

Siam weed

Chromolaena odorata and *Chromolaena squalida*



Siam weed is considered one of the world's most invasive plants. It has the potential to spread across northern Australia and down the eastern and western coastlines.

Siam weed is a perennial that can out-compete and smother crops and native vegetation because of its phenomenal growth rate (20 mm per day or 5 m per year) and ability to scramble up taller plants to a height of 20 m.

Siam weed threatens the grazing industry, agricultural production systems (particularly horticultural crops such as bananas, pawpaw and sugarcane) and forestry plantations.

Siam weed also has the potential to seriously degrade large areas of the wet tropics, dry tropic savannah grasslands, subtropical and coastal regions, and ecologically important conservation areas.



**Queensland
Government**

Legal requirements

Siam weed is a category 3 restricted invasive plant under the *Biosecurity Act 2014*. It must not be given away, sold, or released into the environment. The Act requires everyone to take all reasonable and practical measures to minimise the biosecurity risks associated with invasive plants under their control. This is called a general biosecurity obligation (GBO).

All other Siam species are prohibited invasive plants under the *Biosecurity Act 2014*. The Act requires that all sightings must be reported to Biosecurity Queensland within 24 hours.

At a local level, each local government must have a biosecurity plan that covers invasive plants in its area. This plan may include actions to be taken on certain species. Some of these actions may be required under local laws. Contact your local government for more information.

Description

Young Siam weed looks similar to blue top or Billy goat weed (*Ageratum* spp.), but mature plants have a growth habit similar to lantana (*Lantana camara*). Some graziers have referred to Siam weed as ‘white lantana’.

In the open, Siam weed grows as a dense tangling bush up to 3 m high. However, it can scramble up trees to a up to 20 m high. Several stems develop from the crown of the plant. The stems are smooth, round and fairly brittle, becoming woody at the base when old.

Leaves are soft, green, hairy, triangular in shape, 5–12 cm long and have a distinctive three-vein ‘pitchfork’ pattern. They emit a pungent odour when crushed and new growth exhibits a purple colouration.

Flowers are in clusters of 10–35, are pale pink-mauve (sometimes appearing as white) and tubular, 10 mm long, and are at the ends of branches. Seeds are brown to black, 4–5 mm long, with a parachute-like tuft of white hairs at the top of the seed and fine barbs.

The root system is fibrous and shallow in most soils, and develops an enlargement at the junction of the stem and root, which is referred to as the basal ball.

Life cycle

Flowering is triggered by the shorter day lengths in winter. The most common form of Siam weed flowers from May to July and again in September to October. A variation of Siam weed exists in a small area in the upper catchment of the Tully/Murray Rivers. The flowers look the same, however this variation flowers in February/March.

Siam weed produces huge numbers of windborne seeds within 8–10 weeks after flowering (more than 80 000 seeds per plant per season).

Most seeds germinate immediately after rain, though some appear to remain dormant for several years. Seed longevity research is continuing.

Siam weed dies back in the dry season but re-shoots after rain. Due to the presence of the basal ball, regrowth

also occurs rapidly after fire, slashing and inadequate or ineffective herbicide application.

Methods of spread

Each seed has a tuft of white hairs that allow it to be transported by wind and water. Seeds will also attach to vehicles, machinery, clothing, footwear and animals.

Impacts

Health issues and toxicity

Siam weed may also cause skin complaints and asthma in allergy-prone people.

Siam weed contains very high nitrate levels. In other tropical countries, it has caused cattle deaths and abortions where stock have been fed contaminated fodder.

Fire hazard

In the dry season, dense thickets of Siam weed can cause frequent and intense bushfires. Dry Siam weed stalks burn hotter and flames reach higher into trees compared to a grassfire.

Habitat and distribution

A native of Central and South America, Siam weed has spread throughout the tropical and subtropical areas of the world and is now a major invasive plant in central and western Africa, tropical America, India and South-East Asia.

Siam weed is spreading rapidly through the Philippines, south-west China and South Africa. It is under control in Papua New Guinea and most of Indonesia.

Siam weed was first identified in Australia in 1994 as several large infestations along the Tully River and at Bingil Bay in Far North Queensland. Siam weed infestations have since been found in the Townsville, Mossman, Innot Hot Springs and Mount Garnet areas. An isolated infestation of Siam weed has also been found near Rockhampton.

Siam weed will grow in disturbed areas and readily invades creeks, riverbanks and remnant patches of rainforests. It can also grow under dense rainforest canopies. Siam weed has been found across a wide variety of environments in Australia, ranging from granite hill slopes through to saline and coastal environments.

Siam weed is generally found in areas where rainfall exceeds 600 mm per annum. In Australia, this would be throughout coastal Queensland, northern New South Wales, the Northern Territory, northern Western Australia and along the west Australian coast.

Control

Managing Siam weed

The GBO requires a person to take reasonable and practical measures to minimise the biosecurity risks posed by Siam weed. This fact sheet provides information and some options for controlling Siam weed. Be prepared to control Siam weed before the flowers mature and set seed and that flowering times can vary depending on location.

Prevention and early detection

Preventing Siam weed spreading into new areas can be achieved by:

- ensuring control of Siam weed is completed every year before flowering begins in winter
- restricting entry to Siam weed infestations through fencing or other means
- cleaning down vehicles, machinery and equipment (if restricting entry is not possible)
- cleaning all clothing, shoes and camping gear before leaving an area known to have been infested with Siam weed
- quarantine of livestock for at least one week before they leave a Siam-infested property
- not moving sand or soil that may be contaminated with Siam weed material
- use of signage to alert visitors to the presence of Siam weed infestations.

Mechanical control

Physical removal of the basal/root ball is very effective and recommended for smaller infestations. However, it is extremely important to make sure the removed plant does not remain in contact with soil, as any contact will result in the plant re-shooting.

Biological control

Cecidochares connexa (stem-galling fly) from South America was introduced in late 2019. The gall fly causes galls along the stems and growing points which acts as a nutrient sink to weaken the plant, resulting in a reduction in flowering and seeding.

Herbicide control

Herbicide application at the correct rates and before flowering will provide effective control if carried out regularly. Incorrect application can lead to herbicide pruning, which will allow the plant to re-shoot. All control efforts should initially be aimed at halting the production of seeds.

There are a few herbicides registered for use on Siam weed. APVMA permit PER11833 allows the use of other herbicide and application methods for controlling Siam weed. See Table 1 for available herbicide options.

Prior to using the herbicides listed under PER11833, you must read or have read to you and understand the conditions of the permits. To obtain a copy of this permit, visit apvma.gov.au.

More information

For more information contact your local government or visit biosecurity.qld.gov.au.



Table 1. Herbicides for the control of Siam weed

Situation	Herbicide	Rate	Comments
Agricultural non-crop areas, commercial and industrial areas, forests, pastures and rights-of-way	Triclopyr 300 g/L + Picloram 100 g/L (e.g. Conqueror) or Triclopyr 300 g/L + Picloram 100 g/L + Aminopyralid 8 g/L (e.g. Grazon Extra)	350 mL per 100 L water + BS-1000 or compatible wetting agent at 100 mL per 100 L water (consult label)	High volume foliar spray with handgun or knapsack, spraying to point of run-off
Agricultural non-crop areas, commercial and industrial areas, forests, (including softwood plantations, pastures and rights-of-way)	Fluxroxypr 333 g/L (e.g. Starane Advanced)	210 mL per 100 L water	High volume foliar spray using handgun
		900 mL per 100 L diesel or Biosafe	Basal bark application for plants up to 2.5 m high and 10 cm basal diameter
Agricultural non-crop areas, commercial and industrial areas, forests, pastures and rights-of-way (APVMA Permit PER11833)	Triclopyr 240 g/L plus Picloram 120 g/L (e.g. Access)	1670 mL per 100 L diesel or 1:60	Foliar spray
	Metsulfuron-methyl 600 g/kg (e.g. Associate, Ken-Met 600)	15 g per 100 L water plus wetter	Low volume/high concentration foliar spray, e.g. splatter gun, drench, sprinkler sprayer or gas-powered gun (consult label)
	Fluroxypyr 333 g/L (e.g. Starane Advanced, Fluroken 333)	1:16 with water plus wetter	
	Fluxroxypr 140 g/L + Aminopyralid 10 g/L (e.g. Hotshot)	1:9 with water plus wetter	
	Triclopyr 300 g/L + Picloram 100 g/L + Aminopyralid 8 g/L (e.g. Grazon Extra)	1:20 with water plus wetter	
	Metsulfuron-methyl 600 g/kg (e.g. Associate)	2 g/L water plus wetter	
	Glyphosate 360 g/L (e.g. Touchdown 360)	1:9 with water plus wetter	
	Glyphosate 450 g/L (e.g. Wipe-Out 450)	1:11.5 with water plus wetter	Cut stem application Apply directly to cut surface of stem
	Fluroxypyr 333 g/L (e.g. Starane Advanced)	900 mL per 100 L diesel or 1:110	
	Triclopyr 240 g/L + Picloram 120 g/L (e.g. Access)	1670 mL per 100 L diesel or 1:60	High volume spot spray from aerial platform Application only by licensed aerial operators (consult label)
	Fluroxypyr 333 g/L (e.g. Starane Advanced, Fluroken 333)	300 mL per 100 L water plus wetter Aerial spray application rate: <ul style="list-style-type: none"> 250 mL per m² (25 L per 100 m² or 2500 L/ha) 	

Note: A sprinkler sprayer consists of a micro sprinkler connected to a hollow fiberglass rod attached to a pneumatic knapsack sprayer. It is used at low pressure (50 to 200 kPa) with a slow sweeping action over the top of the plants to ensure an even coverage of the leaves.

Read the label carefully before use. Always use the herbicide in accordance with the directions on the label.

