

1.0 Cover Page



REGIONAL WEED MANAGEMENT PLAN

1.1 Plan Title: *Riverina Alligator weed Management Plan* No. **XXX**

1.2 Plan Proponents / Applicant Contact Details

Regional Weeds Advisory Committee: Western and Eastern Riverina Noxious Weeds Advisory Groups.

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Signature: Eastern Group Chairman: Date:

Signature: Western Group Secretary: Date:

1.3 Name of Plant(s) **WONS - Yes**

Scientific name: Alternanthera philoxeroides Common name: Alligator Weed

1.4 Plan Period

Starting date: 01/7/06 Completion date: 30/06/2011

1.5 Area of Operation:

Region 5, extending from Tumut in the east to Wentworth/ S.A border in the west and Carrathool in the north to the Murray River in the south. The Local Control Authority and Rural Lands Protection Boards this region encompasses are all representatives of the Eastern and Western Riverina Noxious Weeds Advisory Groups (**E/WRNWAG**). The region extends across 4 Catchment Management Authority (CMA) areas, being Murray, Murrumbidgee, Lower Murray Darling and the Lachlan.

1.6 Aim:
To prevent the further spread of Alligator weed and reduce known infestations across the Riverina.

1.7 Objectives:

- a. New Alligator weed infestations detected and treated within 2 weeks of detection.
- b. Contain and reduce known infestations by 50% by the end of the plan.
- c. Support landholder control works.
- d. Actively promote and provide extension / education and awareness materials.

2.0 STAKEHOLDERS

2.1 Signatories

The following Local Control Authority (LCA) members of Western and Eastern Riverina Noxious Weeds Advisory Group (W&ERNWAG): Griffith City Council, Carrathool Shire Council, Hay Shire, Council, Balranald Shire Council, Greater Hume Shire Council.

2.2 Other Stakeholders

All other Local Control Authorities in the Riverina, Noxious Weeds Advisory Committee (NWAC), NSW Department of Primary Industries (NSW DPI), Catchment Management Authorities (Murray, Murrumbidgee, Lachlan and Lower Murray Darling CMAs), Murrumbidgee Irrigation, Rice Research and Development Committee and Department of Natural Resources (DNR) and Wah Wah District landholders.

3.0 BACKGROUND AND GENERAL FACTS

3.1 Plan Justification and Description of the Problem

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 or on land, and has been mistakenly grown in the past, confused with Mukunawanna (a Sri Lankan vegetable). This 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.

Alligator weed was first recorded in this region in 1994, when a large infestation was found in Barren Box Swamp (BBS) and surrounding channel systems, Griffith. The initial infestation covered approximately 250-300Ha in the BBS and 35km of channel system. This has now been reduced to individual plants in the BBS, supply and private channel systems. If left unchecked this infestation would have cost irrigation farmers in the Murrumbidgee Irrigation Area up to \$250 million annually. So far over \$3 million has been spent on the eradication of this infestation, with maintenance programs in place and monitoring being ongoing.

Alligator weed has also been found in a private dam at Woomargama near Holbrook since 1967. Ongoing monitoring and maintenance over 30+ years have controlled but not yet eradicated this infestation. The 03/04 season saw a dramatic increase in plant numbers due to earth works on site. All plants were treated and the site will continue to be monitored. The infested dam overflows into the Woomargama creek that then runs into the Billabong creek that stretches across the Riverina, eventually ending up in the Murray River. The Woomargama creek was walked / surveyed in early 2004 with no AW plants being found.

This weed has the potential to dominate all wetlands, natural waterways and all irrigation channel systems within the Murray, Murrumbidgee and Lower Murray Darling catchments. The Irrigation Industry in the Riverina would suffer significant extra costs if Alligator weed was left unmanaged.

3.2 The “Do Nothing” Option

The potential range of alligator weed, based on climate, includes waterways throughout most of southern Australia – including all waterways in the Riverina. 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 Woomargama and Billabong creeks and eventually the Murray River and associated wetlands being infested with Alligator weed.

3.3 Distribution of Infestations

A distribution map of the current AW infestations in the Barren Box Swamp and Wah Wah Irrigation Area needs to be compiled as a matter of priority. The infestation at Woomargama is confined to the private dam and adjoining paddock.

3.4 Weed Biology

Alligator weed is a summer growing, perennial, stoloniferous herb that is found in rivers, lakes and wetlands. It grows rapidly forming dense mats containing masses of interwoven stems killing aquatic life and destroying water quality. The long spreading stems are hollow, helping it float. The roots are thin and stringy, and trail in the water from the joints between plant segments (the nodes). When growing on land alligator weed is quite different in structure. The stems are shorter and barely hollow. Reddish-brown taproots can reach depths exceeding 500mm.

Whether it grows in water or on land the glossy green leaves occur in opposite pairs along the stem. The white flower is small and papery, with a short stalk growing from either the axil (where the leaf joins the stem) or the very end of the stem.

3.5 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 AW 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.

3.6 Species Management

Early detection and control is essential before infestations become established. Once established, eradication is very difficult due to the large extensive root system that terrestrial plants develop.

Once AW is established terrestrially no current herbicide options will control the infestation with one application. 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.

Available management techniques for controlling Alligator weed include:

- ~ Mechanical (weed harvesters not best practice)
- ~ Physical (digging)
- ~ Chemical (registered herbicides)
- ~ Biological

All techniques have their limitations.

Woomargama is inspected in the growing season monthly (November - March). All new plants are treated by the land manager. Monitoring is undertaken by the Shire Weeds Inspector. Samples from this site have been sent off for DNA analysis.

3.7 Key Land Managers

All landholders listed below are critical in the success or failure of this plan. If Alligator weed were to be left unmanaged due to a lack of awareness of its potential, the Riverina will end up with severe infestations. In June 2005 a bus trip to Newcastle was successfully organised for the purpose of facilitating a greater awareness and understanding of the potential spread of Alligator weed in our region. It is hoped that the landholders in attendance will be the vital link to pass the facts onto other producers.

Local Control Authorities, Wah Wah Irrigation District landholders, Murrumbidgee Irrigation and other land managers.

4.0 LEGISLATIVE AND REGULATORY SITUATION

4.1 Current Declaration

Alligator weed is declared W1 state wide.

5.0 CONSIDERATIONS AND OPPORTUNITIES

5.1 Financial support to carry out the plan

In June 2005 WRNWAG received funding (\$21,000) through the Defeating the Weeds Menace (DTWM) program for one landholder to construct a diversion channel around an existing alligator weed infestation. The program "Management of an isolated Alligator weed infestation – Wah Wah Irrigation District (Stage one)", is an example of using funding opportunities to further the objectives of this regional plan. Other funding applications will be submitted whenever the opportunity arises.

Alligator weed is recognised as a Priority Category A weed in the Lower Murray Darling Catchment.

5.2 Links to other Strategies

- ~ WoNS weed management guide and National Strategy
- ~ NSW State Strategy
- ~ Regional Weed Strategy - Lower Murray Darling Catchment (LMDC). Alligator weed is recognised as a 'Priority Category A' weed in this catchment. Meaning the weed is not currently present in the LMDC. The document can be downloaded from www.lmd.cma.nsw.gov.au under publications.
- ~ National Aquatic Weed Management Group briefing paper - Management of Alligator weed non core infestations.

5.3 Barriers and Contingencies

The following barriers will delay or obstruct the operation of this Alligator weed regional plan.

- Access of stock to floodway and Barren Box Swamp
- Movement of stock from infected areas to clean areas.
- Ignorance of the potential of AW
- Spread by earthmoving machinery etc
- Some landholders may still not recognise AW
- Ignorance of control options
- Lack of effective control (herbicide) options

The following contingencies may delay or obstruct the operation of this Alligator weed regional plan.

- Drought conditions
- Flood conditions
- Landowner inability to finance control options
- Lack of landholder support

6.0 PERFORMANCE INDICATORS AND ACTIONS

Objective a: New Alligator weed infestations detected and treated within 2 weeks of detection		
ACTIONS	PERFORMANCE INDICATORS	RESPONSIBILITY
1. Inspect for AW as part of routine property inspection program	1. 35 properties (Carrathool) inspected annually	1. Carrathool Shire Council (CSC), Griffith City Council (GCC), Greater Hume Shire Council (GHSC)
2. Undertake specific early detection surveys for potential AW sites	2. 2 specific early detection surveys undertaken of BBS and channel systems annually.	2. Murrumbidgee Irrigation (MI)
3. Control all new infestations, adopting appropriate control practices.	3. 100% of all plants found appropriately treated.	3. MI, private property landholders.
4. Notify authorities within 3 days of detecting new AW infestations.	4. W1 notification forms completed and submitted within 3 days of detection	4. All stakeholders
Objective b: Contain and reduce known infestations by 50% by the end of the plan		
ACTIONS	PERFORMANCE INDICATORS	RESPONSIBILITY
1. Known infested properties inspected and treated annually	1. Properties with known infestations inspected 3 times annually. All found plants treated with best practice.	1. CSC, GCC, GHSC, MI
2. Inspect BBS and associated channel systems twice annually, and treat all infestations.	2. BBS and associated channel systems inspected twice annually. All infestations treated with best practice.	2. MI, CSC, GCC
3. Inspect Woomargama station at least 6 times annually.	3. Woomargama station inspected 6 times annually	3. GHSC
4. Investigate the installation of a sediment trap along the outfall to ensure plant fragments don't leave the Woomargama dam.	4. Outcome of investigation hopefully turn into the installation of a sediment trap.	4. GHSC, landholder.
5. Develop a property management plan for each infestation on private land.	5. All infested properties have a property management plan developed by January 2006	5. GHSC, CSC, GCC
6. Maintain closure of BBS to public access to prevent possible spread of AW.	6. BBS closed to the public indefinitely.	6. GCC

7. Develop a hygiene protocol to prevent the movement of AW in the Riverina.	7. Hygiene protocol developed by AW Project Officer	7. Alligator weed Project Officer (AWPO)
8. Enforce hygiene protocol with all earth moving contractors working within BBS and associated channel systems.	8. Hygiene protocol enforced	8. MI
9. LCAs adopt and enforce hygiene protocol on all infested lands	9. Hygiene protocol enforced by LCAs	9. GCC, CSC, GHSC
10. Construct a permanent wash-down bay at Barren Box Swamp	10. Wash-down bay constructed by January 2006	10. MI
11. Manage grazing in known infested sites to enhance detection and prevent spread of AW.	11. Grazing managed to prevent spread and enhance detection.	11. MI, GCC, GHSC, AWPO
12. Update maps as new infestations are found and compile at the end of each season.	12. All infestations mapped when found and compiled annually in April.	12. AWPO with MI, GCC and CSC

Objective c: Support landholder control works

ACTIONS	PERFORMANCE INDICATORS	RESPONSIBILITY
1. Develop a property management plan for each infestation on private lands	1. All infested properties have a property management plan developed by January 2006	1. AWPO, GHSC, GCC, CSC
2. Investigate and apply for funding for on-ground control works on private properties.	2. Application submitted and any funding received utilised to implement property management plans	2. AWPO, landholders
3. Hold one AW taskforce meeting in the Wah Wah Irrigation district annually. All landholders invited.	3. 1 Taskforce meeting held annually with landholder attendance	3. Alligator Weed Taskforce (AWTF)
4. Ensure ongoing employment of the AW Project Officer in the Riverina.	4. AW Project officer position funded.	4. AWPO

Objective d: Actively promote and provide extension/education and awareness materials		
ACTIONS	PERFORMANCE INDICATORS	RESPONSIBILITY
1. Organise and conduct 1 clean and inspect machinery training course in the Riverina specifically targeting earth movers and farmers.	1. 1 training course conducted by January 2006.	1. AWTF
2. Minimum of two extension activities undertaken annually (field day, media releases etc).	2. Minimum of two activities undertaken annually.	2. AWTF
3. Conduct 1 alligator weed best practice field day / workshop in the Wah Wah Irrigation District for land managers.	3. 1 best practice field day / workshop held for land managers.	3. AWTF
4. Supply training, Id brochures and current information to landholders as it becomes available, to ensure landholders can accurately identify AW.	4. Extension material supplied to landholders as it becomes available.	4. AWTF, AWPO, GCC and CSC

7.0 MONITOR AND REVIEW PROCESS

The progress of this plan will be reviewed by the Alligator Weed Taskforce at their biannual meetings. The Riverina Noxious Weeds Project Officer will prepare annual progress reports through the group project process on behalf of contributing stakeholders.

8.0 BENEFITS

This plan is aiming at preventing further spread of Alligator weed while reducing known infestations across the Riverina. The benefits include:

- Protection of Australia's natural biodiversity, river and wetland ecosystems within the Murray Darling Basin
- Reduction in future control costs
- Reduction in herbicide use
- Protection of the agricultural industry
- Protection of an irrigation industry worth close to \$750 million annually
- Prevention of large-scale blow out in Alligator weed that could close irrigation systems.
- Protection of an investment in AW management that has cost \$3 million over the last 10 years.

9.0 RESOURCES

♦ References and Further Readings

- 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.
- 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.

ACKNOWLEDGEMENTS

The authors wish to thank the stakeholders who participated in the meetings conducted to produce this document. Their contributions have enriched this plan.