

Successful alligator weed management in Victoria

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Summary Alligator weed is cultivated as a green leafy vegetable by the local Sri Lankan community, in the mistaken belief that it is another plant, sessile joy weed (*Alternanthera sessilis* (L.) R.Br.), which is very popular in Sri Lanka. The Department of Natural Resources and Environment in Victoria, Australia embarked on an innovative community-department partnership with the Sri Lankan community to eradicate, manage and prevent reinfestation of alligator weed.

INTRODUCTION

The present distribution of alligator weed (*Alternanthera philoxeroides* (Mart.) Griseb.) in Australia is cause for considerable concern, earning it a place among the top 20 weeds of National Significance (Thorp 1999). It is considered one of the worst aquatic and terrestrial weeds in the world. In 1944 a ship dumped its ballast near Newcastle NSW and inadvertently introduced alligator weed into Australia. The weed quickly became established throughout NSW rivers and flood plains. It was declared as a noxious weed in all Australian states and territories and a prohibited weed in Victoria and Tasmania.

Weed or edible vegetable? Some fifty years later, in 1995, alligator weed was discovered in the vegetable garden of a Queensland weed scientist's neighbour. Follow up work over the next five years by the State weed authorities led to the discovery of cultivated plots of alligator weed growing in all Australian states and territories. The weed was being grown as a leafy vegetable by the Sri Lankan community who mistakenly believed it to be the popular Sri Lankan leafy vegetable mukunuwenna, or sessile joy weed (Gunasekera and Rajapakse 1998). The similarities between the highly invasive alligator weed and the traditional Asian vegetable, mukunuwenna, resulted in a serious case of mistaken identity with the weed being actively grown and spread from garden to garden.

Victorian control program An innovative alligator weed task force was established in 1996 to initiate, plan, manage, co-ordinate and monitor a program to eradicate the weed from Victoria. The Sri Lankan

community worked along with the Department of Natural Resources and Environment in Victoria to identify the problem, raise public awareness and develop a management plan to eradicate the weed. The project also looked at identifying and introducing an alternative vegetable plant to take the place of alligator weed in the gardens and kitchens of the Sri Lankan community.

The first step was the publication of an alligator weed identification leaflet that was distributed amongst Sri Lankans visiting Buddhist temples, Sri Lankan groceries and local libraries. Public awareness was an important part of the project. Five different leaflets were produced along with a bookmark, fridge magnet, 100 articles in newspapers, newsletters, magazines and journal, six TV segments, ten radio programs and seven information workshops.

Sri Lankan names were identified from Victoria telephone directories and nearly 4000 people were surveyed about whether the weed was growing on their property. The mail survey was successful. Nearly 50% of those who surveyed responded and more than 300 backyard infestations of alligator weed were discovered within four months of the campaign starting. An additional 500 alligator weed infestations have been located, including 16 naturalised sites in 130 suburbs of Melbourne by March 2002.

Discussion with community groups in establishing community-council partnership in weed management also helped to collect further information on the distribution of Alligator weed in Victoria.

All properties with alligator weed were visited to develop control options.

Table 1. Number of new infestations over time.

Year	Number of new infestations
1996/1997	400
1997/1998	200
1998/1999	134
1999/2000	41
2000/2001	18
2001/2002	7

Treating the infestations A control program started in late 1997. All identified infestations were prioritised according to the risk of naturalisation using proximity to waterways, size of the infestation and land situation as risk factors.

Over 700 sites were treated with different herbicides (glyphosate, dichlobenil and metsulfuron methyl) between 1997–2001 (Gunasekera, unpublished). The majority (98%) of backyard infestations were associated with Sri Lankan families (Gunasekera and Bonilla 2001). Naturalised sites in waterways were also treated with herbicides. Regrowth occurred in some places but repeated treatments have helped to suppress the weed successfully.

Finding a replacement vegetable Providing a replacement vegetable was the key to public participation in the eradication program. An Australian native species, common joy weed (*Alternanthera denticulata* R.Br.) was selected, tested for nutritional value and distributed to Sri Lankan families for trial. The replacement has had a good response and to encourage its adoption more than 5000 seedlings were distributed through Buddhist temples, personal contacts, information centres and Sri Lankan grocery shops.

An Asian vegetable grower was also supplied with 3000 seedlings to develop the vegetable commercially. Sales were initially strong but have dropped as most Sri Lankans have now established the vegetable in their home garden and started to distribute among friends and relatives.

CONCLUSIONS

The alligator weed story is good example of a community-government partnership to control a serious noxious weed. It demonstrates that preventive management can be successful where it has active community involvement and support. Infestations of alligator weed continue to be reported in Victoria, although at a much-reduced rate than at the beginning of the program (Table 1). The supply of the new seedling is being continued this summer, as is the public awareness campaign, monitoring and control program.

Importantly the majority of Sri Lankans in Victoria can now recognise the difference between Alligator weed and their real vegetable plants. This means the risk of future reinfestation is greatly reduced.

Community reactions 'Initially I was very angry at this program because there were so many articles appearing in all newspapers in Melbourne in 1997 and 1998. So, I thought that the Sri Lankan community is going to be blamed about the problem. But later I realised that it is not going to happen. So I am pleased and satisfied about the outcomes and progress made by this campaign.' Dr. K.B. Dassanayake, Noble Park.

'Free weed control! Free vegetable and free advice! – what more?' Jaya Upesena, Bundoora.

'I was growing and eating alligator weed since the 1980s. Once I heard about the danger of this plant, I completely stopped eating it. But I couldn't control it. So, NRE scientists came to my home and control the weed successfully. I haven't got any single plant of alligator weed now. But I am not growing new vegetable because I am scared.' Lalani Rajapakse, Hoppers Crossing.

'It was a real pleasure working with the Sri Lankan community under Lalith Gunasekera's very capable leadership to map and eliminate alligator weed in the City of Casey. The working group produced an excellent model of how a community group can tackle a major weed issue. This model can be used by others to target priority-prohibited weeds.' David Westlake, Environmental Officer, City of Casey.

REFERENCES

- Gunasekera, L. and Bonilla, J. (2001). Alligator weed: tasty vegetable in Australian backyards? *Journal of Aquatic Plant Management* 39, 17-20.
- Gunasekera, L. and Rajapakse, L. (1998). Alligator weed – A potential disaster lurking in Australian backyards. Proceedings of 10th International Symposium on Aquatic Weeds, Lisbon, Portugal, September 21–25, pp 261-264.
- Thorp, J. (1999). Weeds of National Significance. Weeds Australian National Weeds Strategy, www.weeds.org.au/natsig.htm.