

# New Incursion Plan - Alligator weed. 2013-2018



**National alligator weed strategic plan. Goal 1: New alligator weed infestations are prevented from establishing.**

1D Maintain and monitor outlier eradication and containment programs.	Strategic action - maintain and monitor alligator weed eradication and containment programs at all existing outlier sites
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**NSW alligator weed strategy. Goal 2: Eradicate or contain**

Prevent and reduce the spread of alligator weed	2.2.3 Apply current best practice control techniques at all alligator weed sites
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**Regional weed strategy. Aim: Preventative weed management**

No new weeds naturalised over the life of the RWS	2.1.2 Develop and implement plans for priority weeds in consultation with stakeholders.
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**Aim:** To protect clean areas and reduce the spread of alligator weed across the Murray & Riverina.

**Objectives:**

1. New alligator weed infestations treated within 7 days of detection (as guided by the recognising water weeds, early detection survey guidelines).
2. Eradicate known alligator weed infestations.
3. Support landholder control works.
4. Actively promote and provide extension and awareness materials.

**Area of operation:** Murray & Riverina LCAs – known infestations at Woomargama (a), Barren Box Swamp and surrounding channel systems (b).



## Key Stakeholders:

The following Local Control Authority (**LCA**) and Livestock Health & Pest Authority (**LHPA**) members of the Eastern and Western Riverina Noxious Weeds Advisory Groups (**ERNWAG & WRNWAG**): Albury City, Balranald Shire, Bland Shire, Carrathool Shire, Central Murray County, Coolamon Shire, Cootamundra Shire, Corowa Shire, Griffith City, Greater Hume Shire, Gundagai Shire, Hay Shire, Jerilderie Shire, Junee Shire, Leeton Shire, Lockhart Shire, Murrumbidgee Shire, Narrandera Shire, Riverina Eastern Noxious Weeds Authority (**RENWA**), Temora Shire, Tumbarumba Shire, Tumut Shire, Urana Shire, Wagga Wagga City, Wakool Shire, Wentworth Shire, Hume LHPA, Riverina LHPA and Western LHPA. Farmers of the Wah Wah Irrigation District; Murrumbidgee Irrigation (**MI**); NSW Department of Primary Industries (**NSW DPI**); Lachlan, Murray and Murrumbidgee Catchment Management Authorities (**CMAs**); Office of Environment and Heritage – Parks and Wildlife Group (**OEH**); NSW Farmers, Coleambally Irrigation (**CI**), Murray Irrigation Limited (**MIL**) and neighbouring landholders.

## Background:

Alligator weed is a native of South America and is believed to have been introduced to Australia in shipping ballast. It is a weed of national and regional significance because of its invasiveness, potential to spread, and environmental and economic impacts. It can grow in water and on land, and has been mistakenly grown in the past, confused with Mukunuwenna (a Sri Lankan vegetable). Alligator weed is capable of growing from plant fragments and therefore easily spread when broken off by stock, machinery or recreational activities.

Alligator weed blocks irrigation channels and water storage facilities; chokes waterways and prevents birds and other wildlife from using them; depletes oxygen levels in the water, reducing fish stocks; replaces native aquatic plants; invades horticulture, turf and cropping systems; and interferes with water based recreational activities.

## Weed Biology: (source: NSW Alligator Weed Strategy 2010-2015)

Alligator weed is a perennial, stoloniferous, herbaceous plant. It is identified by its hollow stems; white, papery, ball-shaped flowers on short stalks; and the glossy spear-shaped leaves arranged in opposite pairs along the stem. They are 2–12 cm long, 0.5–4 cm wide with an acute tip.

In water, alligator weed stems can grow up to 2 m long and form dense, buoyant mats, up to 1 m thick, extending up to 15 m across the water surface. On land the plant has a prostrate form with shorter stems and reddish brown roots, with taproots extending to a depth of 2 m.

## Distribution of Infestations:

There are five known infestations of alligator weed in the Riverina. The first was detected in a private dam at Woomargama in 1971. It was believed to have been accidentally introduced with ornamental pond plants in the 1960s. By the time it was detected alligator weed covered the 1700 m<sup>2</sup> dam and occurred in scattered infestations up to 3 km downstream of the dam overflow. The infested dam overflows into the Mountain creek that then runs into the Billabong creek that stretches across the Riverina, eventually ending up in the Murray River.

Ongoing monitoring and management over 40+ years have controlled but not yet eradicated this infestation. During the 2010/11 growth season, inspections were carried out every 5-6 weeks. With the assistance of the Murray CMA, NSW DPI & Greater Hume Shire there has been an increase in detections, improved mapping of the individual plant locations as well as on the spot hand removal with follow up spraying where necessary. Approximately 2 km downstream of the last known site was inspected with no alligator weed being detected. Over the last 40 years approximately \$110,000 (excluding in-kind contributions) has been invested at Woomargama.

The second alligator weed site was detected in February 1994, when a large infestation was discovered in Barren Box Swamp (BBS) and surrounding channel systems, near Griffith. The initial infestation covered approximately 12 kms of shoreline of BBS and 44 km of channel system and floodway and appeared to have been in the district at least 2 years prior to being detected. By March 1994 two terrestrial sites had been detected. The 1<sup>st</sup> covered approximately 500 m<sup>2</sup> on the foreshore of BBS and the second was detected in a rice crop in the Wah Wah Irrigation District.

Over the last 4 years significant success has been achieved with manually removing known infestations. Weed officers have detected plants growing under salt bush with root systems travelling up to 2 m deep and stems sprawling 4 m wide. Vigilance and patience is slowly paying off with less regrowth occurring each year. To date approximately 50 active sites persist on private lands and in the associated channel systems. Within BBS and the associated channel systems approximately 30 active sites are persisting. If left unchecked this infestation would have cost irrigation farmers in the Murrumbidgee Irrigation Area up to \$250 million annually. In excess of \$2.2 million has been spent on the eradication of this infestation, with maintenance programs in place and monitoring being ongoing.

**The last line of defence:** a box culvert established at Cameron's Lane, designed to prevent vegetation flowing under this road. Alligator weed has not been detected west of this culvert. It is imperative to maintain this culvert and undertake frequent inspections to prevent the spread of fragments further west where the floodway eventually joins the Lachlan River.

A distribution map of the current alligator weed infestations in the BBS and Wah Wah Irrigation Area needs to be compiled as a priority. The infestation at Woomargama (see aerial map on page 4) is confined to the private dam (a), adjoining paddock (b) and Mountain creek (c).

**Backyard infestations:** In 1996 NSW Agriculture embarked on a state-wide search after finding alligator weed growing in backyards of Sri Lankan migrant families. Alligator weed looks similar to the Sri Lankan vegetable Mukunuwenna or Poonankani (*Alternanthera sessilis*), and was identified in more than 30 backyards throughout NSW after it was mistakenly purchased and planted in the residential gardens. Correspondence and extension material was developed by NSW Agriculture and circulated to LCAs along with a list of Sri Lankan families in the area. All residential areas were inspected and any residents found mistakenly growing alligator weed were given a Mukunuwenna plant as replacement. In 1996 alligator weed was detected in residential backyards in the following Riverina townships: Albury, Culcairn, Griffith, Hay, Narrandera and Wagga Wagga.

Backyard infestation details were distributed to weed officers in March 2012. All sites were reinspected and AW has been detected in 3 of the residential backyards that were infested 16 years ago. The first infestation confirmed in a backyard in Wagga Wagga and the other two in separate backyards in Albury.





### The “Do Nothing” Option:

This weed has the potential to dominate all wetlands, natural waterways and all irrigation channel systems within the Lachlan, Murray and Murrumbidgee catchments. The irrigation industry in the Riverina would suffer significant extra costs if alligator weed was left unmanaged. Every new infestation in the Riverina will increase exponentially the risk of further spread of alligator weed.

If all current control works were to cease in the BBS and Wah Wah Irrigation District, alligator weed could dominate many aquatic areas within two years and continue to increase exponentially. A flood through Mirrool creek system would almost certainly spread AW into the Lachlan, Murrumbidgee and Murray River systems and associated wetlands. If the Woomargama infestation were left untouched, the dam would soon be completely dominated by alligator weed. This would result in the Mountain and Billabong creeks and eventually the Murray River and associated wetlands being infested with alligator weed.

### Method and Rate of Spread:

Under warm moist conditions alligator weed grows rapidly, with reproduction in the field being entirely vegetative, as seeds are not viable under Australia’s conditions. Fragments of alligator weed stems containing at least one node are capable of producing new growth. It is commonly spread downstream when the plant is broken up into smaller fragments (eg by floods, or following mechanical or chemical control).

The spread of alligator weed can be significantly reduced by quickly controlling outbreaks; by increasing community awareness and action; and by improving hygienic practices thus preventing the movement of plant fragments by machinery, vehicles, water and livestock.

### Species Management:

Early detection and rapid response is essential to prevent establishment of alligator weed. Once established, eradication is very difficult due to the extensive root system of terrestrial plants. Established sites must be continually monitored and treated. It is believed that plant fragments can remain dormant through dry periods for many years, only reappearing when conditions are more favourable.

Management techniques currently being used within the Riverina for controlling Alligator weed include: mechanical (Excavators); physical (digging – hand removal) & chemical removal.

The *Alligator Weed Control Manual: Eradication and suppression of alligator weed (Alternanthera philoxeroides) in Australia* (Oosterhout 2007), contains a range of best practice management techniques and can be downloaded freely from: [www.weeds.org.au/WoNS/alligatorweed/](http://www.weeds.org.au/WoNS/alligatorweed/)

### Declaration Status:

Alligator weed is declared Class 2 across the Riverina - The plant must be eradicated from the land and the land must be kept free of the plant.

Under Section 8 (3) of the Noxious Weeds Act 1993 – A noxious weed that is classified as a Class 1, 2 or 5 noxious weed is referred to in this Act as a **notifiable weed**.

Under Section 15 of the Noxious Weeds Act 1993 – An occupier of land (other than a local control authority) on which there is a **notifiable weed** must notify the local control authority for the land of that fact **within 24 hours** after becoming aware that the notifiable weed is on the land.

### National Alligator weed Priority Management Actions by NRM Region:

Note: highest priorities are in bold text. High priority regions are highlighted in pink.

NRM Region	ALLIGATOR WEED Priorities January 2010
Lachlan	Alligator Weed does not occur in this region. Region identified at risk of invasion so surveillance and ID training are key priorities
Murray	<b>Eradication of outlier infestation.</b> Continue eradication efforts at Woomargama and downstream surveillance. Further education and awareness efforts, including ID training
Murrumbidgee	<b>Eradication of outlier infestation.</b> Continue eradication efforts at Wah Wah and Barren Box Swamp and downstream surveillance. Further education and awareness efforts, including ID training

Information extracted from National Priority Action Frameworks for Alligator weed

**Regional Action Plan:**

OBJECTIVES	NSW AWS	ACTIONS	PERFORMANCE INDICATORS	WHO'S RESPONSIBLE
1. New alligator weed infestations treated within 7 days of detection (as guided by the recognising water weeds, early detection survey guidelines)	2.2.1	1. Identify and inspect high risk sites and pathways (Mountain creek, Hume Weir, Wah Wah Irrigators, BBS, channel systems)	High risk sites and pathways listed and inspected 3 times annually as per HR pathways & sites management plan	LCAs, Murrumbidgee Irrigation (MI), RWCC
		2. Inspect for AW as part of routine property inspection program	# of properties inspected annually	LCAs
	2.1.3	3. Implement rapid response as per current best practice at all new sites	Best practice rapid response applied at all new sites	LCAs + MI + land managers
		4. All new and/or suspect infestations to be reported to the LCA within 24 hrs of finding it	LCAs kept informed of new infestations (notifiable weeds) each season	MI + Land managers
		5. Complete notifiable weed reporting form and submit to NSW DPI	Notifiable weed form received by NSW DPI	LCAs
	2.2.5	6. Record location of all new infestations. Provide details to State Aquatic Weeds Officer & RWCC for development of state and regional map	Updated map available upon request	LCAs + MI + Aquatic Weed Officer (AWO) NSW DPI + RWCC
		7. Notify downstream landholders within 2 weeks of detecting aquatic infestations	Downstream landholders notified when aquatic infestations are detected upstream	MI + LCAs
2. Eradicate known alligator weed infestations		1. Inspect known infested rural properties annually	Properties with known infestations inspected 3 times per annum	Carrathool Shire + Griffith City
		2. Inspect residential backyard infestations annually	Residential properties with infestations inspected annually	Wagga Wagga City, AlburyCity
		3. Inspect BBS and associated channel systems biannually	BBS + associated channels inspected biannually	MI
		4. Inspect Woomargama every 6 weeks during the growing season	Woomargama inspected every 6 weeks during the growing season	GHC + Land manager
	2.2.3	5. Apply current best practice control techniques at all AW sites	Site specific best practice techniques applied. Number of sites and size of infestations reducing	LCAs + MI + land managers
	2.2.4	6. Monitor and adopt new management techniques where necessary	New techniques working and reported back up the line	LCAs+ MI + land managers
		7. Develop a procedure for all AW sites "What to do if I	All organisations have a procedure in place	LCAs + MI + Land managers



		find AW?" that's inserted into each property weed management plan	outlining what to do when AW is found	+ AWO + RWCC
		<b>8.</b> Maintain closure of BBS to public access to prevent spread of AW	BBS closed to the public indefinitely	GCC
		<b>9.</b> MI to liaise with GCC in regard to any earth works at BBS	Lines of communication open.	MI + GCC
		<b>10.</b> Develop a hygiene protocol to prevent the movement of AW in the Riverina	Hygiene protocol developed	RWCC + LCAs
		<b>11.</b> Circulate hygiene protocol to earth moving contractors working within BBS and associated channel systems	Hygiene protocol circulated	RWCC + LCAs + MI + land managers
		<b>12.</b> LCAs adopt and enforce hygiene protocol on all infested lands	Hygiene protocol enforced by LCAs	LCAs
		<b>13.</b> Manage grazing in known infested sites to enhance detection and prevent spread of AW	Grazing managed to prevent spread and enhance detection	MI + LCAs + land managers
<b>3.</b> Support landholder control works		<b>1.</b> Review all property weed management plans for each infested property (see 2.7)	All infested properties have a revised plan in place by November 2013	LCAs + Land managers
<b>4.</b> Actively promote and provide extension and awareness materials	4.2.1	<b>1.</b> Should funds become available promote and make use of the NSW AW NS4W TV campaign	TV campaign aired across the Riverina should funding become available	RWCs + RWCC
	4.2.3	<b>2.</b> Display AW awareness information at events + supply to land managers as it becomes available.	Information displayed at regional field days and LCA events. Land managers kept updated also.	LCAs + RWCs + RWCC + AWO
	2.2.6	<b>3.</b> Maintain liaison with AWO	All stakeholders in direct contact with AWO	LCAs, RWCs, RWCC
		<b>4.</b> Support the recognising water weeds training course	Training course held as needed	LCAs, Agency staff, NSW DPI
		<b>5.</b> Minimum of two AW extension activities undertaken annually (field days, media releases etc)	Minimum of 2 extension activities undertaken annually.	LCAs + RWCC + AWO + RWCs

**Desired outcome:**

**The Riverina's environment, water resources, infrastructure, primary production, tourism and recreation is protected from the negative impacts of alligator weed.**

## Linkages and resources:

- NSW Alligator Weed Strategy 2010-2015, Industry & Investment NSW.
- Recognising water weeds, early detection survey guidelines, WeedED Resource, NSW I&I (2009).
- Recognising water weeds, plant identification guide, WeedED Resource, NSW I&I (2009).
- Alligator weed – can you identify it? NHT and National Aquatic Weeds Management Group flier (2004).
- Alligator weed – an aggressive problem. Rebecca Coventry, NSW Agriculture.
- Beware of Alligator weed, Carrathool Shire Council (2004).
- Alligator weed, Weed of National Significance Weed Management Guide, NHT.
- Agriculture and Resource Management Council of Australia and New Zealand, Australian and New Zealand Environment and Conservation Council and Forestry Ministers, (2000) Weeds of National Significance Alligator Weed (*Alternanthera philoxeroides*) Strategic plan. National Weeds Strategy Executive Committee, Launceston.
- W.T. Parsons and E.G. Cuthbertson (2001) Noxious Weeds of Australia 2nd Edition, CSIRO Publishing.
- B.A. Auld and R.W. Medd (1997) Weeds, An Illustrated botanical guide to the weeds of Australia, Inkata Press.
- F.J. Richardson, R.G. Richardson and R.C.H. Shephard (2006) Weeds of the south-east – An identification guide for Australia, R.G. & F.J. Richardson.
- Julien, M.H (1995) *Alternanthera philoxeroides*, PP1-12 in Groves, R.H., Shepherd, R.C.H and Richardson, R.G (Eds). The biology of Australian Weeds Volume 1. Melbourne, R.G and F.J Richardson.
- Alligator weed – State Prohibited Weed – Landcare Notes Jan 1998
- Alligator weed – Agfact
- Alligator weed – it chokes rivers and irrigation systems and is extremely difficult to control, NSW Ag, AWTaskforce and MDBC.
- Don't mistake AW for Mukunawanna. NSW Ag
- You break the law if you move Alligator weed. NSW Ag
- AW- weed fact sheet, Hawkesbury-Nepean Riverbank Management Program.
- Beware of Alligator weed – your property may be threatened.
- Riverina High Risk Species WAP 1.2.1
- Ash, P & Verbeek, B (2006) Regional Weeds Strategy Lower Murray Darling Catchment 2<sup>nd</sup> Edn.
- Ash, P & Verbeek, B (2007) Regional Weed Strategy Murrumbidgee Catchment
- Bosse, P & Verbeek, B (2008) Regional Weed Strategy Murray Catchment.
- Power, M, Higgins, A, Hasselman, L, Wythes, C and Hil, R (2009) Lachlan Regional Weed Strategy.
- Kahler, M (2011) Alligator Weed – just add water! The history of AW in the Riverina region.
- Base topography map sourced from Google maps.
- High Risk Pathways and Sites WAP 1.1.1
- HR Pathways Management Plan WAP 1.1.2
- HR species WAP 1.2.1
- New Incursion Plan – High Risk species WAP 1.2.2
- Riverina Inspection Policy WAP 1.2.3
- Rapid Response Plan WAP 2.2.1
- New Incursions to the Riverina database and list
- NSW Invasive Species Plan 2008-2015
- Notifiable Weed Reporting form – available from NSW DPI Extranet  
<http://extranet.dpi.nsw.gov.au/weeds/permit-report/report/notifiable-reports>



**Review:**

This plan sits under the Murray & Riverina WAPs and is to be reviewed after 5 years.

**Contacts:**

**Regional Coordination**  
Regional Weed Coordinator

**Local Coordination / Management**  
Your local council Weeds Officer

**Endorsed by:**

**ERNWAG**

On  
13<sup>th</sup> June  
2013

**WRNWAG**

On  
4<sup>th</sup> June  
2013

REVIEWED