



Shoalhaven City Council Weed Management Plan– Alligator weed

Common name: Alligator weed

Botanic name: *Alternanthera philoxeroides*

South East Regional Priority Weed Objective – The Alligator Weed Biosecurity Zone is established in NSW and includes all of the land within the local government area of Shoalhaven City Council

Biosecurity Regulation 2017 Part 5 Division 2 requires that “ An owner or occupier of land in the Alligator Weed Biosecurity Zone on which there is the weed *Alternanthera philoxeroides* (Alligator weed) must:

- (a) if the weed is part of a new infestation of the weed on the land, notify the local control authority for the land as soon as practicable in accordance with Part 6, and
- (b) eradicate the weed or, if that is not practicable, destroy as much of the weed as is practicable and suppress the spread of any remaining weed.:

Mandatory measure: Prohibition on dealings. *Must not be imported into the State or sold*

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.

Alligator weed is considered one of the world's worst weeds because it impacts on both aquatic and terrestrial environments. Overseas experience indicates that its potential impacts in Australia could be devastating.

- Disrupts aquatic environments by blanketing surface and excluding light and oxygen
- Adversely affects aquatic flora and fauna
- Displaces native vegetation along creek banks, rivers and wetlands
- Severely impacts on agricultural production in areas that rely on irrigation, can infest grazing land so rapidly in the right conditions that it can quickly displace desirable feed sources
- Known to cause cancerous lesions in white faced stock that are grazing on the plant
- Has the ability to block pumps impede water flow, cause flooding and damage to bridges and flood gates
- Impacts on recreational use by limiting access to water, trapping debris, creating breeding grounds for mosquitos
- Estimated cost to NSW local government in coordination and control exceeds \$1.5M annually

What does Alligator weed look like?

Alligator weed is a summer growing perennial herb. It has small white papery flower heads 8–10 mm in diameter, generally appearing from November to March. The flowers grow at the end of short stalks which rise from the leaf axils.

Alligator weed has leaves occurring in opposite pairs along the stems. The leaves are shiny, spear-shaped, sessile (no stalk), entire and about 2–7 cm long and 1–2 cm wide.

The plant forms dense mats of interwoven creeping and layering stems. Over water, stems grow to 60 cm high and up to 10 m long and have large, hollow internodes. Mats may extend 15 metres over the water surface and become so robust they can support the weight of a person. On land, stems are shorter and internodes are smaller and less hollow.

Alligator weed has an extensive underground root system. Roots are relatively fine and short in water but become thicker, starchy and rhizome-like in soil, able to penetrate to depths of over 50 cm. Roots and stems have been found growing more than 1 m below the surface. Root storage tissues allow for survival over long dry periods.

Key identification features

Alligator weed is generally distinguished from other plants by its combination of the following three features:

- small white papery flowers on short stalks
- leaves in opposite pairs
- hollow stems.

General Biosecurity Duty

*All plants are regulated with a **general biosecurity duty** to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable*

The **Biosecurity Act 2015** and the **Biosecurity Regulation 2017** set out a range of penalties for non-compliance with the provisions of the legislation. Penalties range from \$1,000.00 on the spot fines, through to court imposed penalties of up to a maximum of \$220,000 for individuals or \$440,000 for corporations for failing to discharge a biosecurity duty. If an offence is proven to have been committed negligently, the court may impose a penalty of a maximum of \$1,100,000 for an individual and \$2,200,000 for a corporation.

Chemical control calendar											
January	February	March	April	May	June	July	August	September	October	November	December
Metsulfuron-methyl 600 g/kg (Brush-off®) Rate: 10 g per 100 L water (to a maximum rate of 600 L/ha of weed surface) Comments: Aquatic areas and terrestrial areas across NSW. Only apply as a spot spray using a hand directed spray. Do not apply more than 3 applications per growing season. See permit for details. Withholding period: Nil (recommended not to graze for 7 days before treatment and for 7 days after treatment to allow adequate chemical uptake in target weeds). Herbicide group: B, Inhibitors of acetolactate synthase (ALS inhibitors) Resistance risk: High Permit											
Metsulfuron-methyl 600 g/kg (Brush-off®) Rate: 10 g in 100 L of water Comments: Hand gun application. Refer to permit for critical use comments. Withholding period: Nil (recommended not to graze for 7 days before treatment and for 7 days after treatment to allow adequate chemical uptake in target weeds). Herbicide group: B, Inhibitors of acetolactate synthase (ALS inhibitors) Resistance risk: High											
Glyphosate 360 g/L (Only products registered for aquatic use) Rate: 10 mL per 1 L of water Comments: Spot spray. Actively growing from summer through winter, floating form only. Withholding period: Nil. Herbicide group: M, Inhibitors of EPSP synthase Resistance risk: Moderate											
Metsulfuron-methyl 300 g/kg + Aminopyralid 375 g/kg (Stinger™) Rate: 20 g per 100 L of water Comments: Spot spray application, for terrestrial situations only. Withholding period: 3 - 56 days (see label) Herbicide group: B, Inhibitors of acetolactate synthase (ALS inhibitors) + I, Disruptors of plant cell growth (synthetic auxins) Resistance risk: High/Moderate											
Metsulfuron-methyl 600 g/kg (Brush-off®) Rate: 10 g per 100 L water Comments: Apply in terrestrial situations only. A minimum of 3 years' spraying is required to achieve complete control. Withholding period: Nil (recommended not to graze for 7 days before treatment and for 7 days after treatment to allow adequate chemical uptake in target weeds). Herbicide group: B, Inhibitors of acetolactate synthase (ALS inhibitors) Resistance risk: High											
Herbicides are a safe and effective method of control as part of an integrated Alligator weed management plan. Use of herbicides does not stop the need to manage Alligator weed infestations effectively. The aim of herbicide treatment is to minimise the spread of water hyacinth. Always treat "outliers each season and work continuously on larger sections to reduce the density and abundance of water hyacinth.											
<p>ALWAYS READ THE LABEL AND USE CHEMICALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS</p> <p>Refer to NSW DPI Weedwise website: http://weeds.dpi.nsw.gov.au/WeedBiosecurities?Areald=114</p> <p>Alligator weed page: http://weeds.dpi.nsw.gov.au/Weeds/Details/7</p>											

Control: Alligator weed is difficult to control. Any infestations should be reported immediately to your local council weed officer. Do not try to control alligator weed without their expert assistance. Control effort that is poorly performed or not followed up can actually help spread the weed and worsen the problem.

Mechanical control: Physical controls are vital for the eradication of small and isolated infestations and are particularly useful in removing new infestations if they can be located early enough. For alligator weed, physical control involves either deep manual digging or shallow mechanical excavation. Shallow mechanical removal can be used to remove large amounts of above-ground plant material and small amounts of below-ground root material. Excavations should only be made to a depth of 20 cm due to the sheer volume of contaminated soil to be disposed of. An excavated site is then inspected regularly for signs of regrowth, which are then either treated with herbicide or removed by deep manual digging, depending on the management aim. Shallow mechanical removal is generally not appropriate in aquatic situations and the risks of spreading fragments are high.

Disposal

With any physical removal method there are issues of disposing of the removed plant material. Removed material must be treated and disposed of securely. Do not dispose of alligator weed in green waste or composting facilities. Plant material can be dried and incinerated, boiled or microwaved. Large volumes of contaminated soil are difficult to process, and if possible need to be spread on an impenetrable surface and dried prior to burial (preferably sealed in containers) at a secure disposal site that can be monitored for any signs of regrowth.

Councils and landowners require a permit from NSW Department of Primary Industries to remove and transport alligator weed.

Chemical: In NSW, a number of herbicides are registered for the control of water hyacinth. For specific information on registered herbicides.

The most commonly used technique for applying herbicides to water hyacinth is high volume spraying with hose and handgun power sprays either from a boat or from the banks. In some situations large infestations have been aerially sprayed.

Treatments with herbicides should be carried out early in the growing season (generally in spring).

Spraying an entire heavy infestation can cause the weed mat to sink and rot resulting in deoxygenation of the water, potentially killing fish. This can be avoided by spraying one third of the infestation at a time, or by physically removing as much of the weed as possible prior to spraying.

Useful references:

NSW Weedwise: <http://weeds.dpi.nsw.gov.au/WeedBiosecurities?Areald=114>

Biosecurity Act 2015: <https://www.legislation.nsw.gov.au/acts/2015-24.pdf>

Biosecurity Regulation 2017: <https://www.legislation.nsw.gov.au/regulations/2017-232.pdf>

South East Regional Strategic Weed Management Plan: http://southeast.ils.nsw.gov.au/_data/assets/pdf_file/0006/722706/South-East-Regional-Weed-Mgmt-Plan.pdf

Disclaimer: This document has been prepared by Shoalhaven City Council in good faith and based on available information. You should seek your own advice and conduct your own investigations and assessments according to your circumstances

