



Sydney Weeds Committees

- Sydney Central
- Sydney South West
- Sydney North
- Sydney West – Blue Mountains

Review of Priorities for the Control of Alligator Weed in the Sydney Region

JANUARY 2015

NEW SOUTH WALES

WEEDS ACTION PROGRAM



Background

Alligator weed (*Alternanthera philoxeroides*) is a potentially devastating weed that grows in water and on land, affecting both waterways and floodplain areas. It is listed as a Weed of National Significance (WoNS).

It is a native of South America and a major problem in south-eastern United States, China, New Zealand, Burma, Thailand, Indonesia and India. Alligator weed has not reached its potential distribution in Australia or within NSW, but has the ability to devastate the environment and agriculture if left unchecked.

Alligator weed has extremely vigorous growth and great tolerance of normal control measures, which makes it a major threat to wetlands, rivers and irrigation systems. It is declared a noxious weed throughout NSW and is one of the highest priority weeds for detection and management in NSW.

Alligator Weed Primefact: NSW DPI (2012)

Alligator weed infestations are well established in the Sydney Region and if unmanaged pose high risks for further spread and/or ecological impact.

The document entitled *Priorities for the control of Alligator Weed in the Sydney Region* was produced by the Sydney Weeds Committees in February 2010, and was the result of collaboration with the NSW Department of Primary Industries and weeds professionals throughout the Sydney Basin.

The document identifies priority areas for the control of alligator weed and uses risks assessments to rank each area.

The Sydney Region Weeds Action Project is a partnership between the NSW Government, local government and the Sydney Weeds Committees to reduce the impact of weeds across Sydney. One of the measurable outcomes of the project is "*Implementation of the 2010 Sydney Region Alligator Weed Priorities plan is reviewed annually*".

While many local councils review their weed control plans and priorities on an annual basis, this review was the first opportunity for a collaborative review of the *Priorities for the control of Alligator Weed in the Sydney Region*.

Review process

The review process was facilitated by the WAP Project Officer with assistance from members of the Sydney Weeds Committees (SWC) Steering Group representing each of the four sub-regional committees.

In January 2014 feedback was sought from the SWC Steering Group regarding the scope, process and timeframe of the review. It was agreed that the review would:

- Identify all areas currently at-risk of infestation,
- Undertake a risk assessment of each area using the same methodology as 2010, and
- Determine management actions for each area based on the results of the risk assessments and the original generic management actions.

The list of at-risk areas (extracted from original 2010 document) was distributed to weeds officers throughout Sydney and the Blue Mountains in February 2014. Weeds officers were requested to identify any new areas to be considered for risk assessment.

A final list of at-risk areas was included in the *Guide for Sydney Region Alligator Weed Risk Assessment – 2014* (attachment 1) and sent to weeds officers in July 2014.

Risk assessments were undertaken at regional weeds committee meetings held during August and September. On 29 September the results of the risk assessments were included in a letter (Attachment 2) inviting comments and submissions from interested parties. The letter was distributed to Sydney Weeds Committees member and stakeholder organisations. The closing date for submissions was 31 October 2014.

One submission from National Parks and Wildlife Service was received, generally supportive of efforts to reduce or contain the spread of alligator weed. There were no submissions received regarding the at-risk areas, risk assessments or generic management responses. However, Campbelltown City Council identified three new at risk areas in respect of the Upper Georges River, which have been included in Table 2.

Following the regional weeds committee meetings held during August and September, there have been no other changes to the list of at risk area, risk assessment results and generic management responses.

Outcomes of Alligator Weed risk assessments

Area	Spread (1-5)	Impact (1-5)	Feasibility (1-3)	TOTAL
HAWKESBURY NEPEAN SYSTEM				
Nepean Dam to Douglas Park	3	3	3	18
Douglas Park to Burgen's Weir	4	4	3	24
Burgen's Weir to Camden Weir	4	3	3	21
Narellan Creek	4	3	3	21
Camden Weir to start of Gulguer Gorge	4	3	2	14
Gulguer Gorge to end of Norton's Basin	4	4	2	16
End of Norton's Basin to Penrith Weir	3	3	1	6
Lapstone Creek	3	3	1	6
Penrith Weir to Windsor Bridge	4	4	1	8
Yarramundi Lagoon	4	4	2	16
Windsor Bridge to Cattai Creek	2	3	2	10
South Creek and Kemps Creek	4	5	2	18
Eastern Creek	4	5	2	18
Mckenzie's Creek	4	3	2	14
Bush's Lagoon	4	2	2	12
Cattai Creek to Wiseman's Ferry	1	3	3	12
Cattai Creek Sub catchment	5	5	3	30
Smalls Creek	5	2	2	14
Werrington Lake / Creek	3	3	2	12
Colo River	2	4	3	18
Macdonald River & Webb's Creek	2	4	3	18
Badnerang Creek	2	3	2	10
East of Wiseman's Ferry	2	3	3	15
UPPER GEORGES RIVER				
Bow Bowling Creek	4	2	3	18
Banbury Curran Creek	4	2	3	18
Redfern Creek	4	3	3	21
GEORGES RIVER				
Upstream of Liverpool Weir	4	4	2	16
Downstream of Liverpool Weir	3	4	2	14
Cabramatta/Prospect Creek sub-catchment	3	3	2	12
Milperra Drain (adjacent to Ashford Reserve)	3	5	2	16
Amaroo Reserve	3	2	2	10
Killara Reserve	3	3	2	12
Kelso Creek	3	3	2	
Rockdale wetlands (Bicentennial Park, Scarborough Ponds & Tonbridge Creek)	3	4	3	21
Bado-Berong Creek	3	3	3	18
Waradiel Creek	3	2	3	15
PARRAMATTA RIVER				
Toongabbie Creek and Darling Mills Creek	4	2	2	12
Duck River	4	4	2	16
Confluence of tributaries to Hunters Hill	1	2	3	9
LANE COVE RIVER	4	4	3	24
PORT JACKSON	1	1	3	6

Review of priorities for the control of Alligator Weed
in the Sydney Region – January 2015

Area	Spread (1-5)	Impact (1-5)	Feasibility (1-3)	TOTAL
NORTHERN BEACHES	3	3	3	18
EASTERN BEACHES	1	1	3	6
COOKS RIVER				
Bardwell Creek	3	2	3	15
Wolli Creek Catchment	3	3	2	12
Upper Cooks River – to Punchbowl Road	4	3	3	21
Lower Cooks River – downstream of Punchbowl Road	3	3	3	18
Barton Park/Landing Lights Wetland	3	4	3	21
BOTANY BAY	3	3	3	18
WORONORA RIVER				
Woronora River (above the Needles to Heathcote Road)	5	3	3	24
Woronora River (Bottle Creek to Woronora River)	3	4	2	14
Storm water infrastructure				
Breakfast Creek (Blacktown)	4	3	2	14
Bungaribee Creek (Blacktown)	4	3	2	14
Plumpton Wetlands (Blacktown)	4	3	3	21
Bell's Creek (Blacktown)	4	3	2	14
Green's Reserve (Hills)	3	3	2	12
Excelsior Creek (Hills)	4	3	2	14
Mulgoa Creek (Penrith)	4	2	2	12
Schoolhouse Creek (Penrith)	3	2	2	10
Blue Hills Wetland (Penrith)	4	2	3	18
Surveyor's Creek (Penrith)	4	2	3	18
Pendle Creek (Holroyd)				
Lakewood Estate (Holroyd)				

Determining management actions

Management actions are derived from the risk assessment scores and are intended to achieve optimum results for each area in terms of containment of spread and the mitigation of impacts. Based on the original methodology they are as follows:

- 0 – 10 = Low
- 11 – 17 = Moderate
- 18 – 23 = High
- 24 – 30 = Very High

VERY HIGH:	
<i>Spread:</i>	<i>Contain all spread within unit and to neighbouring units</i>
<i>Impact:</i>	<i>Mitigate impacts to all biodiversity and manage buffers and establish further buffers around management unit</i>
<i>Management:</i>	<i>Containment and buffers</i>
HIGH:	
<i>Spread:</i>	<i>Reduce spread within the management unit and contain all spread to neighbouring units</i>
<i>Impact:</i>	<i>Mitigate impacts to all biodiversity assets with managed buffers</i>
<i>Management:</i>	<i>Reduce all infestations: manage infestations at priority sites</i>
MODERATE:	
<i>Spread:</i>	<i>Contain spread to priority areas</i>
<i>Impact:</i>	<i>Mitigate impacts to priority biodiversity assets with managed buffers</i>
<i>Management:</i>	<i>Reduce infestations at priority sites</i>
LOW:	
<i>Spread:</i>	<i>Monitor spread</i>
<i>Impact:</i>	<i>Monitor impacts</i>
<i>Management:</i>	<i>Monitor/manage infestations</i>

ATTACHMENT 1

Guide for Sydney Region Alligator Weed Risk Assessment - 2014

The risk assessment methodology outlined in this document is identical to the method used in the original assessment in 2010. More information can be found in the document *Priorities for the control of Alligator Weeds in the Sydney Region*.

In prioritising areas for management of alligator weed, the first step is to identify the areas that require assessment. This has been done earlier in 2014 and the areas which will be assessed are identified in table 2.

In conducting the assessment of each area, a score will be derived for each of the following;

- A. the potential for further **spread** . A score of 1-5 derived by averaging or weighting the 1-5 scores for terrestrial and aquatic spread within and beyond the area.
- B. the consequence of further **impact** . A score of 1-5 for the likely impacts to biodiversity within the area.
- C. the management **feasibility** – a score of 1-3 representing the likelihood of effectively managing or containing infestations within the area.

The final score is used to rank and prioritise each area will be identified using the following formula

$$\text{Final score} = (\text{Spread} + \text{Impact}) \times \text{Feasibility}$$

The scores for **spread and impact** are based on both the likelihood and degree as shown in the table below. Spread and impact are considered in terms of a 'no action' alternative. In the case of spread this process will be undertaken for both terrestrial and aquatic spread.

	<i>Degree</i>		
<i>Likelihood</i>	<i>1. Minor</i>	<i>2. Moderate</i>	<i>3. Major</i>
<i>3. Likely/certain</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>2. Possible</i>	<i>2</i>	<i>3</i>	<i>4</i>
<i>1. Rare/unlikely</i>	<i>1</i>	<i>2</i>	<i>3</i>

Management feasibility is recorded as a score from 1 to 3 based on the likelihood of effectively managing or containing infestations within the area. The levels of likelihood are the same as those for assessing spread and impact.

Consider the following points to help determine the scores/ratings for spread, impact and feasibility.

Spread – (potential for further spread)

Degree

Minor - Core or low catchment areas with little or no chance of further spread within them and little or no chance of further spread to neighbouring areas or all neighbouring areas already widely infested

Moderate - Marginal or medium catchment order units; core or low catchment order units with some potential for major further infill of unit or spread to less infested areas

Major - Outlier or high catchment order areas; areas with infestations confined to single site; large potential for spread to other areas

Likelihood

Aquatic- consideration of the presence in area and relative to infestations of vectors of aquatic spread, e.g. watercourses, spread related activities (fishing, eel trapping, boating, channel maintenance, dredging), floodplain areas; consideration of infestation types.

Terrestrial- consideration of the presence in area and relative to infestations of vectors of aquatic spread, e.g. turf farms, regular earthmoving; consideration of infestation types

Impact – (consequence of further impact)

Minor- little or no significant, at-risk biodiversity assets within area

Moderate- Presence of at risk biodiversity assets of state significance (EEC, SEPP, important wetlands etc); direct, current impacts or threats to regionally or locally significant, at risk biodiversity assets (e.g. significant species/communities, river environments, wetlands etc)

Major- Direct and current impacts or threats to state significant, at-risk biodiversity assets; presence in AWMU of nationally significant biodiversity assets (EPBC listed entities, RAMSAR wetlands etc)

Likelihood- vulnerability of type of ecosystem or entity at risk to impacts from AW, including likelihood of AW establishing healthy population and susceptibility of entity to impacts from invasion by AW

Feasibility – (management feasibility)

Likelihood- the extent to which management or containment of infestations within the area could be effectively carried out. Need to consider extent and situation of infestations and effectiveness of available control options. Where spread scores are high feasibility of containment should be considered and where impact scores are high feasibility of mitigation of the relevant impacts should be considered.

Table 2 Geographical areas for assessment of alligator weed risk

Area	Spread (1-5)	Impact (1-5)	Feasibility (1-3)	TOTAL
HAWKESBURY NEPEAN SYSTEM				
Bargo River	1	2	1	3
Nepean Dam to Douglas Park	2	3	3	15
Douglas Park to Menangle Weir	4	2	3	18
Menangle Weir to Burgen's Weir	5	2	2	14
Burgen's Weir to Camden Weir	3	1	3	12
Camden Weir to start of Gulguer Gorge	4	2	2	12
Gulguer Gorge to end of Norton's Basin	5	5	2	20
End of Norton's Basin to Penrith Weir	3	1	3	12
Penrith Weir to Windsor Bridge	4	5	2	18
Windsor Bridge to Cattai Creek	2	4	2	12
Mckenzie's Creek				
Cattai Creek to Wiseman's Ferry				
Cattai Creek Sub catchment	5	5	3	30
Smalls Creek	5	2	2	14
South, Kemps Creek and Eastern Creek	4	5	2	18
Rickaby's Creek				
Colo River				
Macdonald River				
Webb's Creek				
Badnerang Creek				
GEORGES RIVER				
Upstream of Liverpool Weir	4	4	2	16
Downstream of Liverpool Weir	3	4	3	21
Cabramatta/Prospect Creek sub-catchment	3	2	2	10
Milperra Drain (adjacent to Ashford Reserve)				
Amaroo Reserve				
Killara Reserve				
Kelso Creek				
Rockdale wetlands (Bicentennial Park, Scarborough Ponds & Tonbridge Creek)				
Bado-Berong Creek				
Waradiel Creek				
PARRAMATTA RIVER				
Toongabbie Creek and Darling Mills Creek	4	2	2	12
Duck River	3	3	2	12
Confluence of tributaries to Hunters Hill	1	2	3	9
LANE COVE RIVER	3	3	3	18

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PORT JACKSON	1	1	3	6
NORTHERN BEACHES	2	3	3	15
EASTERN BEACHES	1	1	3	6
COOKS RIVER				
Bardwell Creek	3	2	3	15
Wolli Creek Catchment	3	3	2	12
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Storm water infrastructure				
Breakfast Creek				
Bungarribee Creek				
Blue Hills Wetland				
Surveyor's Creek				
Plumpton Wetlands				
Green's Reserve				
Excelsior Creek				
Mulgoa Creek				
Schoolhouse Creek				
Bell's Creek				
Eastern Creek				

Recording total scores (priority rating)

0 – 10 = Low

11 – 17 = Moderate

18 – 23 = High

24 – 30 = Very High

Determining management actions

Management actions derive from the scores for each of the three factors assessed and address optimum potential results for the management unit (ie area) relating to containment of spread and the mitigation of impacts respectively. Based on a list of actions resulting from assessments of the Hunter infestations 4 and adapted for Sydney conditions they are as follows:

Table 3. Generic management actions for the Sydney Region

VERY HIGH:	
<i>Spread:</i>	<i>Contain all spread within unit and to neighbouring units</i>
<i>Impact:</i>	<i>Mitigate impacts to all biodiversity and manage buffers and establish further buffers around management unit</i>
<i>Management:</i>	<i>Containment and buffers</i>
HIGH:	
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LOW:	
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ATTACHMENT 2



HAWKESBURY RIVER COUNTY COUNCIL

The Local Control Authority for the management and control of declared noxious weeds in the local government areas of Blacktown, Hawkesbury, Penrith and The Hills Shire.

Re: Priorities for the control of Alligator Weeds in the Sydney Region

The *Priorities for the control of Alligator Weeds in the Sydney Region* is a strategic document to help determine priority areas for control of Alligator Weed in the Sydney Basin. Originally completed in February 2010, the document is currently being reviewed. The document can be viewed at <http://hrcc.nsw.gov.au/latest-news/latest-newssydney-wap/>.

The review process involves identifying areas at risk of Alligator Weed and undertaking a risk assessment for each area. The risk assessment results are then used to prioritise areas and determine management responses.

Weeds Officers from the Sydney Region have identified at risk areas and, using the same methodology as described in the original document, have undertaken preliminary risk assessments. The results of the preliminary risk assessments are attached and once finalised will be used to determine management actions for each area.

Interested parties are invited to comment on the appropriateness of the risk assessments and subsequent management response. We are particularly interested in submissions from parties that disagree with the preliminary assessment and have specific knowledge of at risk areas and potential impacts.

Submissions will be provided to the relevant weeds officers for consideration before finalising the risk assessments and management responses.

Submissions are to be made in writing and emailed to wapadmin@hrcc.nsw.gov.au. The closing date for submissions is **31 October 2014**.

Inquiries about the review can be made to Anthony Schofield, Sydney Weeds Action Project Officer, on 4574 9601.

Anthony Schofield
WAP Project Officer

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