



Macquarie Valley Regional Weed Strategy



2010 - 2015

Abbreviations used in this document

AWS	Australian Weed Strategy – written and published by the Federal Department of the Environment, Water, Heritage and the Arts
CMA	Catchment Management Authority
CWEWS	Central West Environmental Weed Strategy – published by Central West Catchment Management Authority
DPI	Department of Primary Industries – former name of the primary industries section of Industry & Investment NSW.
ERNWAG	Eastern Riverina Noxious Weeds Advisory Group
ISP	Invasive Species Plan – written and published by the former DPI
LCA	Local Control Authority
LHPA	Livestock Health and Pest Authority
LRWS	Lachlan Regional Weed Strategy – written and published by Lachlan Catchment Management Authority
LVWAC	Lachlan Valley Weeds Advisory Committee
MVWAC	Macquarie Valley Weeds Advisory Committee
NGINA	Nursery & Garden Industry, NSW & ACT
NIWAC	Northern Inland Weeds Advisory Committee
RPO	Regional Project Officer – Employed jointly by MVWAC and LVWAC
WO	Weed Officer – refers to all WOs employed by member LCAs
WRA	Weed Risk Assessment
WRNWAG	Western Riverina Noxious Weeds Advisory Group

Background & Purpose

Macquarie Valley Weeds Advisory Committee (MVWAC) was originally formed by Local Control Authorities (LCA's) as the agencies responsible for the implementation of noxious weed legislation. Membership has since increased to include other stakeholders with an interest in weeds and their control such as Catchment Management Authorities (CMA's), Livestock Health and Pest Authorities (LHPA's) and other related agencies.

MVWAC's sole purpose is to enhance weed management in the central-west and north-west of NSW. This strategy seeks to address this purpose by providing direction and achievable goals for the committee's members. This strategy is written for the intended use of the Macquarie Valley Weeds Advisory Committee only. Any further use of this document is at the user's discretion.

The effects of weeds have the ability to impact on all members of the community. Weeds can severely impact on the health of waterways, affecting availability of a portion of this water for domestic use, agriculture, and industry in the future. Weeds increase the costs of agricultural production affecting the economic health of the communities supporting this industry, as well as impacting on consumers' bottom line. Weeds can decrease biodiversity, degrading our landscapes, and reducing the value of our environmental heritage.

By managing weeds and their associated issues at a regional level, MVWAC is ensuring the coordination and cooperation of stakeholders. This not only promotes more economical use of resources, but also encourages complimentary activities. This strategy will help coordinate the surveillance and identification of weeds and weed pathways, the risk assessment of species and the implementation of effective barriers to prevent their establishment. The strategy will also outline how responses to weed incursions will be coordinated, implemented, monitored and reported.

Although this strategy is targeted at managing weeds at a regional level, the basic concepts can also be used at a local level. Land managers can utilise hygienic practices and minimise disturbance to prevent new weed incursions. Emerging weeds are easier to eradicate at an early stage to prevent establishment. This follows the Bradley method for vegetation restoration of tackling the smallest problem first to prevent a larger problem. This also causes fewer disturbances than clearing of large infestations. Containment and asset protection are also viable local level management goals that promote best use of limited resources.



New South Wales Invasive Species Plan 2008-2013

The NSW Invasive Species Plan (ISP) provides a whole of Government approach to managing invasive species in NSW, and MVWAC Regional Weed Strategy supports the weed component of the ISP on a regional level.



Harrisia Cactus: All parts of the plant must be removed (including all tubers) and destroyed by burning as any portion of tuberous root or branch left in the soil will resprout. (Image: Ashley Bullock)

Roles and Responsibilities of Stakeholders

Local Control Authorities

Local government such as shire councils or county councils, collectively known as LCAs, control noxious weeds on council controlled lands such as reserves and roadsides. They also promote and enforce, where necessary, control of noxious weeds on privately owned and managed lands. Member LCAs of Macquarie Valley Weeds Advisory Committee include:

- Bogan Shire Council
 - Bourke Shire Council
 - Brewarrina Shire Council
 - Cabonne Council
 - Cobar Shire Council
 - Dubbo City Council
 - Castlereagh Macquarie County Council
 - Mid Western Regional Council
 - Narromine Shire Council
 - Orange City Council
 - Parkes Shire Council
 - Wellington Council

- Castlereagh Macquarie County Council

This County Council is responsible for the control of noxious weeds in the councils of:

Coonamble Shire Council

Warrumbungle Shire Council

Gilgandra Shire Council

Walgett Shire Council

Warren Shire Council

- Upper Macquarie County Council

This County Council is responsible for the control of noxious weeds in the councils of:

Bathurst Regional Council

City of Lithgow Council

Blayney Shire Council

Oberon Council

The LCA for land within the unincorporated area (not within a local government area) of Western Division is the Western Lands Commissioner.

Livestock Health and Pest Authorities

Livestock Health and Pest Authorities (LHPAs) control noxious weeds on LHPA controlled lands such as Travelling Stock Routes. Member LHPAs of Macquarie Valley Weeds Advisory Committee include:

- Central North LHPA
 - Central West LHPA
 - Darling LHPA
 - North West LHPA
 - Tablelands LHPA

Catchment Management Authorities

Catchment Management Authorities (CMAs) provide support to regional land managers and stakeholders for weed control. The following CMAs are members of Macquarie Valley Weeds Advisory Committee:

- Central West CMA
 - Lachlan CMA
 - Namoi CMA
 - Western CMA

Government Departments

Federal Government departments such as Department of Agriculture Fisheries and Forestry and Department of Environment and Heritage administer legislation, policies, programs, and associated activities to manage weeds at the national level.

Industry and Investment NSW provide legislative framework and policies for the enforcement of noxious weed control for the protection of agricultural, environmental and social values. They promote the control of noxious weeds through media campaigns and the provision of technical publications. They also provide grant funding under schemes for weed control by LCA's, LHPA's and other community groups.

NSW Land and Property Management Authority and Department of Environment, Climate Change and Water control noxious weeds on agency lands.

Goals

Goal 1: Prevent new weed problems

The most effective way to manage weeds is to treat the problem at its earliest stage. It is therefore a priority of this strategy to prevent any new weeds from entering the region. This will be achieved through programs targeting pathways of spread such as transportation of contaminated material, the retail industry and inappropriate disposal of weed material.

As prevention cannot always be successful, the second step under this goal is to respond to new weed incursions rapidly before they have had a chance to establish widely. This will include implementation of inspection and reporting guidelines, an alert system for creating awareness of new and emerging weed issues, and development of a rapid response plan. This goal directly addresses Goals 1&2 of the ISP.

Goal 2: Considerably reduce impacts of existing weeds

Existing weeds are those widespread species that have been established in the region for many years. In this case, the main objective is to manage these species in a way that is cost effective and where the benefits are greatest. This goal directly addresses Goal 3 of the ISP.

Goal 3: MVWAC members have the ability and commitment to manage weeds successfully

MVWAC and its members need to have the appropriate knowledge, skills, resources and systems to be able to successfully carry out the required weed management programs. These can include funding, information, functionality of the committee and education and training programs. This goal directly addresses Goal 4 of the ISP.

Goal 4: Increase public awareness of weeds issues

Weeds affect everyone through their impacts on environmental, economic and social values. By raising awareness of weeds issues, motivation and commitment to controlling weeds is increased. This goal targets the education of the public by providing up to date information on current issues, best management practice, preventative practices, legislation, roles and responsibilities.



Coolatai Grass is a serious weed of native environments as it is very similar to native species and requires no disturbance to invade. It is of high importance that this weed is controlled at an early stage and eliminated before it becomes established. (Image: Ashley Bullock)



Bathurst Burr is a significant pasture weed affecting the overall quality of agricultural produce through pasture competition and fleece contamination. (Image: Megan Power)



Silverleaf Nightshade field day held near Wellington: Field days held for both weed managers and the public have been very successful. Farmers were able to have greater access to the knowledge held by weed managers and weed managers were able to reach a wide audience.

Goal 1: Prevent new weed problems

Objective 1.1: Early detection capabilities are improved

Activity	Who	When	Performance Measure	Reporting Method
1.1.1 Identify high risk weeds that are not currently present	RPO & WOs	Year 1	Collaboration with WOs and DPI List is produced for each LCA area	List exists and is updated regularly
1.1.2 Identify high risk pathways for weed spread	RPO & WOs	Year 1	Collaboration with WOs and DPI Table/map is produced for each LCA area	Table/map exists and is updated regularly
1.1.3 Develop & implement a rapid response plan	RPO & WOs	Year 1	Document is produced and provided to all weed managers No new incursions allowed to establish	Document exists Delegate reports or funding returns
1.1.4 Target high risk pathways in inspection program	WOs	Ongoing	High risk pathways are inspected at predetermined intervals	Inspection reports Delegate reports or funding returns
1.1.5 Ensure neighbouring landholders are aware of any new weed incursions	WOs	Ongoing	This activity is to be included in the rapid response plan	Check off against rapid response plan
1.1.6 Implement recommended actions for weed categories (as per appendix 1)	WOs	Ongoing	Weeds are controlled according to the priority level assigned	Delegate reports Funding returns

Objective 1.2: Hygienic practices are used to prevent new weed incursions

Activity	Who	When	Performance Measure	Reporting Method
1.2.1 Promote use of hygienic practices on farm	WOs	Ongoing	Educational material provided to landholders Practice changes observed during re-inspection	Inspection reports
1.2.2 Promote use of hygienic practices within council to stop slashers and graders spreading weeds	LCAs	Ongoing	Operators ensure machinery is clean and do not spread weeds	Toolbox meetings
1.2.3 Identify and protect areas clean of high risk weeds	WOs & land-holders	Ongoing	High risk weeds do not establish in clean sites	Inspections Weed mapping database

Objective 1.3: Collaborate with industry stakeholders to prevent new weeds

Activity	Who	When	Performance Measure	Reporting Method
1.3.1 Target transport and utilisation of materials potentially contaminated with weed material	WOs	Ongoing	Inspections of sites	Inspection reports
1.3.2 Promote a “weed-free hay” program	LCAs & LHPAs	Year 3	Educational material is developed and distributed	Number of pamphlets distributed
1.3.3 Reduce inappropriate disposal of garden waste and weed material	LCAs	Ongoing	Nurseries and garden clubs are provided with educational material	Number of pamphlets distributed Number of nursery visits

Goal 2: Considerably reduce the impacts of existing weeds

Objective 2.1: Identification and prioritisation of management programs where benefits are greatest				
Activity	Who	When	Performance Measure	Reporting Method
2.1.1 Develop a prioritised weed list of existing weeds using DPI's weed risk assessment process	RPO & WOs	Year 1	A comprehensive list is developed	The list forms part of a document that will be available to all members
2.1.2 Use prioritised weed list to help target resource use	WOs	Ongoing	Weeds are controlled according to the priority level assigned	Delegate reports Funding returns
2.1.3 Implement recommended actions for weed categories (as per appendix 1)	WOs	Ongoing	Weeds are controlled according to the priority level assigned	Delegate reports Funding returns
Objective 2.2: Implement integrated management techniques				
Activity	Who	When	Performance Measure	Reporting Method
2.2.1 Promote use of biological control methods where available	WOs & MVWAC	Ongoing	Information is made available to landholders Supply of biological control agents is facilitated	Inspection reports Website contains correct information
2.2.2 Promote use of vegetation restoration techniques	WOs & MVWAC	Ongoing	Information is made available to landholders Vegetation restoration is included in on-ground management plans	Inspection reports Website contains correct information Management plan documents
2.2.3 Promote use of hygienic practices to prevent spread	WOs & MVWAC	Ongoing	Information is made available to landholders Re-inspection shows less spread	Inspection reports Website contains correct information
2.2.4 Use buffer zones to contain weed infestations	WOs & land-holders	Ongoing	Existing weed infestations do not spread	Inspection reports Weed mapping database
2.2.5 Promote use of existing best practice manuals (where they are current)	WOs & MVWAC	Ongoing	Information is made available on website On-ground management plans are linked to BPMs	Website contains correct information Management plan documents
2.2.6 Keep up to date with advances in weed control techniques	WOs	Ongoing	New techniques are used to achieve higher level of control	WO work plans
Objective 2.3: Legislation used to enhance weed control				
Activity	Who	When	Performance Measure	Reporting Method
2.3.1 Noxious Weeds Act 1993 is enforced	WOs	Ongoing	Increased compliance by landholders	Inspection reports
2.3.2 Noxious weed declarations are reviewed and changes petitioned for where necessary	RPO & WOs	Ongoing	Declarations are reviewed annually Applications for change are submitted	Meeting minutes

Goal 3: MVWAC members have the ability and commitment to manage weeds successfully

Objective 3.1: Partnerships are developed with key stakeholders to improve coordination and cooperation			
Activity	Who	When	Performance Measure
3.1.1 Partner with CMAs to achieve common aims	MVWAC & CMAs	Year 2	CMA is a member of MVWAC and attends quarterly meetings
3.1.2 Partner with neighbouring RWACs to stay updated with potential weed problems	MVWAC, LVWAC, ERNWAG & WRNWAG, NIWAC	Year 2	Communication network established
3.1.3 Partner with NGINA to control trade of potential weed species	WOs & NGINA	Year 2	Relationships with nurserymen developed Fewer weed incursions originating from nurseries

Objective 3.2: Improved data collection and collation			
Activity	Who	When	Performance Measure
3.2.1 Collate baseline data for current distribution and abundance of all priority weeds	WOs	Year 1	Published maps/data tables for all priority weeds
3.2.2 Ensure all LCAs and LHPAs use the same data recording standards	WOs	Year 1	Recording standards are agreed on and adhered to
3.2.3 Update maps annually for priority weeds	WOs	Ongoing	Maps/data tables are updated
3.2.4 Develop a centralised data set of weed distribution and abundance maps for the region	WOs & RPO	Year 2	Published maps/data tables for all priority weeds collated from all member LCAs

Objective 3.3: Communication networks are developed and maintained			
Activity	Who	When	Performance Measure
3.3.1 Develop a database of distribution networks	Secretary & RPO	Year 1	Lists are developed and updated annually
3.3.2 Strengthen and maintain the functionality of MVWAC	MVWAC members	Ongoing	MVWAC remains a functional committee
3.3.3 Ensure all relevant stakeholders are welcome and included in MVWAC	Secretary & MVWAC members	Ongoing	Representatives from all stakeholder groups are invited to attend meetings
3.3.4 Maintain open communication between the public and weed managers	WOs & MVWAC	Ongoing	“Local contacts” section of website is maintained
			Website report

Goal 3: MVWAC members have the ability and commitment to manage weeds successfully

Objective 3.4: Improved education and training opportunities for weed managers				
Activity	Who	When	Performance Measure	Reporting Method
3.4.1 Ensure all WOs obtain “legal training for weed officers” accreditation	All weed managers	Ongoing	Database of trained WOs	Liase with weeds training program staff
3.4.2 Encourage all weed managers to take part in the weeds training program (DPI)	All weed managers	Ongoing	Database of trained WOs	Liase with weeds training program staff
Objective 3.5: This strategy is implemented and continues to be a relevant working document				
Activity	Who	When	Performance Measure	Reporting Method
3.5.1 All signatories commit to implementing this strategy	All signatories	Ongoing	Signatories carry out the activities assigned to them	Use strategy as a checklist Delegate reports or funding returns
3.5.2 Seek funding to implement this strategy	All stakeholders	Ongoing	Funding applications are successful	Funding returns
3.5.3 Use MERI principles to review this strategy	MVWAC Management committee	Annually	Management Committee reviews strategy	Mistakes/errors identified Improvements identified
3.5.4 Success stories are publicised	All members	Years 3&5	Articles are published through advertising media such as newspapers or website	Website contains correct information Newspaper clippings

Goal 4: Increased public awareness of weeds issues

Objective 4.1: Educational resources are available				
Activity	Who	When	Performance Measure	Reporting Method
4.1.1 Identify available educational material regarding weeds issues	RPO	Year 1	List or database created	List available
4.1.2 Approach DPI education unit to develop any additional material required	MVWAC & DPI	Ongoing	New materials developed	Communication List of available material updated
4.1.3 Promote availability of educational material	WOs & MVWAC	Ongoing	Material distributed to landholders Links included on website	Number of pamphlets distributed Website contains correct information
4.1.4 Distribute educational material for nurseries and gardeners	WOs & NGINA	Ongoing	Material is distributed NGINA participates in distribution	Number of pamphlets distributed
4.1.5 Develop an introductory weeds information pack to be targeted at new property owners	MVWAC	Year 2	Pack is developed in conjunction with DPI education unit	Pack is available for distribution

Objective 4.2: Increase the number of awareness programs conducted				
Activity	Who	When	Performance Measure	Reporting Method
4.2.1 Promote existing programs such as Grow Me Instead, Weed Warriors, No Space 4 Weeds	MVWAC & all weed managers	Ongoing	Website used to promote upcoming events and programs Increased activities	Website activity Delegate reports or funding returns
4.2.2 Increase efforts in creating and running television advertisements	MVWAC	Annually	Number of advertisements in catalogue How often they are run	Catalogue Funds spent on air time
4.2.3 Maintain a website jointly with LVWAC	MVWAC & LVWAC	Ongoing	Website is updated regularly	Website reports at quarterly meetings of MVWAC
4.2.4 Local field days targeting current weed issues to be held	WOs	Ongoing	3 field days held per year per LCA	Delegate reports
4.2.5 Stall attended at local shows	WOs	Ongoing	1 show attended per year per LCA	Delegate reports

Appendix 1—Weed Categories

Category A — High risk weeds not currently present in the region

Recommended actions:	<ul style="list-style-type: none"> Conduct surveillance of high risk pathways Liaise with neighbouring LCAs and regions to identify any additional high risk weeds Promote hygienic practices to prevent further spread of the weed
Desired outcome:	Prevention

Category B (Any weed that gets an “Eradication” or “Destroy Infestations” outcome from the WRA)

Recommended actions:	<ul style="list-style-type: none"> Rapid Response Plan Confirm species identification Formally report to DPI if species is a “notifiable” weed (Class 1, 2 or 5) as declared under the Noxious Weeds Act 1993 Record all details of the outbreak according to the Weed Recording Standards (DPI, 1999) Destroy the outbreak Inform surrounding LCAs and LHPAs of outbreak Inform neighbouring landholders and other relevant community groups of the outbreak as part of a community awareness and education program Develop a monitoring plan for the site in accordance with High Risk Pathways Management Plan Carry out any follow-up control required to ensure the outbreak is destroyed
Desired outcome:	Eradication

Category C (Any weed that gets a “Contain Spread”, “Manage Weed” or “Protect Priority Sites” outcome from the WRA)

Recommended actions:	<ul style="list-style-type: none"> Record all details of the infestation according to the Weed Recording Standards (DPI, 1999) Create buffer zones around infestation sites to prevent spread Refer to any available best practice manuals and the noxious and environmental weed control handbook for recommended control methods and herbicides Control according to declaration status and Class 4 management plans (if applicable) Promote hygienic practices to prevent further spread of the weed Provide educational material to affected landholders in the form of factsheets, website, pamphlets etc. Monitoring to occur through the inspection program. The weed should not be allowed to spread from its current distribution
Desired outcome:	Containment

Category D (Any weed that gets a “Manage Sites”, “Monitor” or “Limited Action” outcome from the WRA)

Recommended actions:	<ul style="list-style-type: none"> Record all details of the infestation according to the Weed Recording Standards (DPI, 1999) Identify priority sites where benefits of control are greatest and aim to eradicate from these sites Refer to any available best practice manuals and the noxious and environmental weed control handbook for recommended control methods and herbicides Promote hygienic practices to prevent further spread of the weed Provide educational material to affected landholders in the form of factsheets, website, pamphlets etc. Monitoring to occur through the inspection program. The weed should not be allowed to spread from its current distribution
Desired outcome:	Asset protection

Appendix 1—Linked strategies

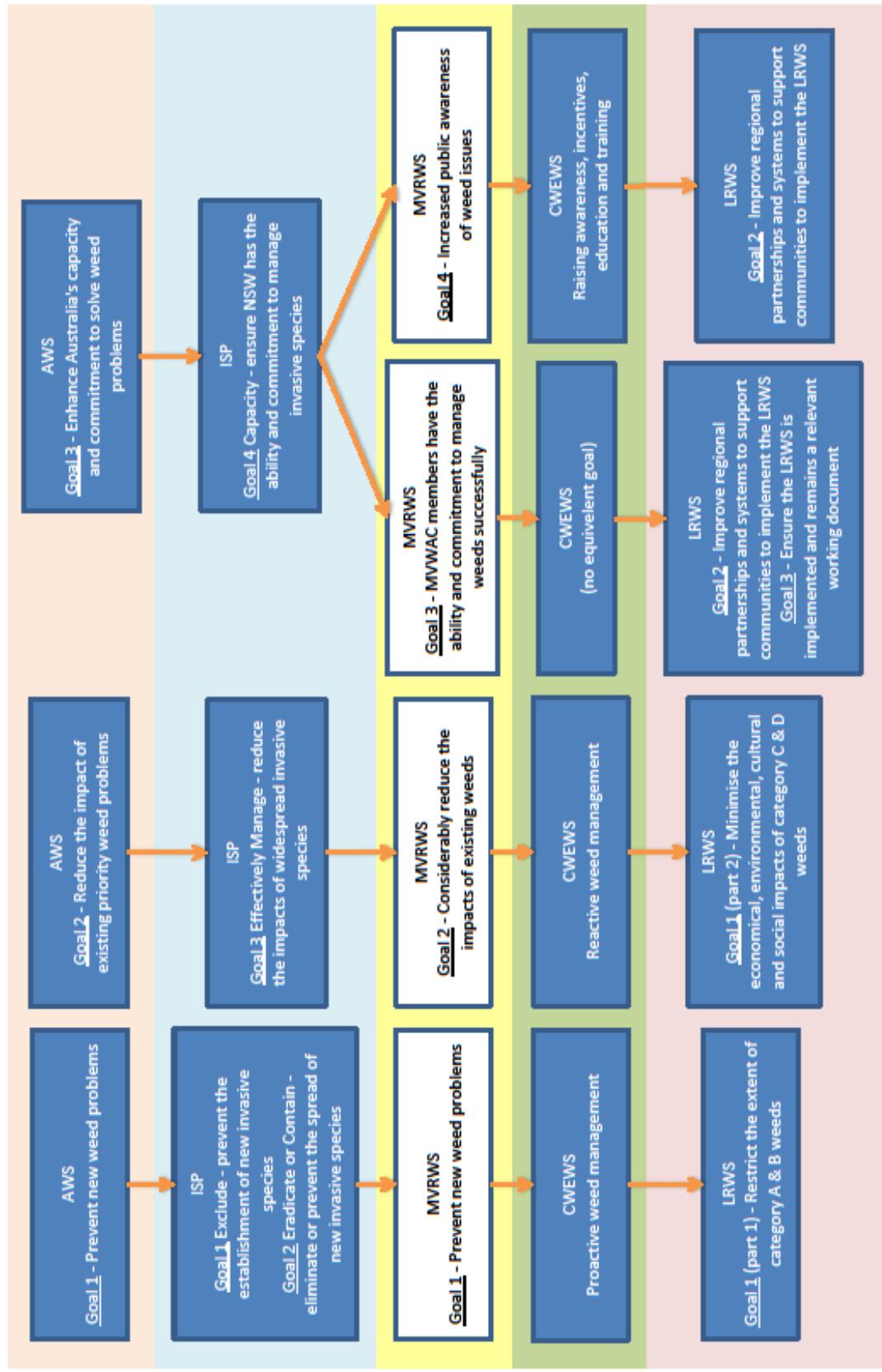


Figure 1: Linked strategy goals

Appendix 2—Linked strategies (cont)

Linked Catchment Action Plan targets:

Central West Catchment Management Authority

MTV6: By 2016, reduce area in the catchment affected by environmental weeds by 50,000 hectares.

Western Catchment Management Authority

MT3: No increase in the number of species or extent of pest weeds or animals above current levels and a reduction in the impact of pest species.

Lachlan Catchment Management Authority

CT3: By 2016, restrict the extant of priority pest animals and environmental weeds.

Caring for our Country Business Plan 2009-2010 priority target:

To reduce the impact and spread of Weeds of National Significance over the next two years. Priority will be given to collaborative activities that address outliers, containment lines, and strategic management of core infestations where appropriate.

Table: Linked strategy objectives

MVRWS	AWS	ISP	CWEWS	LRWS
1.1 Early detection capabilities are improved	1.2 Ensure early detection of and rapid action against new weeds	1.2 Early detection capabilities are developed and implemented	3.1.2 Early detection and eradication of new environmental weeds	1.1.2 Develop and implement a Rapid Response Plan in line with the national and state strategies to be used for all new weed incursions
1.2 Hygienic practices are used to prevent new weed incursions	1.3 Reduce the spread of weeds to new areas within Australia	1.1 High risk species and pathways are identified and managed	3.1.1 Prevent the spread of new species in Central West catchment with weed potential	1.3 Increase the use of hygienic practices to prevent introduction and spread of weeds
1.3 Collaborate with industry stakeholders to prevent new weeds	1.3 Reduce the spread of weeds to new areas within Australia	1.1 High risk species and pathways are identified and managed	3.1.1 Prevent the spread of new species into Central West catchment with weed potential	1.2 Limit potential introduction and spread of weeds from gardens
2.1 Identification and prioritisation of management programs where benefits are greatest	2.2 Implement coordinated and cost effective solutions for priority weeds and weed problems	3.1 Identification and prioritisation of management programs where benefits are greatest	3.2.2 Prioritise weed management problems and determine their causes	1.1.1 When undertaking weed control programs, use guidelines for category weeds
2.2 Implement integrated management techniques	2.2 Implement coordinated and cost effective solutions for priority weeds and weed problems	3.2 Effective and targeted on-ground control	3.2.3 Develop and implement cost-effective solutions for environmental weed management	1.1.1 When undertaking weed control programs, use guidelines for category weeds
2.3 Legislation used to enhance weed control	3.3 Manage weeds within consistent policy, legislative and planning frameworks	4.10 Legislation and policies implemented and enforced consistently for effective invasive species management	-	1.1.7 LCA's to use the Noxious Weeds Act 1993 and other relevant legislation effectively

(Table continued over page)

Appendix 2—Linked strategies (cont)

Table: Linked strategy objectives (cont)

MVRWS	AWS	ISP	CWEWS	LRWS
3.1 Partnerships are developed with key stakeholders to improve coordination and cooperation	3.2 Build Australia's capacity to address weed problems and improve weed management	4.2 Private landholders motivated to manage invasive species proactively 4.8 Roles and responsibilities defined for invasive species management 4.12 Have established cost sharing arrangements	-	2.1 Increase the number of coordinated programs to reduce existing weed problems 3.1 Gain commitment from all stakeholders to implement the LRWS
3.2 Improved data collection and collation	3.4 Monitor and evaluate the progress of Australia's weed management efforts	4.6 Ability to measure the effectiveness of invasive species management	-	1.1.8 Encourage LCA's to update mapping and record keeping systems regularly and promote use of computer based systems
3.3 Communication networks are developed and maintained	3.2 Build Australia's capacity to address weed problems and improve weed management	4.3 Increased community acceptance of and involvement in effective invasive species management	3.3.1 Raise awareness and increase motivation among the Central West community to boost their commitment to weeds	2.2 Improve awareness and attitude of weed issues and develop effective communication networks
3.4 Improved education and training opportunities for weed managers	3.2 Build Australia's capacity to address weed problems and improve weed management	4.5 Skilled workforce implementing invasive species management	3.3.3 Develop an education and training package	2.3 Improve knowledge and provide training opportunities and educational resources to all stakeholders in weed management
3.5 This strategy is implemented and continues to be a relevant working document	3.4 Monitor and evaluate the progress of Australia's weed management efforts	4.9 Government commitment to implement the components of the ISP 4.11 Monitor progress of implementation of the plan	-	3.1 Gain commitment from all stakeholders to implement the LRWS
4.1 Educational resources are available	3.1 Raise awareness and motivation among Australians to strengthen their commitment to act on weeds	4.4 Integration of invasive species management into education programs	3.3.1 Raise awareness and increase motivation among the Central West community to boost their commitment to weeds	2.2 Improve awareness and attitude of weed issues and develop effective communication networks
4.2 Increase the number of awareness programs conducted	3.1 Raise awareness and motivation among Australians to strengthen their commitment to act on weeds	4.4 Integration of invasive species management into education programs 4.3 Increased community acceptance of and involvement in effective invasive species management	3.3.1 Raise awareness and increase motivation among the Central West community to boost their commitment to weeds	2.2 Improve awareness and attitude of weed issues and develop effective communication networks