Siam weed

Chromolaena odorata

DECLARED CLASS 1

1. Mature flowers (Photo: Colin Wilson)

2. Flowers beginning to die – viable seed present

3. Mature plant (Photo: Rachel McFadyen)

Siam weed (*Chromolaena odorata*) is considered to be one of the world's most invasive weeds and has the potential to spread across northern Australia and down both the eastern and western coastlines.

Siam weed was first identified in Australia in 1994, as several large infestations along the Tully River and at Bingil Bay near Mission Beach in Far North Queensland. More recent surveys have identified Siam infestations in Townsville-Thuringowa, and in Mossman and Mt Garnet areas.

The Department of Natural Resources, Mines and Water strategic control team is working with other government agencies and the community to eradicate this weed. In 2005, funds were allocated to undertake a national Siam weed survey to establish the full extent of the problem.

Early detection and eradication are vital.

If you find this weed in your area, or see something which you think may be Siam weed, please contact the vegetation management/weed control/environmental staff at your local government office.

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The problem

Siam weed is considered one of the world's worst tropical weeds. This is due to its quick invasion, easy establishment and ability to smother existing vegetation. In many countries Siam weed is outcompeting pastures, crops, and invading environmentally sensitive areas.

In Australia, Siam weed has the potential to seriously degrade large areas of the wet/dry tropic savanna grasslands, sub-tropical, coastal and conservation areas.

Agricultural and horticultural production (particularly crops such as bananas and paw paw), sugar cane and forestry plantations are also at risk.

Growth
Siam weed is a perennial that can outcompete and smother crops and native vegetation because of its phenomenal growth rate (20 mm/day or 5 m per year) and ability to scramble up into taller plants to a height of 20 m. It also produces huge numbers of wind borne seeds (>80 000 seeds per plant per season).

Siam weed will grow in similar areas to lantana so it readily invades remnant patches of rainforest, creek and riverbank vegetation. It can also grow under dense rainforest canopies but less vigorously. Cape York and the World Heritage listed Wet Tropics regions are particularly at risk.

Toxic
Young re-growth of Siam weed contains very high nitrate levels and in other tropical countries has caused cattle deaths and abortions where stock have been handfed with contaminated fodder.

Stock usually avoid eating the leaves (bitter tasting) but will nip off flower and seed heads.

Fire hazard
In the dry season dense thickets of Siam weed can cause more frequent and intense bushfires as dry Siam weed stalks burn hotter and flames go higher into trees than a pure grass fire.

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

Description

Habit/form
Siam weed looks similar to blue top or Billy goat weed (*Ageratum* species) but has a growth habit similar to lantana (*Lantana camara*) (see Photo 3).

In the open Siam weed grows as a dense tangling bush to 2–3 m, however, it can scramble up trees to a height of 20 m.

Several stems develop from the crown and the root system is fibrous and shallow in most soils. The plant also develops an enlargement at the junction of the stem and root, referred to as the basal ball (see Photo 10).

Siam weed dies back in the dry season but re-shoots after rain. Re-growth also occurs rapidly after fire, slashing or chemical pruning.

Leaf and stem
The leaves of Siam weed are soft green, hairy and roughly triangular in shape with a distinctive 'pitchfork' three-vein pattern. They can emit a distinctive odour when crushed. New leaf growth can have a purple colouration.

Siam weed looks similar to blue top or Billy goat weed, but its leaves are generally softer, more triangular in shape, less hairy and less serrated (toothed) on the edges (see photo 8).

The stems are smooth, round and fairly brittle, becoming woody at the base when old. The plant has no prickles.

Flowers and seeds
There are two forms (phenotypes) of Siam weed in Queensland. The most common form flowers from May to July and again in September to October, producing masses of pale lilac flowers that appear white from a distance (see photo 3).

These turn a darker pink when mature (see photo 1). The less common form flowers earlier during February and March and appears to be isolated to one sub-catchment (Davidson Creek) in the Tully river system.

Flowering appears synchronised across the Southern Hemisphere, triggered by the day length.

Within 8–10 weeks of flowering, masses of small brown seeds are produced. Each seed has a tuft of white hairs allowing it to be carried by the wind and water. Seeds also have tiny barbs that stick to clothing, footwear, animals, vehicles and machinery (see Photo 5).

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

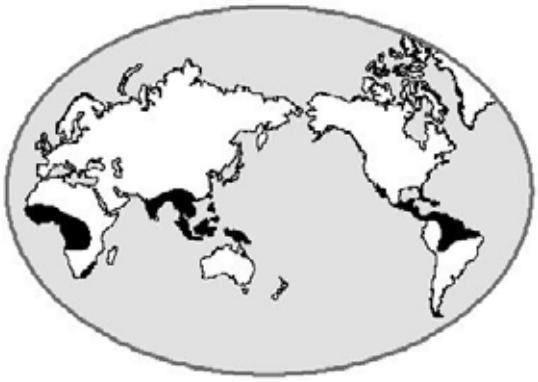
Worldwide distribution

A native of Central and Southern America, Siam weed has spread throughout the tropical and subtropical areas of the world.

It is now a major weed that is widespread in central and western Africa, tropical America, India and south-east Asia.

Siam weed is still spreading rapidly, particularly through the Philippines, south-west China and South Africa. Especially worrying is its spread through our near neighbours Papua New Guinea and eastern Indonesia.

MAP 1—WORLDWIDE DISTRIBUTION OF SIAM WEED

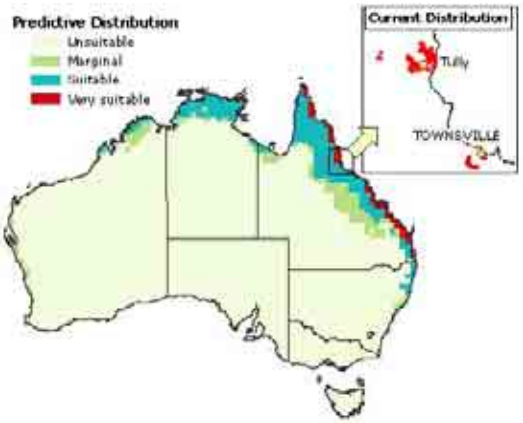


Potential spread in Australia

Whilst Siam weed is particularly suited to highly productive land types and grows easily along watercourses, foreshores and swamps it has also been found growing on granite hillsides. Siam weed is generally found in areas where rainfall exceeds 600 mm per annum. In Australia, this would be throughout coastal Queensland, New South Wales, Northern Territory and north Western Australia and the West Australian coast (potential distribution in Map 2).

Siam weed has been found in several locations extending 180 km from the original sites in the Tully/Bingil Bay area.

MAP 2—ACTUAL AND POTENTIAL DISTRIBUTION OF SIAM WEED



Stopping the spread

Currently Siam weed is the target of an eradication campaign managed by Department of Natural Resources, Mines and Water with financial support from other states and Commonwealth.

It is important that Siam weed be contained to the currently infested areas. This can be achieved by:

- washing down vehicles, machinery, and equipment when leaving known Siam weed infested areas;
- cleaning all clothing, shoes and camping gear before leaving a known Siam weed infested area;
- quarantine of livestock for at least one week before they leave a Siam infested property;
- not removing sand or soil that may be contaminated;
- requesting a Weed Hygiene Declaration when buying anything that may be contaminated with Siam weed seed.

To assist in reducing the spread of Siam weed seed, insist on vehicle and machinery washdowns and obtain a weed hygiene declaration from contractors. For further information on ways to prevent weed spread visit: <http://nrm.qld.gov.au/pests>.

Declaration details

Siam weed is a Class 1 declared plant under the *Land Protection (Pest and Stock Route Management) Act 2002*. A **Class 1** pest has the **potential** to become a very serious pest in Queensland in the future. We need to prevent the import, possession and sale of these species.

All landholders are required by law to keep their land free of Class 1 pests. It is a serious offence to introduce, keep or sell Class 1 pests without a permit. The state government may serve a notice upon a landholder requiring eradication of Class 1 pests.

Control

Although biological control research has been initiated overseas, and some effective agents have been found, establishment of these agents has been relatively poor. Biological control seldom kills all plants as required for eradication.

Chemical application at the correct rates, before flowering, results in excellent kills (see Table 1 for approved herbicides and spray rates). Always read the label before using any herbicide.

Mechanical 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.

Further information

Further information is available from the vegetation management/weed control/environmental staff at your local government or can be viewed online at <www.weeds.org.au>.

TABLE 1 – HERBICIDES REGISTERED FOR THE CONTROL OF SIAM WEED

Herbicide	Product name	Rate	Comments
picloram + triclopyr	Grazon DS	350 mL to 100 L water + BS wetting agent @ 100 mL to 100 L	overall spray, spraying to point of runoff

4. Growth habit (Photo: Darryl Evans)

5. Seed head (Photo: Colin Wilson)

6. Seedling approximately 30 cm tall

7. Siam weed stem

8. Billy goat weed leaf and Siam weed leaf

9. New growth (Photo: Colin Wilson)

10. Basal ball (Photo: Jodie Bocking)

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