

# SIAM WEED

(*Chromolaena odorata*)

## Management Guide

This guide provides strategic management advice on how to manage Siam weed in the wet/dry tropics of Northern Australia. The methods described aim to make control as strategic, cost effective and efficient as possible.

### The problem

Siam weed (*Chromolaena odorata*) is known to be one of the most aggressive and damaging tropical weed species worldwide. Across Asia, Africa and the Pacific islands, Siam weed's phenomenal growth rate and massive seed production allows it to outcompete native vegetation, horticulture and pastures. The leaves are toxic to livestock, containing pyrrolizidine alkaloids and high levels of nitrate. Moderate levels of consumption can lead to aborted calves and in extreme incidences death. In humans, Siam weed can cause skin complaints and can trigger asthma.

Siam weed was first detected in Australia in 1994 at Bingil Bay, near Tully, in Far North Queensland. An 18-year program in Queensland to eradicate Siam weed was ultimately unsuccessful. As of 2024, infestations in Queensland range from Mossman to Rockhampton with especially large concentrations around the Townsville and Innisfail regions.

In 2019 Siam weed was detected in the western Top End of the Northern Territory. Subsequent survey efforts to delimit the NT population revealed Siam weed spread across multiple pastoral, private and Aboriginal land trust properties. By 2024 Siam weed infestations have been found within an area of approximately 9,500km<sup>2</sup> in the western Top End, and on Croker Island, 200km north east of Darwin.

Siam weed has the potential to spread across much of tropical and sub-tropical Australia where it will have significant impacts to agriculture and native ecosystems.

### Description

Native to the central and south Americas, Siam weed is a perennial shrub, forming dense impenetrable thickets up to 2–3 m tall. Siam weed can scramble up surrounding vegetation up to 20 m high. It readily invades sheltered areas such as creek banks, hillsides, rocky outcrops and vine thickets. Once established in these areas, highly mobile seeds are dispersed across the landscape.

Siam weed produces lush vegetative growth, with opposite stems and a pitchfork arrangement of veins on the leaves. The leaves emit a distinctive pungent odour when crushed.

From May to July, plants produce flower heads of 10–35 (10 mm long) small white, pale pink or mauve tubular flowers. This is the optimum time to survey for Siam weed as the flowers make the plant highly visible in the landscape.

From July to August, Siam weed produces prolific amounts of seed (~80,000 seeds per plant). Each seed is adorned with a parachute of fine white hairs that allow the seeds to become airborne in wind and float on water. The seed itself contains small hairs that act like barbs, easily sticking to fur, clothing and vehicles allowing distribution far and wide.





**Siam weed annual growth cycle**



**JANUARY**



**FEBRUARY**



**MARCH**



**Step 1**

**Assess your situation**

**Is Siam weed on your property?**



**Outlier plants and infestations**

Eradicate outlier plants and infestations as a priority. Design and implement an annual survey and eradication program for Siam weed.



**Core infestations**

Active containment of core infestations. The goal of Siam weed containment is to minimise seed production and prevent further spread through an appropriate integrated control program.



**Buffer zone**

Properties that are adjacent to or downstream of known Siam weed infestations. Conduct active survey of high risk Siam weed locations.

**Management options depending upon your situation**

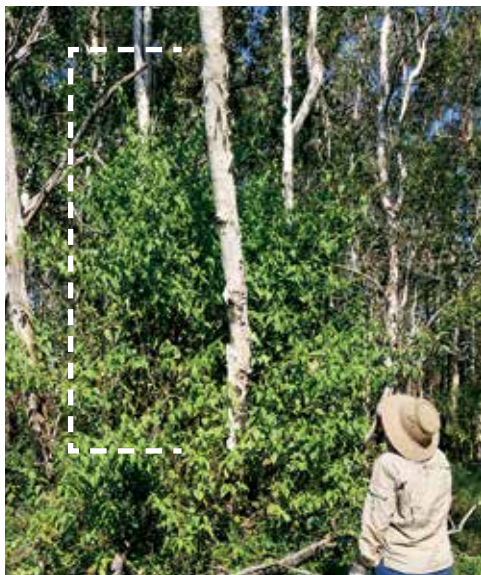
**Isolated plants and infestations**

Design and implement an annual survey and eradication program for Siam weed. Identify and eradicate outlier plants and infestations as a priority.

**Core infestations**

Undertake active containment of core infestations. Core infestations must be contained through an appropriate integrated control program.

This involves a coordinated use of a variety of control methods. Different options are available in Table 1 and will differ depending on scale of infestation and size of property. Containment areas should be accurately mapped and documented to ensure the infestation does not expand.



Siam weed can grow up to 20 m high



Regrowth in November





APRIL

MAY

JUNE

JULY

AUGUST

Step 2

Develop your plan

Draw a map of your property including:

- the density and distribution of Siam weed (include other weeds you have too)
- the location of clean (weed free) areas
- natural variations of the property, including slope, waterways and areas subject to flooding
- any infrastructure, including fence lines, roads, yards etc
- delivery areas, quarantine zones
- land use including paddocks.

Your map will help to prioritise areas for surveillance and control to determine a work program and develop a budget. For properties without Siam weed, think about where Siam weed seed could arrive from and add these high risk sites to a property map and include in your surveillance plans.

## Determine

**Which:** declaration is applicable to your property

**Where:** priority control areas are, or buffer zones are required. Check distribution maps

**What:** are the most appropriate control method(s) for each location

**When:** the works should be undertaken (refer to Table 1). Siam weed is best managed when actively growing after commencement of rains or fires

**Who:** will conduct the surveys, weed control and monitoring (self, family, contractor, staff)

For properties with Siam weed, determine what weed hygiene controls are required to prevent spread.







SEPTEMBER

OCTOBER

NOVEMBER

DECEMBER

**Step 3**

**Action your plan**

**Integrated management**

Effective Siam weed management uses a number of control methods at appropriate growth and reproductive stages. Table 1 indicates appropriate times to use specific control methods. Deciding on which method to use will depend on a range of factors including seasonal variation, size characteristics and previous treatment.

**Table 1: Guide to annual growth and management cycle.**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Flowering							*					
Seed Drop												
Germination												
Aerial Survey												
Foliar Spray			X	X	X	X						
Basal Bark												
Aerial Spray				X	X							
Residual												
Burn					X	X	X					
Biological		X	X									

X Denotes optimal treatment time for this method.

\* Seeds become viable at some point in mid-July – some variation in this.

**Fire**

Fire is an important tool in Siam weed management. Fire can destroy surface seed and kill young seedlings. It allows access to difficult locations. Fire, if applied with sufficient heat during flowering, can prevent the plants forming seeds.

Larger plants are more fire tolerant, and are more likely to reshoot from close to ground level following a fire. Areas that are burnt annually appear to deter establishment of Siam weed infestations compared to areas that burn intermittently.

**Additionally**

- Regularly monitor/survey land, including previously treated areas, to identify new or re-establishing Siam weed (seed life of up to 7 years in ideal conditions).
- Avoid inadvertent spread of Siam weed seeds via soil, people, vehicle, machinery or livestock.
- Never drive through seeding Siam weed plants. Clean down vehicles and machinery frequenting Siam weed infestation areas before moving to clean areas.
- Biological control (*Cecidochares connexa*) is ideal where Siam has established and chemical control is not practical.
- Once established, biological control reduces seed load, is self-propagating and economical.
- Contact your state/territory government for biological control options.

**Step 4****Action your plan (continued)**

Table 2 details chemical rates when using herbicide controls. Always read the label before using any herbicide. Control efforts should be focused on stopping seed production (prior to seed set). Plants that germinate prior to mid-February can mature and go to seed within the same growing season.

**Table 2: Chemical control guide for Siam weed**

Chemical and concentration	Rate	Weed growth stage, method and comments
<b>Fluroxypyr 333g/L</b> Various trade names	300ml/100L water + wetter 62ml/1L water + wetter 900mL/100L diesel	Foliar: apply when actively growing Splattergun: apply when actively growing Basal bark For aerial application contact relevant local authorities
<b>Triclopyr 300g/L</b> <b>Picloram 100g/L</b> <b>Aminopyralid 8g/L</b> Grazon Extra	350ml/100L water + wetter 50mL/1L water + wetter	Foliar: apply when actively growing Splatter gun: apply when actively growing For aerial application contact relevant local authorities
<b>Metsulfuron-methyl 600g/kg</b> Various trade names	15g/100L water + wetter 2g/1L water + wetter	Foliar spray: apply when actively growing Splatter gun: apply when actively growing
<b>Tebuthiuron 200g/kg</b> Various trade names	2g/m <sup>2</sup>	Granular application: apply to seedlings and as a pre-emergent herbicide
<b>Triclopyr 240g/L</b> <b>Picloram 120g/L</b> Access	1L/60L diesel	Basal bark Cut stump
<b>Aminopyralid 4.47g/L</b> <b>Picloram 44.7g/L</b> Vigilant II	Neat (undiluted)	Cut stump: direct application

**Step 5****Monitor and review**

Monitoring will help determine the effectiveness of control methods, allowing you to work out your future weed management requirements. Keep a record of control works and weed surveys, so you can change your methods if you need to.

### Monitor for new outbreaks

Identify regrowth or new seedlings early, so follow up control can be done quickly.

Regularly check areas:

- previously infested with Siam weed
- disturbed by fire, flood, heavy grazing or earthworks
- near existing infestations (seed sources)
- downstream or downwind from current infestations
- cattle and material delivery areas.

### Establish photo points

Photos taken from the same point at the same time each year will help you to compare growth and management success from year-to-year. Photos will show changes in weed infestations, as well as pasture quality and/or regeneration of native vegetation.

## Legal status

### Northern Territory

Siam weed is a declared Class C weed (not to be introduced) in the Northern Territory under the *Weeds Management Act 2001*. All declared weeds are subject to the general duties under the Act.

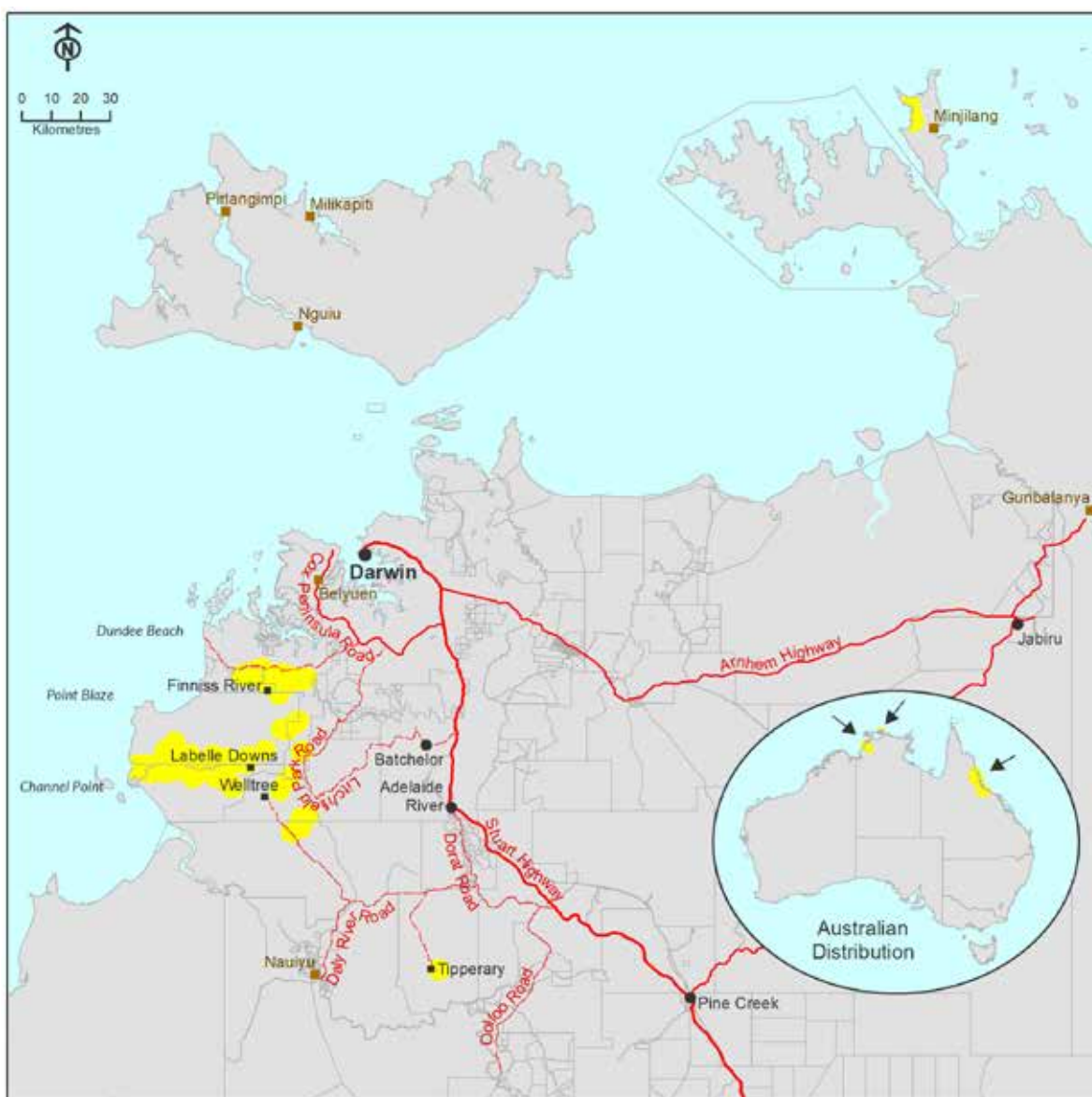
### Western Australia

Siam weed is a declared pest, prohibited – s12 (not to be introduced) into Western Australia under the *Biosecurity Management Act 2007*.

### Queensland

Siam weed is a category 3 restricted invasive plant under the *Biosecurity Act 2014*. You must not give away, sell or release Siam weed into the environment. At a local level, each local government must have a biosecurity plan that covers invasive plants in its area. Contact your local government for more information.

Figure 1: Distribution map



#### NT Weed Management Branch

Phone: 08 8999 4567

Email: [weedinfo@nt.gov.au](mailto:weedinfo@nt.gov.au)

Web: [nt.gov.au/siam](http://nt.gov.au/siam)

#### Biosecurity QLD

Phone: 13 25 23

Email: [info@daf.qld.gov.au](mailto:info@daf.qld.gov.au)

Web: [biosecurity.qld.gov.au](http://biosecurity.qld.gov.au)

#### Primary Industries WA

Phone: 08 8968 3080

Email: [padis@dpird.wa.gov.au](mailto:padis@dpird.wa.gov.au)

Web: [agric.wa.gov.au](http://agric.wa.gov.au)