.

20 Refer to Appendix 4 for more information about the Aboriginal Land Councils operating within the Hawkesbury Nepean catchment

Goal 3: Enhance our capacity and commitment to solve weed problems

3.1 Raise awareness and motivation among the community to strengthen their commitment to act on weed problems			
Strategic outcome	Actions	Priority	Organisations with an interest in this action
i. Members of the community understand and act on their responsibilities for noxious weed management	• Undertake community education and awareness programs and campaigns • Publicise success stories via local media releases and interest stories • Web based information is supported and updated	High	**DPI** Councils
ii. Community members have greater awareness of best management practices for weeds • rural landholders • rural lifestyle landholders • urban landholders	• Training promoted on identification and reporting of new and high priority weeds • Encourage use of a wide range of effective and integrated weed control methods: chemical, manual, biological and management that facilitates competition against weeds from desirable species. • Share information about successful methods to other weed managers via emails, web pages, annual forums for specific weeds, weed committee meetings • Managers of productive land have training offered to them on weed resilient landscapes such as DPI courses- Prograze, Landscan, Property planning; MLA course- 'Weed Removers Pasture Improvers' • Managers of unproductive land are encouraged to revegetate with native plants, undertake local seed collection, link with community nurseries and join a Landcare group for support • Provide information about suitable plants for urban gardens (refer to 1.1v) • Distribute DPI calendar[21] with rural information about seasonal timing of weed control	High	**All LCAs** DPI HNCMA Weeds Committees
iii. Raised community awareness and profile about the impacts of weeds on the social and natural environments, and the need for greater resources	• Circulate media releases and interest stories about the impacts of weeds (When possible, use quantitative values relating to weed impacts (eg financial loss to agriculture, tourism etc) • Promote successful outcomes of weed management projects via media releases, newsletters, websites and to local members • Lobby for the development and implementation of a wide ranging communication strategy with consistent messages delivered across the HN catchment	Med	**All**

[21] http://www.agric.nsw.gov.au/reader/weed-calendars Accessed June 2007

3.2 Strengthen the capacity and partnerships between public land managers and the community to address weed problems and improve weed management			
Strategic outcome	Actions	Priority	Organisations with an interest in this action
i. Regional weed committees continue to provide a valuable and structured forum for information exchange and action on regional weed management issues	• Facilitate collaborative projects across a region • Encourage regional "identity" and relationship building among weed committees to enhance influence, ownership and implementation of regional plans and collaborative projects • Facilitate exchange of information about latest successful weed control trials and techniques, progress on weed management projects, enforcement of Noxious Weeds Act • Provide variety and interest at committee meetings • Seek ongoing financial support for the weed committees (Project Officer support, administrative and on ground funding) from DPI, Councils and state agency contributions, and HNCMA in kind • Regularly revisit the Committee's goals and mandates • Regularly promote success stories and achievements • Send formal invitations and letters to member organisations who are not attending meetings and participating (eg. promote the benefits provided by the weeds committee's regional approach, request an alternative staff member be nominated to attend meetings)	High	**DPI** Weeds Committees HNCMA
iii. State government funding programs demonstrate flexibility and relevance to support current weed issues and regional weed management initiatives	• Lobby state agencies and members of parliament • Liaise with funding bodies for o funding timetables to be kept in line with council budget timing, regional weed planning time-tables and optimum weed control seasons o rapid feedback about grant applications, to assist with decision making and planning on ground work • Promote successful outcomes of weed projects (where possible using benefit cost ratio analysis on the weed investment[22]) among the public and members of parliament	Medium	**Weeds Committees**
iv. Mayors, Councillors, General Managers are informed and aware about the responsibilities of their council for weed and biodiversity management	• Liaise with the Local Government and Shires Associations of NSW about effective ways to inform and engage mayors, councillors, general managers and senior managers about their organisation's responsibilities • Promote successful projects via reports, before and after photos, site tours, presentations at council meetings etc	Medium	**Weeds Committees** HNCMA LGA & SA LCAs
vi. Senior managers of utilities and state agencies are	• Lobby agencies and utilities where weeds are impacting on neighbouring lands • Develop collaborative projects to build awareness	Medium	**Weeds Committees**

[22] for example http://www.weeds.crc.org.au/main/facts_figures.html and http://www.lgaq.asn.au/lgaq/publications/pages/WeedPestMgmtEconomicImpact.html accessed 14 June 2007

informed and aware about the responsibilities of their organisation for weed and biodiversity management	and capacity		

3.3 Manage weeds within consistent policy, legislative and planning frameworks			
Strategic outcome	Actions	Priority	Organisations with an interest in this action
i. Noxious weed lists are reviewed	• Review noxious weed declarations and opportunities to consistently declare weed across a group of councils/region, where a declaration will make a difference to controlling this weed across a region	Medium	**Weeds Committees** LCAs DPI
ii. Weed management requirements are built into the all phases of the development assessment process	• Insert requirements for weed management into development application information and development consent conditions	Medium	**All LCAs**
iii. Weed issues relating to subdivisions and changing land uses are considered in regional weed plans (ie land use changes from agricultural to lifestyle, lifestyle to urban etc)	▪ Ask Councils to address the issues arising from changing land use and ownership, and to consider approaches that reduce the additional weed burdens created ▪ Distribute information to real estate agents, conveyancing companies etc on the need to consider presence of noxious weeds when purchasing land and that landholders can request a pre-purchase weed inspection	Medium	**All LCAs** Planning authorities Real estate offices

3.4 Monitor and evaluate the progress of the weed management effort throughout the Hawkesbury Nepean catchment			
Strategic outcome	Actions	Priority	Organisations with an interest in this action
i. Weed data and spatial information is collected consistently throughout the catchment and updated regularly to demonstrate progress over time	• Develop and distribute standards for information collection • Streamline weed mapping processes for all to use • Train LCA and state agency staff • Collect and collate information about weed distribution, density, management programs across the HN catchment (collect the information annually or biannually for the priority weeds) • Collate the data in a format that can by used and interpreted by most stakeholders (ie. a transferable and consistent format) • Explore feasibility of storing and maintaining the information in one central place such as the weed committees website with restricted	High	**Weeds Committees** HNCMA

3.4 Monitor and evaluate the progress of the weed management effort throughout the Hawkesbury Nepean catchment			
Strategic outcome	Actions	Priority	Organisations with an interest in this action
	access provisions • Work with other programs to collect data about weeds (eg Streamwatch)		
ii. Reporting of weed management is simple, consistent and demonstrating progress over time	• Develop and implement a consistent process and pro forma for reporting on progress of weed management by all LCAs and state agencies (eg. Information about successful methods and treatments of the hard-to-control weeds, aquatics, reduction in infestations etc) • Collect and share the reported information via Weeds Committee meetings • Utilise the collated information to assist with weed prioritisation, funding applications and new or changed noxious weed declarations. • Liaise with DPI to simplify the reporting process for annual grants • Collect consistent information about implementation of regional management plans and group projects, and hold this information in a common database	High	**Weeds Committees**
iii. Weed ranking process is reviewed and updated	• Assess the effectiveness and relevance of the weed ranking process (Appendix 1) as a decision making tool for the HN catchment	Low	**Weeds Committees**
iv. Monitor and evaluate overall application of this strategy	• Bi-annual report to LCAs and HNCMA for each action	Med	**Weeds Committees**

3. Weeds of Regional Significance

During the consultation process for this strategy, the impracticalities of having one list of priority weeds for the whole HNCMA catchment were identified, due to the variations in topography, landscape types and vegetation communities across the catchment. For practical reasons, this strategy developed lists of priorities weeds for five main sub-regions within the HNCMA catchment, where a consistent approach can realistically be achieved in each of them.

The following lists of weeds were developed by representatives from each region, using a system developed by Rod Randall (refer to Appendix 1). This system assesses and ranks weeds by considering:

- the ***invasiveness*** of the weed
- its various ***impacts***
- its potential ***distribution*** and
- whether it is ***feasible to eradicate*** the weed.

Using a scoring process, each weed species can be ranked against others to indicate its level of priority. The species with the highest scores are normally the higher priority weeds as they have the greatest potential to invade and the most detrimental impacts.

Note: These scores can be compared only to the scores of other weeds assessed for the same area. They cannot be compared to scores of weeds from other areas because some of the questions are site specific.

Weeds of Regional Significance

Region A: Sydney North

Region A includes parts of Gosford, Hornsby, Pittwater, Warringah and Ku-ring-gai local government areas. Representatives from these local government areas were involved in the consultation process to develop this strategy and regional list of weeds.

The focus for Sydney North councils is bushland protection rather than targeting individual weeds. Also note the need for universal weed risk assessment and working with the nursery and garden industry. The workshop group indicated the worst weeds would be:

1. Riparian colonisers – Privets, crofton weed and mistflower, camphor laurel, cassia and senna, Ludwigia. Plus aquatics eg Alligator weed.
2. New weed incursions
3. Environmental weeds – Acacia saligna, invasive vines, both Asparagus weeds, Tussock Paspalum (*Paspalum quadrifarium)*, Coolatai Grass *(Hyparrhenia hirta)*, Pampas Grass Bitou Bush/Boneseed.

Weeds of concern in relation to the Cowan Catchment Transport Corridor project (this project list was reviewed and affirmed as representative of the area)	Other listing
African olive *Olea europaea subspecies cuspidata*	
Arrowhead Vine	
Arundo *Arundo donax*	
Balloon vine *Cardiospermum grandiflorum*	
Bamboo species *Phyllostachys spp* .	
Bitou Bush *Chrysanthemoides monilifera*	WONS[23]
Blackberry *Rubus fruticosus (agg. spp.)*	WONS
Bridal creeper *Asparagus asparagoides*	WONS
Cape ivy *Delairea odorata-*	
Camphor laurel *Cinnamomum camphora*	
Cytisus species	
Castor oil plant *Ricinus communis*	
Cats claw creeper *Macfadyena unguis-cati*	
Climbing asparagus *Asparagus densiflorus*	
Coolatai grass *Hyparrhenia hirta*	
Coral tree *Erythrina crista-galli*	
Cotoneaster *Cotoneaster glaucophyllus, pannosus*	
Crofton weed *Ageratina adenophora*	
Dipogon	
Genista species	
Green cestrum *Cestrum parqui*	
Honeysuckle vine	
Lantana *Lantana camara*	WONS
Privets *Ligustrum lucidum, sinense*	
Morning Glory *Ipomea cairica*, *indica*	
Moth vine *Araujia hortorum*	
Pampas grass *Cortaderia spp.*	
Pyracantha species	
Queensland Silver Wattle *Acacia podalrifolia*	
Rhus tree *Toxicodendron succedaneum*	
Senna species	
St. John's Wort *Hypericum perforatum*	
Wild Tobacco	

[23] Weeds of National Significance - http://www.weeds.org.au/natsig.htm

Weeds of Regional Significance

Region B: North West Sydney and Blue Mountains

Region B includes Hawkesbury, Blacktown, Penrith, Baulkham Hills *(noxious weed management within these 4 local government areas is the responsibility of the Hawkesbury River County Council)* and Blue Mountains local government areas.
Representatives from these local government areas were involved in the consultation process to develop this strategy and regional list of weeds.

Weed	**Priority for**	**Other listing**
Senegal tea *Gymnocoronis spilanthoides*	Riparian	Alert list[24]
Ludwigia longifolia	Riparian	
Alligator weed *Alternanthera philoxeroides*	Riparian	WONS[25]
Ludwigia peruviana	Riparian	
African olive *Olea europa subsp. africana*	Ag/rural, Cumberland plain	
Chilean Needle grass *Nassella neesiana*	Cumberland plain (CPW), Ag/rural	WONS
Gleditsia *Gleditsia triacanthos*	Ag/rural, Riparian	
African boxthorn *Lycium ferocissimum*	Cumberland plain, Ag/rural	
Black Willow *Salix nigra*	Riparian	WONS
Acer negundo	Riparian	
Castor oil plant *Ricinus communis*	Riparian, waste ground	
Pampas grass *Cortaderia selloana*	Waste ground, corridors	
Bridal creeper *Asparagus asparagoides*	CPW, Riparian	WONS
Green cestrum *Cestrum parqui*	Ag/rural, Riparian, Cumberland plain	
Blackberry *Rubus fruticosus agg. Spp.*	Ag/rural, Riparian, Cumberland plain	WONS
Arundo donax	Riparian, waste ground, corridors	
Lantana *lantana camara*	All?	WONS
Crofton weed *Ageratina adenophera*	Riparian, Ag/rural	
Balloon vine *Cardiospermum grandiflorum*	Riparian	
Privets *Ligustrum sinense, L. lucidum*	Riparian	
Rhizomatous bamboo *Phyllostachys spp,* some *Bamboosia spp.*	Garden escape	

Additional note:
There are two main priorities for weed management in this region – aquatic weeds and conservation of the endangered Cumberland Plain ecological communities. For biodiversity, African Olive and Chilean needle grass have both been consistently rated as a significant and alarming threat, and their control and where possible eradication is worthy of additional effort through campaign type programs.

For additional information on Cumberland Plan Woodland issues, please refer to:
Tim Beshara, Greening Australia, Phone: 9560 9144
Peter Cuneo, Mount Annan Botanic Garden, Phone: 4634 7915

[24] The CRC Alert List - http://www.weeds.crc.org.au/publications/weed_man_guides.html

[25] Weeds of National Significance - http://www.weeds.org.au/natsig.htm

Weeds of Regional Significance

Region C: South West Sydney

Region C includes parts of Campbelltown, Liverpool, Fairfield, Wollondilly and Camden local government areas. Representatives from these local government areas were involved in the consultation process to develop this strategy and regional list of weeds.

Weed	Priority for	Other listing
Chilean Needle Grass *Nassella neesiana*	Cumberland Plain Woodland (CPW), Rural	WONS
African Olive *Olea europa subsp. africana*	CPW, Roadsides, Ag/Rural, Riparian	
Gleditsia *Gleditsia triacanthos*	Riparian, Rural	
Alligator weed *Alternanthera philoxeroides*	Riparian, Aquatic	WONS
African boxthorn *Lycium ferocissimum*	Ag/rural, National Park, CPW	
Green Cestrum *Cestrum parqui*	Ag/rural, Riparian	
Serrated tussock *Nassella trichotoma*	Ag/rural	WONS
Balloon vine *Cardiospermum grandiflorum*	Riparian	
Blackberry *Rubus fruticosus agg. Spp.*	Ag/rural, Riparian, CPW	WONS
Privets *Ligustrum sinense,L. lucidum*.	Ag/rural, Riparian	
Salvinia *Salvinia molesta*	Aquatic	WONS
Castor Oil Plant *Ricinus communis*	Ag/rural, Riparian	
St Johns wort *Hypericum perforatum*	Ag/rural, Riparian	
Tradescantia *Tradescantia fluminensis*	Riparian	
Bridal creeper *Asparagus asparagoides*	CPW, Roadsides	WONS
Mother of Millions *Bryophyllum delagoense*	Roadsides, Ag/rural	
Cats Claw Creeper *Macfadyena unguis-cati*	CPW	

Weeds of Regional Significance

Region D: Southern part of the HN catchment
Region D includes Wingecarribee, Upper Lachlan, Goulburn Mulwaree and part of Illawarra local control areas. Representatives from these local government areas were involved in the consultation process to develop this strategy and regional list of weeds.

Weed	Expiry date of Regional Weed Management Plan	Other listing
Serrated Tussock *Nassella trichotoma*	Dec 2008	WONS
St. Johns Wort *Hypericum perforatum*	Dec 2008	
Blackberry *Rubus fruticosus*	Dec 2007	WONS
African Lovegrass *Eragrostis curvula*	Dec 2008	
Scotch, Cape** and English broom Gorse *Cytisus scoparius* *Ulex europaeus*	Dec 2007	
Willows *Salix spp*	N/A	WONS
Chilean Needle Grass *Nassella neesiana*	Dec 2007	WONS
Bridal Creeper *Asparagus asparagoides*	N/A	WONS
Woody berry bushes*** – privets, boxthorn, firethorn, cotoneaster		

New Incursion list.
The following weeds were noted to be “alert” weeds – any occurrence should be acted upon immediately.
Fireweed, Boneseed, Giant Parramatta grass, alligator weed, salvinia.
This is not an exhaustive or exclusive list – any new weed incursion should be investigated as a priority.

** Cape Broom was not originally on the list but was added at the workshop.
***The woody berry bushes were added as a group at the workshop – they are similar in invasiveness, method of spread and control and could be treated as a group in a plan and campaign.

Action
The regional committee agreed to review regional priority list and determine if plans are needed for those weeds for which there is no plan, and/or as existing plans expire.

Weeds of Regional Significance

Region E: North western part of the HN catchment

Region E includes parts of Singleton, Cessnock, Lithgow and Oberon local government areas (includes Lithgow, Oberon, Cox's River, Megalong Valley, Capertee Valley). Representatives from these local government areas were involved in the consultation process to develop this strategy and regional list of weeds.

Weeds declared Noxious	Other Listing
Grasses African lovegrass *Eragrostis curvula*	
Chilean needle grass *Nassella neesiana*	WONS
Espartillo *Achnatherum brachychaetum*	
Mexican feather grass *Nassella tenuissima*	
Serrated tussock *Nassella trichotoma*	WONS
Spiny burrgrass *Cenchrus incertus*	
Spiny burrgrass *Cenchrus longispinus*	
Thistles Nodding thistle *Carduus nutans* Scotch thistle, Illyrian thistle, *Onopordum* species	
Hemlock *Conium maculatum*	
Horsetail *Equisetum* species Pampas grass *Cortaderia* species Prickly pear *Cylindropuntia* species Prickly pear *Opuntia* species except *O. ficus-indica* St. John's wort *Hypericum perforatum* Tree-of-heaven *Ailanthus altissima*	
Willows *Salix* species Includes all Salix species except *S. babylonica, S. x reichardtii, S. x calodendron*	WONS
Yellow burrhead *Limnocharis flava*	
Yellow nutgrass *Cyperus esculentu, Cyperus eragrostis, melanostachyus*	

Other priority weeds (not declared noxious)	Other Listing
Turnip weed *Brassica rupestris subsp. Silvestris*	
Pattersons curse *Echium plantagineum*	
Honey Locust *Gleditsia tricanthus*	
Blue periwinkle *Vinca major*	
English ivy *Hedera helix*	
Black locust, false acacia *Robinia pseudoacacia*	
Butterfly bush *Buddleia davidii*	
Common hawthorn *Cretaegus monogyna*	
Holly *Ilex aquifolium*	
Montpelier broom *Genista monspessulana*	
Radiata pine wildings *Pinus radiata*	
Spanish/Portuguese heath *Erica lusitanica*	
White poplar *Populus alba*	
Cotoneaster *Cotoneaster glaucophyllus/franchetii*	
Creeping buttercup *Ranunculus repens*	
Firethorn *Pyracantha angustifolia*	
Japanese honeysuckle *Lonicera japonica*	
Himalayan honeysuckle *Leycesteria formosa*	
Tutsan *Hypericum androsaemum*	
Tutsan *Hypericum calycinum*	
Sycamore *Acer pseudoplatanus*	
Deutsia *Deutzia scabra*	
Khaki weed *Alternanthera pungens*	
Madeira vine *Anredera cordifolia*	
Montbretia *Crocosmia x crocosmiiflora*	
Cootamundra wattle *Acacia baileyana*	

4. Model Projects for Weed Management

Examples of projects that are considered to be successful and effective at a regional or local level. These projects have been undertaken in the Hawkesbury Nepean catchment

MODEL PROJECT
Region A: Sydney North

Riparian Bushland Rehabilitation Project

Funding	Project implementation is funded through in-kind contribution from the land manager. Additional funding to support on ground works was at the discretion of the land manger to maximise benefits.
Partners	Cowan Catchment Management Committee (ceased 1999), Hawkesbury Nepean Catchment Management Trust (ceased 2001), Hornsby, Ku-ring-gai Municipal, Councils, DEC – NPWS, Rail Services Australia, RTA, Sydney Water Corp.
Location	Sub-catchment creeks in Cowan Catchment
Nature of project	Targeted riparian weeds, particularly privets, on private and public land in high priority sub-catchments determined by biodiversity value and level of weed invasion.
Notes	Riparian weeds considered a major threat to the long-term conservation of regional biodiversity, particularly berry-bushes (privets, blackberry, lantana, camphor laurel, ochna – spread by birds), ludwigia, crofton weed and mistflower.
Cost	Year Contribution Source 1 (02/03) $5100 Grant - Crown Land Weed Control 1 (02/03) $6000 In-kind 2 (03/04) $8000 Grant - Crown Land Weed Control 2 (03/04) $6000 In-kind 3 (04/05) $7000 Grant - Crown Land Weed Control 3 (04/05) $6000 In-kind 4 (05/06) $8100 Grant - Crown Land Weed Control 4 (05/06) $6000 In-kind
How it worked	Riparian systems divided into 2 zones – bushland and urban. Approach differed slightly in each. Recognition of need to show public land being targeted to set example. Solid and committed committee, good chair to drive project (Jack Gregory). Started with an achievable target and got early success.
Links	NWAC Regional Committee Weed Control programs for various weeds
Results	Since commencement of the project there has been a net reduction in riparian weeds for each year the project has been running. Major changes appeared in the initial years due to the targeting of major infestations. 5 years into the project the focus of the works have now orientated to maintenance of the worked areas. Long term success of the project will depend on the maintenance of the worked areas and the commitment to increase the control areas to the head of the catchment. Issues that have hindered the delivery of the project to its maximum capacity have been occurrence of ticks and the associated OHS issues and staff turnover.
Contact	Bushland Operations Section, Ku-ring-gai Council Phone: 9144 2156

MODEL PROJECT
Region A: Sydney North

Cowan Catchment Transport Corridor Project

Funding	DNR and LGAG catchment works funding. DEC – NPWS, Railcorp, RTA, Hornsby Shire Council (cash and in kind contributions)
Partners	Cowan Catchment Weeds Committee, Cowan Catchment Management Committee (ceased 1999), Hawkesbury Nepean Catchment Management Trust (ceased 2001), Hornsby Council, DEC – NPWS, Railcorp, RTA
Location	Rail line, F3 Freeway and Old Pacific Highway between Mt Colah Station and Brooklyn.
Nature of project	Preventing weed invasion from transport corridor and protection of adjacent bushland.
Notes	Many issues resolved to achieve this project, including land ownership and on-ground project works across land tenures, budgeting for weed management in planning stage, stormwater impacts, OH&S issues, public perception, and the difficulties faced in managing a long thin land parcel.
Cost	Total value of project $464,080
How it worked	Areas divided into 6 smaller more manageable sections. Start with the most easily achievable section to give immediate success and encouragement. Regular meetings and reporting to keep stakeholders abreast of progress. Employment of coordinating project officer.
Links	Cowan Catchment Weeds Strategy, Hornsby Shire Pampas Grass Project
Results	12 Bush regeneration sites in Cowan, Seymour's Creek, Mount Kuring-gai, Berowra. Active cooperation with Railcorp. Raised awareness of bushland protection and increased weed control by RTA along F3 freeway. Illegal dumping at 3 sites blocked.
Contact	Bushland and Biodiversity Section, Hornsby Council Phone: 9847 6839

MODEL PROJECT
Region B: North West Sydney and Blue Mountains

Willow Control Project in the Hawkesbury Nepean River

Funding	DNR and LGAG catchment works funding
Partners	DNR and HRCC, private landholders
Location	Hawkesbury River between Penrith Weir and Windsor bridge
Nature of project	Targeted woody weed killing along river – public and private land
Notes	Willows are a WONS. Project demonstrates that large scale projects can be both possible and cost-effective, and engage partners in cooperative action. The project crosses council boundaries (through the County structure of HRCC) and involving private landholders.
Cost	Year 1 - $73,056 (2002-03) Year 2 - $56,632 (2003-04) Year 3 - $38,141 (2004-05) Weed control on Crown Lands grants – total over 2002-05 - $50,000 Contributions from NPWS, Boral – total $10,000 TOTAL FOR 2002-05 – approx. $230,000
How it worked	Phase 1 targeted black willow as major seeding species. Phase 2 continued black willow killing and also targeted fragile willows as the next most aggressive invaders. Phase 3 continued as above but widened scope to include tributaries and wetlands near the river. Willows replaced with native riparian vegetation seedlings. Mapping
Links	Supports Colo and Macdonald willow work. Augments the River Restoration Project (CMA). Weed control on crown land grants.
Results	Friends of the Colo removed 5000 black willows from Wollemi NP. 2,500 targeted below park and nearly all gone. Macdonald 8,000 willows reduced to 2,000. 32,000 black willows removed from Hawkesbury between Penrith Weir and Windsor Bridge. Other species, particularly crack and hybrid willows, to be targeted in 2006.
Contact	Trish Chadwick, HNCMA. trish.chadwick@cma.nsw.gov.au Phone: 4587 0057

MODEL PROJECT
Region B: North West Sydney and Blue Mountains

Longneck Community Catchment Project

Funding	NHT
Partners	HCC, HRCC, DPI, DEC-NPWS, NSW RFS, CVA, DET, HNCMA, University Western Sydney (UWS), private landholders. Steering committee included local and state govt, community reps, and education officers.
Location	Longneck Lagoon Catchment, Scheyville NSW 2756
Nature of project	Catchment management and community engagement
Notes	Longneck lagoon, a 'Nationally Important' wetland catchment, is under threat, particularly from the aquatic weed *Salvinia molesta*, requiring cooperative management and community engagement. Total Catchment Management (TCM) and Integrated Catchment Management (ICM) principles were employed.
Cost	$137,000 plus in-kind contributions from NPWS.
How it worked	Phase 1 assessed community attitudes and developed project plan. Direct mail out to 123 catchment properties about the project, with invitation to information evening. Response – 20 landholders attended and became involved (9%) . Phase 2 implemented catchment works – project provided assistance for *Property Planning* workshops, aquatic weed management on dams (Salvinia and Parrots Feather), terrestrial weed management on catchment properties (Blackberry, Bridal Creeper, Privet, African Olive, Mother-of-millions), planting natives, plant identification, and noxious weed control throughout the catchment. Phase 3 was project evaluation, reporting and review. Produced a poster of the catchment plan and report.
Links	Supports the HNCMA Catchment Blueprint, Scheyville National Park Plan of Management, Local government Septic Safe program.
Results	*Salvinia molesta* is effectively managed within Longneck Lagoon, reduced to less than 2% of area. Community effectively engaged and involved in catchment management process. A 'Community' Catchment Plan has been produced and distributed.
Contact	Jonathan Sanders NPWS jonathan.sanders.environment.nsw.gov.au Phone: 4572 3100

MODEL PROJECT
Region C: South West Sydney

Stonequarry Catchment Privet Removal and Remediation of Privet Infested Areas

Funding	Wollondilly Shire Council, Local Government Advisory Group (LGAG) grant, Environmental Trust (ET) Environmental Restoration and Rehabilitation State and Local Government Grants Program grant
Partners	Wollondilly Shire Council, landowners
Nature of project	Incentives program
Notes	Privet is not declared in Wollondilly but significant infestations in catchment of creek running through town and on dominant landscape features combined with health hazard prompted action. Shares with Lismore the term "Privet Capital of NSW".
Cost	Started 2002 LGAG $81 500 First year ET - $208,869
How it worked	Mailout to all residents describing project. Incentives offered: Privet pack containing herbicide, tip voucher, information. Tip Voucher waived tip fees for ute or trailer load of privet and exchanged for free native plants from community nursery. Aged or disabled given assistance. Other govt agencies encouraged to control privet. Local govt. land with privet targeted to set good example. Roadsides also targeted. Railcorp approached to manage privet on their land. Good local media coverage and advertising.
Current status	Fifth year in progress – concept continued in Redbank, Matthews and Racecourse Creek sub-catchments with ongoing council and grant support. Widening program to Mt Hunter Rivulet catchment and Kennedy Creek catchment
Results	Survey showed good uptake, particularly after individual mail out. Good increase in weed recognition and commitment to action. Significant reduction of privet infestations in all areas. In bushland good regeneration of native plants. Good follow-up.
Contact	Alexandra Stengl, Wollondilly Shire Council Alexandra.Stengl@wollondilly.nsw.gov.au Phone: 4677 1177

MODEL PROJECT
Region D: Southern part of the HN catchment

Weed Resilient Landscapes Project – Warragamba catchment

Funding	Natural Heritage Trust, NSW Department of Primary Industries
Partners	NSW Department of Primary Industries, HNCMA, Local Control Authorities, Landcare, Community, SCA, NSW Forest, NPWS, Rural Lands Protection Board, Delta Electricity, Xstratacoal, Roads and Traffic Authority, Department of Lands
Nature of project	Better adoption of best vegetation management practices to control weeds and form weed resilient landscapes
Notes	The project covered the Warragamba catchment
Cost	$355,625 (Cash and in kind) over one year
How it worked	**11 demonstration sites** Established for controlling serrated tussock, African lovegrass, fireweed, gorse, pussy willow, Paterson's curse, broom and woody and general weeds. Best management practices varied from chemical control, pasture improvement, biological control, regeneration and/or revegetation with local native species, windbreak(seed trap) of pines and contract weed control **9 Field days and/or displays** General weed information was given relating to many different weeds at several displays, with specific days run focussing on serrated tussock and Chilean needle grass identification and management and a general weeds identification day. **4 Forums** The Talking Weeds Forum for agency/departmental representatives focussed on forming and strengthening networks across the catchment; clarify roles and responsibilities with weeds; highlight innovative approaches to weeds and to develop the Hawkesbury-Nepean weeds strategy. The three community weeds forum focussed on local weed issues, vehicle and machinery hygiene and contribute to the Hawkesbury-Nepean weeds strategy. **Media releases** Numerous articles were written to promote the concept of weed resilient landscapes and to publicise Weedbuster week. **Resources** Included the production of new fact sheet (calendar) current fact sheets, Weeds CD and signage for the demonstration sites and general identification signage for serrated tussock
Current status	One year project now completed
Results	• Over 280 community and departmental/agency staff have been contacted or participated in activities held during the project. Many going away thinking how they my change their current practices to help protect themselves from weeds and new ideas on how to control their current problems. • Approximately 35 hectares have had current weed threats removed and/or controlled contributing to the protection of surrounding areas from weed incursion. • Over 20 articles published highlighting weed issues • Reprinting 500 copies of serrated tussock information sheet • Printing approximately 6,000 landcare related weeds calendars • Printing approximately 1,000 weed CDs • Printing 9 signs for demonstration sites and serrated tussock identification
Contact	Michael Michelmore, NSW Department of Primary Industries, Goulburn (02) 4828 6617, PO Box 389 Goulburn NSW 2580, Michael.Michelmore@dpi.nsw.gov.au

MODEL PROJECT
Region E: North western part of the HN catchment

Megalong Valley Feral Pig Program (Cox's River)

Funding	Hawkesbury Nepean Catchment Management Authority, Sydney Catchment Authority, Department of Environment and Conservation (Parks and Wildlife Division), Rural Lands Protection Board, Department of Primary Industries
Partners	As above and private landowners
Location	Kanimbla and Megalong Valleys, Cox's River
Nature of project	Regional scale feral pig control project on private land outside National Parks and SCA's catchment areas.
Notes	Feral pig project can be used as example of agencies and landholders working together against common problem – and encouraging recalcitrant neighbours to get involved.
Cost	To SCA Year 1 - $10 000 (2001) CMA grants for ongoing pig control PWD and RLPB supported costs for grain, ammunition and time.
How it worked	RLPB coordinated private landholders to implement a regional program to compliment feral pig management undertaken on public lands. Pig traps loaned to land holders. RLPB services traps and provides bait feed over the season. Resource sharing bringing numerous government agencies and landholders together. The objective is to prevent movement of feral pigs into uncolonised areas or degrading water catchments. Numerous agencies commit to support the various roles over set time period. Public invited to discuss idea and sign up. Program initiated with RLPB running with land holders (have the authority to act on private lands). Results of annual program distributed to all landholders and put into database. Survey done to assess feral pig densities to assist control programs (inc. helicopter reconnaissance).
Links	Supports programs run on government agencies lands – DEC, SCA, State Forests. Supports individual landholders who have regularly undertaken feral pig control but not able to influence neighbours.
Contact	Elwin Wolfenden, RLPB. Mobile 0427 499 519

MODEL PROJECT
Region E: North western part of the HN catchment

Blackberry Control Project, Cox's River

Funding	CMA Riparian and Terrestrial Biodiversity grants
Partners	CMA, BMCC, DPI, RLPB, local Landcare group, private landholders
Location	Megalong Valley
Nature of project	Targeted blackberry along creeklines and adjacent paddocks in Cox's River subcatchments. Long-time residents provide weed control knowledge in this landscape. Informal network supports effective control, stresses need for follow-up. Social pressure on other landholders, political pressure on Council.
Notes	Project demonstrates partnerships between new and long standing landholders in developing integrated management of riparian zones including pasture management and bush regeneration in remnant veg. along creeks. Uses local knowledge and follow-up.
Cost	7 properties, grants of $25 – 30K matched 1:1 or 3:1
How it worked	Property management planning offered as a free service by BMCC to signed on landholders, focus on weed management and involving noxious weed officers to emphasise legal responsibility of landowners for control.
Links	Knowledge based on experience of local residents, DPI and BMCC officers for integrated program
Results	10 km of creeklines in one subcatchment of Cox's River treated for blackberry (one season control plus one season follow-up) using contract spraying (by local experienced operators) and bush regeneration. RLPB also involved with feral animal control (rabbits and pigs) and harbour eradication.
Contact	Linda Thomas, Blue Mountains City Council lthomas@bmcc.nsw.gov.au Phone: 4780 5612

MODEL PROJECT
Region E: North western part of the HN catchment

Coxs River Willow Control Project

Funding	Various Sydney Catchment Authority catchment protection and riparian management assistance grants. Also catchment incentive grants (part of Healthy Catchment program)
Partners	Private landholders, Mount Kanimbla Landcare Group
Location	Various Cox's subcatchments
Nature of project	SCA supports works targeting woody weeds, particularly willows, revegetation and fencing for stock exclusion on private land along creeks.
Notes	Projects demonstrate cooperative action. Projects cross Greater Lithgow Council, Oberon and Blue Mts City Council boundaries and involve private landholders.
Cost	To date approximately $180 000 for 30 km Cox's River, Farmers Creek - $90 000 2006 - 2007 estimate $50 000.
How it worked	Catchment incentive grants - targeted sub-catchments are Ganbenang and Cullenbenbong Cks. Consists of several projects involving landowner financial contribution. Landholders receive $4/m fencing and $3/plant to implement the work, the SCA pays for the primary weed control, and the landholders sign an agreement to maintain the restoration for 5 years. Catchment protection and riparian management assistance grants - target all woody weeds in the riparian zones (inc tree of heaven, blackberry, broom, gorse, privet, hawthorn, prickly pear, and hemlock) plus stock exclusion fencing and revegetation for erosion control. CMA pays for contractor to do bulk of work, 100% of cost: farmer does in kind labour/plant contribution and weeds outside immediate riparian zone, and signs 5 yr maintenance agreement.
Links	HNCMA, Crown Lands Department and local land care groups.
Results	Weed management shows 100% kill rate on cracked willow (contract requirement). 1 km on Farmers Ck - woody weed removal, fencing and reveg. Main area is 30 kms restoration on Cox's River from Duddawarra Bridge to Six Foot Track. Next phase continues next 10 kms downstream to Blue Mtns National Park boundary. Other sections include landowners along the Coxs River at Wallerawang achieved 1 km riparian restoration, removal of woody weeds and fencing.
Contact	Stuart Naylor, 4725 2100; Terry Keogh, 4782 9132

Appendix 1: A process for assessing and ranking weeds

This ranking process can be used as a tool to **guide** the following:

- identify the high priority weed species/ suites of weeds in a region, council area, particular landscape or site;
- identify which weeds species/suites of weeds pose the highest threat to environmental, social and economic values (ie the weeds we need to take notice of right now);
- assess new weeds ('new incursions') that are detected, or heading in this direction (ie. the weeds that are spread via major roads and waterways);
- assist land managers with decision making about funding and staff allocations, timing and level of urgency for weed management (eg. a high ranking may require immediate action and funding allocation, a low ranking may require little action and observation of the weed for now);
- assist land managers with grant applications and justifying internal / external funding requests for weed management, and,
- assist with justification of regional grant applications;
- assist with the justification and application of new noxious weed declarations in one or a group of councils.

This is one of several existing models[26] which assesses and ranks weeds by considering:

- the ***invasiveness*** of the weed
- its potential ***impact***
- its potential ***distribution*** and
- whether it is ***feasible to eradicate*** the weed.

Once all species for a site or area are put through the process, the scores can be compared. The species with the highest scores are the higher priority weeds as they have the greatest potential to invade and most detrimental impacts.

Note: The scores can be compared only to the scores of other weeds assessed for the same area. They cannot be compared to scores of weeds from other areas because some of the questions are site specific.

New and approaching weeds should also be assessed and ranked, as soon as they become known.

[26] For example the Victorian Pest Plant Prioritisation Process - http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/0d08cd6930912d1e4a2567d2002579cb/c0d2ff0d2453493fca2571ec007dcfa8/$FILE/VPPPP_Methodology_rev.pdf Accessed June 2007.

WEED RANKING PROCESS

Reproduced with permission from Rod Randall (2000) "Which are my Worst Weeds?" *Plant Protection Quarterly* 15(3). The rationale to use this weed assessment and prioritisation process was modelled from the *Regional Weed Strategy - Lower Murray Darling Catchment (2006, 2nd edition)*

Weed Species:

Scientific Name: .....

Family Name: .....

Common Name/s: .....

Section A. Invasiveness of the weed.

Question	Weighting			Score
1. Does this plant have a known history of invasiveness?	Yes = 6	? = 2	No = 2	
2. Does this plant:				
i. grow in two or more climate types?	Yes = 1	? = 2	No = 0	
ii. grow in two or more soil types?	Yes = 1	? = 2	No = 0	
iii. grow in low nutrient soils?	Yes = 1	? = 2	No = 0	
iv. survive significant mutilation or damage (grazing, slashing etc)?	Yes = 1	? = 2	No = 0	
v. tolerate drought?	Yes = 1	? = 2	No = 0	
3. Reproductive modes:				
i. vegetative (suckers, rhizomes, stolons, layering, plantlets)	Yes = 2	? = 2	No = 0	
ii. seed	Yes = 2	? = 2	No = 0	
iii. geophytes (bulbs, corms, bulbils)	Yes = 2	? = 2	No = 0	
4. Is this plant a prolific producer of propagules? (fruits, seeds, bulbs, corms, vegetative fragments etc.) i.e. 1000+ propagules per square metre. Plants that have been cultivated or shredded can also produce many thousands of viable fragments.	Yes = 6	? = 2	No = 0	
5. Does the plant utilise any of the following modes of dispersal?				
i. seed or fruit is sticky or has hooks, spines, burrs (hitchhikers on people, machinery, animals and vehicles)	Yes = 1	? = 2	No = 0	
ii. fruit or seed is consumed and seed survives passage (birds, mammals)	Yes = 1	? = 2	No = 0	
iii. propagules have wings, parachutes, silks, fluff (wind dispersal aids)	Yes = 1	? = 2	No = 0	
iv. as a contaminant of produce (gravel, seed, hay)	Yes = 1	? = 2	No = 0	

Question	Weighting			Score
v. is moved via soil or mulch (road grading, landscaping, soil in pot plants)	Yes = 1	? = 2	No = 0	
vi. fruit or seed is easily transported by water, runoff etc.	Yes = 1	? = 2	No = 0	
6. Do propagules display any dormancy characteristics? Eg: staggered germination, long periods of dormancy (two or more years), or a disturbance such as cultivation, overgrazing, fire or clearing is needed before large scale germinations occur.	Yes = 6	? = 2	No = 0	
Section A Score				

Section A worth a maximum of 35 points

Section B. Impacts of the weed.

Question	Weighting			Score
1. In the management area of concern, is this plant listed as a threat to biodiversity in DEC's list of threats to biodiversity in the Hawkesbury Nepean catchment (Coutts-Smith and Downey 2006)	Yes = 6	? = 2	No = 0	
2. Does this plant affect the quality of products or services by:				
i. contamination of products (may render a product unsaleable)	Yes = 1	? = 2	No = 0	
ii. yield loss (i.e. Displacing normal food sources, increased competition)	Yes = 1	? = 2	No = 0	
iii. loss of tourism value (in commercial operations)	Yes = 1	? = 2	No = 0	
3. Does this plant smother or climb over desirable vegetation or does it develop into dense thickets, monocultures or very dense stands or swards?	Yes = 6	? = 2	No = 0	
4. Does the plant restrict/modify the normal physical movements or behaviour of people or animals, access of vehicles or movement of water?	Yes = 6	? = 2	No = 0	
5. Is this plant:				

Question	Weighting			Score
i. a harbour to pests and /or diseases (that have a detrimental impact on biodiversity)?	Yes = 5	? = 2	No = 0	
ii. toxic (to consume / produces residues that affect plant establishment i.e. allelopathy)?	Yes = 5	? = 2	No = 0	
iii. a cause of dermatitis, asthma, hay fever (effects can be remote to the plant)?	Yes = 5	? = 2	No = 0	
iv. offensive to people (can be prickles, exudates, smell)?	Yes = 5	? = 2	No = 0	
6. What negative environmental effects on ecological systems does this plant have?				
i. increases soil erosion (loss of topsoil, gully erosion)	Yes = 6	? = 2	No = 0	
ii. alters fire regimes (increased, decreased, more intense)	Yes = 6	? = 2	No = 0	
iii. replaces desirable fauna habitat and /or food sources	Yes = 6	? = 2	No = 0	
Section B Score				

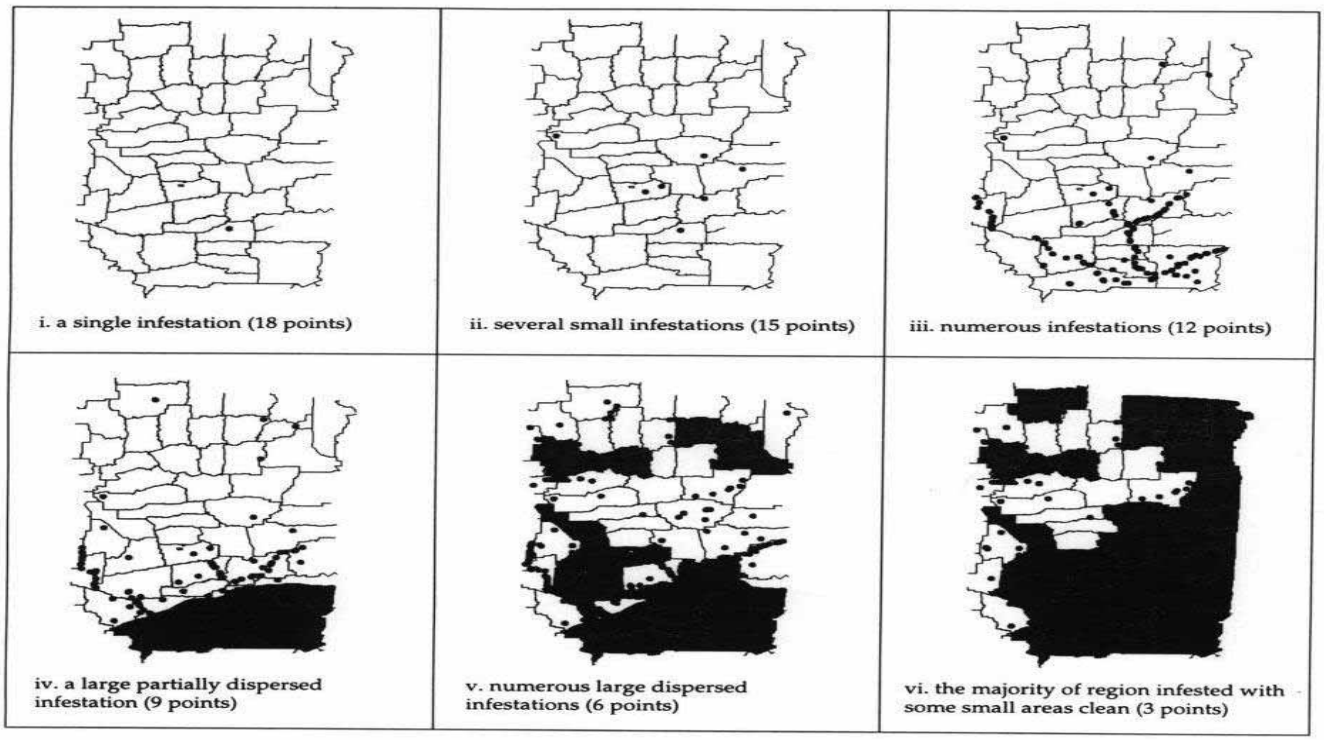
Section B worth a maximum of 59 points

Section C. Will that weed spread further? Its potential distribution.

In determining the potential spread of a plant one should consider its current distribution and how the plant is behaving. The combination of these factors could then be used to determine a score for the plant's potential to spread.

1. Compare these diagrams with the weeds current distribution. Distribution of weed within the management area of interest. **This is your local government area / catchment/ landscape / management area:**

Diagram best representing the current distribution of the weed (0-18 points):



Question	Weighting		Score
2. Activity Factor			
i. Weed's distribution has been static for some time (10 years +)	Yes = 3	No = 0	
ii. Weed is slowly expanding its distribution (10 years +)	Yes = 6	No = 0	
iii. Weed is newly introduced (within last 5 years) and spreading slowly	Yes = 9	No = 0	
iv. Present for some time (10 years +), has just started to spread rapidly (climate or agriculture reasons)	Yes = 12	No = 0	
v. Weed is spreading rapidly	Yes = 15	No = 0	
vi. Weed has just been found (known to be a threat, highest priority for action - dealt with immediately), no chance to spread	Yes = 18	No = 0	

Question	Weighting		Score
vii. Weed distribution is decreasing	Yes = 0	No = N/A	

Section C totals

Diagram best representing 'current distribution' 0 - 18 points	
'Activity factor' 0 - 18 points	
Section C Score	
Section C worth a maximum of 36 points	

Section D. Will immediate action produce positive results?

This is a key used to identify those weeds that with early intervention could be eradicated or at least prevented from spreading further. These plants are termed **PRIORITY WEEDS**. Plants determined as **PRIORITY WEEDS** by this process have a 10% loading added to the final ranking score, and will be highlighted within the ranking structure as species where immediate action will produce positive benefits.

It is quite possible that a **PRIORITY WEED** status may be conferred on a species that ranks quite low in the final overall results. This does not imply that any effort on these low ranked weeds is not worthwhile; any time a weed can be prevented from establishing or spreading significantly is generally time well spent – however, this should be assessed in terms of holistic management principles.

Answer the questions in the key and follow the prompts in the results column. If you reach questions 4 and the answer is YES, then this species is a **PRIORITY WEED** and immediate actions will yield positive results.

Question	Result
1. Is an **acceptable control method available** that can eradicate or contain the species? (Consult with appropriate sources for control information)	Yes – go to Question 2 No – go to question 1.A
1.A If an acceptable control method is not available, evaluate the relative risks of controlling or not controlling the species. Do these **risks** warrant continuing to evaluate this species for specific control methods?	Yes – go to Question 2 No – Not a PRIORITY WEED
2. Does the species have a limited distribution in the management area (review Section C) and/or have potential to significantly increase its distribution?	Yes – go to Question 3 No – Not a PRIORITY WEED
3. Can a control program **ACHIEVE** one of the following objectives? • **Eradication** from LGA/catchment/management area/patch?	Yes – go to Question 4 No – Not a PRIORITY WEED

• **Containment** within part of the LGA/catchment/management area/patch?	

4. If coordination between affected landowners/managers/partners is required can it be achieved within five years? ***and / or*** if the program will require significant resources can these be made available in time?	**Yes – This species is a PRIORITY WEED** No – Not a PRIORITY WEED

TOTAL SCORE

Add the scores from Section A, B and C (*Sum Score*):		
Is this species a **PRIORITY WEED** (Section D)?	Yes	No

If this species is a PRIORITY WEED then multiply the *Sum Score* by 1.1 (add 10%) to derive the *Final Score* and place a 'T' in front of that score.

Final Score	

Appendix 2: Proposed Proforma WORS List

Weeds of Regional Significance Lists

The intended outcome of this proforma list is to more clearly highlight why any weed problem is a priority. Generally priority weed problems will be the smallest most isolated infestations of highly invasive weeds that have the highest impacts on agriculture or conservation land and where good control is achievable.

Region _____:

References in the table are to the Weed Ranking Process in Appendix 1.

Weed (common name & *scientific name*)	**Invasiveness & potential distribution score (Sections A & C.2.) - /53 (35+18).**	**Impact score (Sect. B) - /59**	**State type of impact: Either Human landuse – agric'l, roadside etc or Conserv'n – riparian, bushland or grassland**	**'Priority' score (section D) – 'P' or blank.**	**Final Score (18+35+18+59) X 1.10 if 'P' = /143**	**Other listing (WONS, Alert list, Regional Weed Mgt Plan, Noxious weed class)**
Weeds not currently present in the HN Catchment sub region (refer Section C.1.); 18 points if found						
Weeds present with limited distribution: several small infestations; 15 points						
Weeds present with moderate distribution: numerous large partially dispersed infestations; 9 points						
Weeds are widespread; 3 points						

Appendix 3: Relevant legislation

The following legislation may need to be considered to when undertaking various weed management activities.

Australian Government

Biological Control Act 1984

Environment Protection and Biodiversity Conservation Act 1999
Commenced in July 2000 and is administered by Environment Australia. It provides Commonwealth leadership to the States and Territories on the environment to enable the achievement of a truly national scheme of environmental protection and biodiversity conservation. For more information: www.deh.gov.au/biodiversity/threatened

NSW Government

Noxious Weeds Act 1993 (as amended 2006)
The Noxious Weeds Act 1993 defines the roles of government, councils, private landholders and public authorities in the management of noxious weeds. The Act sets up categorisation and control actions for the various noxious weeds, according to their potential to cause harm to our local environment.

An amended Noxious Weeds Act came into effect 1 March 2006. Changes have been made to the list of currently declared noxious weeds (increased from 42 to 89) and to the "categories". The former W1, W2, W3 and W4 categories have been changed to control classes 1, 2, 3, 4 and 5. For more information on the objectives of each Class and lists declared weeds in each local government areas, see the DPI website.

Also more information on policy, strategies and the amended Noxious Weeds Act including a link to the Act, is published on this website: www.dpi.nsw.gov.au/weeds

National Parks and Wildlife Act 1974
NSW DEC requires that a search be undertaken to ensure that Aboriginal cultural heritage sites will not be disturbed during the course of the project. The DEC office will carry out a search for listed Aboriginal sites and places of listed Cultural Heritage.
For more see:
www.nationalparks.nsw.gov.au/npws.nsf/Content/National+Parks+and+Wildlife+Act+1974

A local Aboriginal group or Land Council and DEC may need to be contacted if any Aboriginal cultural heritage sites occur within close proximity to weed removal works. In situations where sites are identified, appropriate consideration will be given in the Conditions of Consent attached to the Approval document and consent will need to be obtained from DEC.
Within National Parks all work must be carried out with the approval and consent of the DEC. No further approvals or permits are needed from other agencies.
A permit must be obtained from DEC to collect seed from all native species within a national park and from certain native species elsewhere.

Threatened Species Conservation Act 1995
This is administered by the NSW DEC. It aims to protect all threatened wildlife that is native to NSW, excluding most marine life. The Act relates to ‘species’, ‘populations’, ‘ecological

communities', 'habitats' and 'threatening processes'. The DNR office selected for the approval process will carry out a search under this Act. Conditions of Consent will reflect any special requirements under these circumstances.
In some instances, a search of the Threatened Species Database will reveal that a threatened species may be present in an area of proposed works. In this case a NPWS Permit is required. For more information see:
www.nationalparks.nsw.gov.au/npws.nsf/Content/Threatened+Species+Conservation+Act+1995

Native Vegetation Conservation Act 1997 is now the Native Vegetation Regulation 2005
The NSW Government announced the commencement of the Native Vegetation Regulation 2005 on Monday 14 November 2005. As a consequence, the Native Vegetation Act 2003 commenced on 1 December 2005. The previous legislation, the Native Vegetation Conservation Act 1997, is no longer in force. Landholders who wish to clear native vegetation may have to apply for a Property Vegetation Plan from the Hawkesbury Nepean Catchment Management Authority.

Catchment Management Authorities will work with landholders in developing these plans, thus ensuring decisions are made by the local community for the benefit of the local farmers.
No consent is required but the Best MP must be adhered to – consult the CMA for further details.
A dated, but clear website: www.wetlands.org.au/pdf/NV%20Act%20Fact%20sheet.pdf

Rivers and Foreshores Improvement Act 1948
This used to be administered by DNR but is now under the management of local councils. The Act requires that due care be taken in any excavation works carried out within 40 m of the bank of a water body. This may include removal of woody weeds as their roots may be beneficial in preventing erosion.
Development Applications to Local Council are required and a 3(a) Permit is necessary for excavation works in these areas. DNR has a standard vegetation management plan template which can be amended for different sites.

Rural Fires Act 1997
The NSW Government formed the Rural Fire Service (RFS) in 1997 to oversee all aspects of fire suppression and risk minimization in rural areas. It is administered through Local Governments. The Rural Fires Act was proclaimed in September 1997 and superseded the Bush Fires Act, 1949. The act has several new features, though two significant elements are: The creation of the NSW Rural Fire Service with a continuous chain of command from the Commissioner to firefighter, and an emphasis placed on ecological sustainable development.

The local RFS should be consulted prior to any pile burning. A permit is required and timing is conditional upon weather and other environmental conditions.
For a guide to the Rural Fires Act, go to: www.rfs.nsw.gov.au

Occupational Health and Safety Act 2000
This Act is administered by the Workcover Authority of NSW. There are specific requirements relating to use of pesticides and certification of pesticide operators. More information: www.workcover.nsw.gov.au

Pesticides Act 1999
The NSW Department of Environment and Conservation restricts the application of certain pesticides near or within waterways.

It is essential to strictly follow the labelling instructions when using herbicides and to keep appropriate records of usage and conditions during use. Use only herbicides registered for use on or near water. Best practice methods to avoid water pollution are to be used and adherence to the guidelines maintained. (www.epa.nsw.gov.au)

Protection of the Environment Operations Act 1997
This act is administered by local Councils and the EPA. Local Councils should be contacted prior to commencing works.

The Protection of the Operations Act 1997 (POEO Act) is the key piece of environment protection legislation administered by the EPA. The POEO Act commenced operation on 1 July 1999 and repealed the following Acts with effect from 1 July 1999: Clean Air Act 1961, Clean Waters Act 1970 , Environmental Offences and Penalties Act 1989 , Noise Control Act 1975 and Pollution Control Act 1970
The major regulatory provisions of the Waste Minimisation and Management Act 1995 were also repealed by the POEO Act, but are now incorporated within the POEO Act.

Tree Preservation Orders
Most Local Government areas have tree preservation orders, and policies outlined in their Local Environment Plans.
Trees listed as noxious weeds are not exempt from these orders.
A letter should be written to the relevant Local Government Authority asking for exemption from this order to treat willows and other woody weeds.

Local Government Act 1993

Useful websites for more information:

www.abelecology.com.au/acts.htm
www.weblaw.edu.au/weblaw/display_page.phtml?WebLaw_Page=Environmental+Law
www.deh.gov.au/about/legislation.htm
www.environment.gov.au
www.aar.com.au/pubs/env/envmay01.htm
www.environment.nsw.gov.au/legal/summariesact.htm

Appendix 4: Related government strategies and policies

Australian Government

Australian Weeds Strategy (2006)
The Strategy provides a national framework to complement state, territory, regional and local government strategies and industry initiatives, which are ultimately translated into strategic on-the-ground actions to manage weed problems and protect assets. It complements national and state legislative controls, including implementation of Australia's international obligations to protect biodiversity and plant health status. This strategy also identifies the Weeds of National Significance (WONS) for priority weed management efforts.

National Weed Awareness Action Plan
This is a plan designed to implement weeds awareness objectives of the Australia Weeds Strategy. It provides a framework for improved awareness as a prerequisite to achieving acceptable long-term management of weeds. Increased awareness depends on participation by landowners, land managers, industry, the wider community and local, state and Australian governments. The key outcome sought is a targeted, well-resourced and nationally consistent national weed awareness program that increases whole-of-community and government understanding of the invasive plant crisis.

National Weed Spread Prevention Action Plan (draft)
This plan also sits under the Australian Weeds Strategy. It is currently being developed to establish a framework to prevent weed spread. The draft objectives are to identify and address all pathways for weed spread; achieve national consistency in weed spread prevention; and meet the requirements of the Australian Weeds Strategy.

The National Strategy for Ecologically Sustainable Development
This strategy was released in 1992 by the Department of Environment and Heritage promotes development that improves the total quality of life in a way that maintains the ecological processes on which life depends.

The National Strategy for the Conservation of Australia's Biological Diversity
This strategy was prepared in response to the International Convention on Biological Diversity ratified by Australia in June 1996. The strategy aims to protect biological diversity and maintain ecological processes and systems.

NSW Government

NSW Weeds Strategy
This strategy defines the major objectives and activities required to achieve a sustainable reduction of weeds in NSW. It does this by explaining ways stakeholders can improve the effectiveness and coordination of the fight against weeds. The strategy is linked to: the National Weed Strategy (and the new Australian Weeds Strategy); weeds strategies in other states; and weed control and other environmental plans by local government, government and private landholders.

NSW Invasive Species Plan 2007-2015 (in draft @ May 2007)
This strategy is currently being developed by NSW Department of Primary Industries. The plan sets the overall goals for invasive species management in NSW and describes actions to minimise the impacts of all invasive species through collective efforts of all stakeholders

using a risk based approach. The plan will be for all stakeholders: CMAs, government agencies, councils, industry and community.

NSW Biodiversity Strategy
The NSW Biodiversity Strategy was set up by the state government in 1999. It involves a range of government agencies, working together to conserve biodiversity in NSW. The strategy focuses not just on parks and reserves, but also on areas outside the reserve system. It also promotes partnerships between government and local communities. Development of the NSW Biodiversity Strategy fulfils one of the objectives of the National Strategy for the Conservation of Australia's Biological Diversity.

Natural Resources Commission
The Natural Resources Commission (NRC) was established by the Natural Resources Commission Act 2003 with a broad function of providing the NSW Government with independent advice on a range of natural resource management issues. The core roles of the NRC are to recommend state-wide standards and targets for natural resource management, review and recommend the approval of Catchment Action Plans prepared by 13 Catchment Management Authorities across NSW, and audit Catchment Management Authorities' implementation of these plans and their effectiveness in achieving state-wide standards and targets.

Threat Abatement Plans
Statutory plans under the NSW *Threatened Species Conservation Act 1995* for control of Key Threatening Processes, which includes some weed species. These plans outline actions to manage the threatening process, explain how the success of these actions will be measured, identify the authorities that will be responsible for carrying out those actions and give a cost estimate and timetable, if possible, for carrying out the plan.

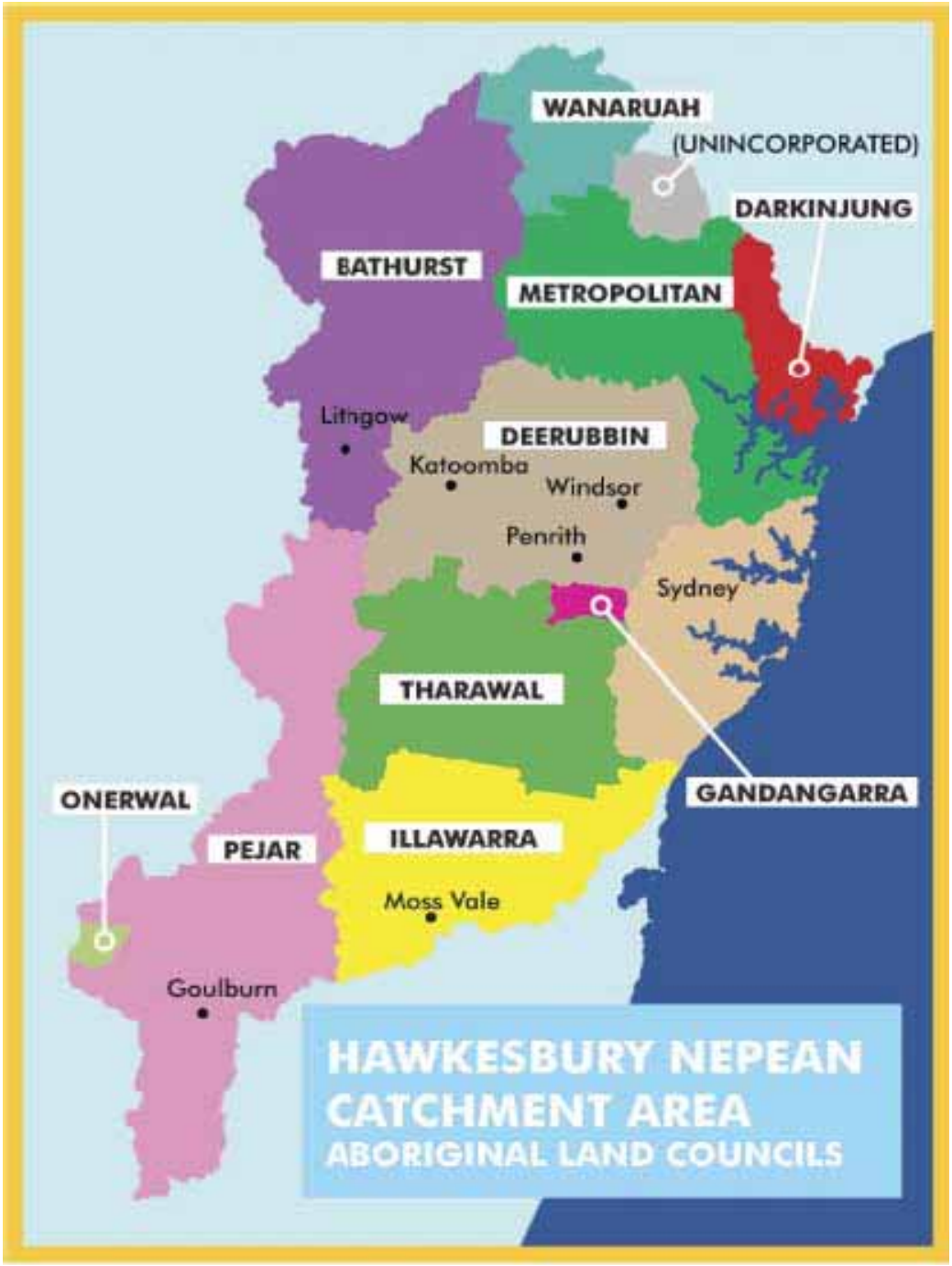
Regional

Hawkesbury Nepean Catchment Weed Management Strategy

Weed strategies from neighbouring CMA regions
Example: Weed Management Strategy for the Sydney Metropolitan CMA region
These strategies have been developed in consultation with state and local government land management agencies, bush regeneration contractors and Bushcare volunteers, as guides to improve strategic weed management and co-ordination of land managers.

Regional Weed Management Plans
Regional weed plans are developed by the Regional Weeds Committees, in consultation with the NSW Department of Primary Industries, for some priority weeds of regional significance (Class 4 Noxious Weeds). The function of the plans is to coordinate the management of these weeds across land management boundaries and reduce their impacts in parks, bushland, suburban gardens and pastures.

Appendix 5: Aboriginal Land Councils



Aboriginal Land Council contacts, as at June 2006.

Bathurst LALC
Warwick Peckham
149 Russell St Bathurst 2795
Ph 02 6332 6835
Fax 02 6332 3623
email bathlalc@bigpond.com

Darkinjung LALC
Jodie Cameron
3/61 Howarth St Wyong 2259
Ph 02 4351 2930
Fax 02 4351 2946
email j.cameron@dlalc.org.au

Deerubbin LALC
Kevin Cavanagh
5/271 Beames Ave Mount Druitt 2770
Ph 02 9832 2457
Fax 02 9832 2496

Gandangara LALC
Len Malone
2/103 Moore St Liverpool 2170
Ph 02 9602 5280
Fax 02 9602 2741

Illawarra LALC
Basil Smith
37/39 Princess Hwy Dapto 2500
Ph 02 4262 2978
Fax 02 4262 2981

Metropolitan LALC
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36/38 George St Redfern 2016
Ph 02 8394 9666
Fax 02 9267 8564
email amadden@metrolalc.org.au

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Ph 02 6226 3911
Fax 02 6226 2714

Pejar LALC
Delise Freeman
81 Bourke St Goulburn 2580
Ph 02 4822 3552
Fax 02 4822 3551
email pejar1@goulburn.net.au

Tharawal LALC
Wendy Lewis
Po Box 20 Buxton 2571
Ph 02 4681 0059
Fax 02 4683 1375

Wanaruah LALC
Barry Mc Taggart
17-19 Maitland Rd Muswellbrook 2333
Ph 02 6543 1288
fax 02 6542 5377

Hawkesbury Nepean Catchment Management Authority
Aboriginal Community Support Officer
John Lennis
68 Mileham St
PO Box 556, WINDSOR NSW 2756
Direct 02 4587 0059
Switch 02 4587 0050
Mobile 0409 390520
Fax 02 4587 0075
Email john.lennis@cma.nsw.gov.au

Appendix 5. Glossary of Terms

Hawkesbury Nepean Catchment Management Authority (HNCMA) An independent statutory body established under the *NSW Catchment Management Authorities Act 2003* to manage natural resources at a catchment level in partnership with local communities. Natural resources include land, rivers, estuaries and coastal systems.

Natural Resource Management The management of natural resources (e.g. land, water and biodiversity) in an integrated fashion recognising the values of both conservation and productive use of natural resources and striving to achieve sustainability in all resource use.

Regional Weeds Committees
Committees established under the auspices of the Department of Primary Industries. The committees promote a cooperative and coordinated approach to weed management across their region, provide a forum for information exchange between member organisations (local councils, state and federal land management agencies) and work to increase awareness of noxious and environmental weeds among industry, private landholders and the community.

Local Control Authority
The local control authority (LCA) for land within a local government area is the council of the local government area or, if noxious weed control functions for that area have been conferred on a county council under any other Act, the county council having those functions. (Noxious Weeds Act, section 35).

Weed For the purposes of this strategy, a weed is a plant that is found growing out of place, and requires some form of action to reduce its harmful effects on the economy, environment, human health and amenity.

Weed of National Significance The Weeds of National Significance are nationally agreed priority plant species for control and management. There are twenty species determined by their high ranking for their invasiveness, potential to spread and impact on socioeconomic and environmental values. Several these weeds occur in the Hawkesbury Nepean Catchment.

Noxious Weed A weed declared under the NSW Noxious Weeds Act 1993 (as amended 2006). Owners and occupiers of land are legally required to control noxious weeds.

Environmental Weed Environmental weeds are weeds that impact on the natural environment. They may be spread by birds, water, wind and humans via dumping of garden clippings.

Garden Escapes A plant commonly found in private gardens that is being sold in the nurseries and recognised as invasive of bushland.

New Weed/New Incursion An isolated population of a weed recently detected in an area, not known to be established beyond that area.