



## FACTSHEET

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For more information on weeds, including use of biocontrol agents contact:

Your local NRM Board  
[www.nrm.sa.gov.au](http://www.nrm.sa.gov.au)

Visit the Biosecurity SA web page:  
[www.pir.sa.gov.au/biosecurity/nrm\\_biosecurity/weeds](http://www.pir.sa.gov.au/biosecurity/nrm_biosecurity/weeds)

Ph 08 8303 9620

Or Weeds Australia:  
[www.weeds.org.au](http://www.weeds.org.au)

## BIOLOGICAL CONTROL OF

# English broom

(*Cytisus scoparius*)

**Biocontrol agent: Broom gall mite**  
(*Aceria genistae*)

## BACKGROUND

English broom, also known as Scotch broom, was introduced from Europe as a hedge and ornamental plant.

It is an invader of native vegetation and forms long lasting seed banks which can persist for 10 years or more before fully germinating.

By the end of the 19th century English broom was already declared noxious in some Australian states.

English broom establishes readily on disturbed sites, dominating shrub vegetation, smothering larger plants and preventing new plant establishment. Broom thickets also harbour vermin and increase fire hazard.

English broom is a Weed of National Significance and a declared plant in South Australia. Landowners have a legal responsibility to control it under the South Australian *Natural Resources Management Act 2004*. Regional NRM Boards coordinate and enforce local and regional control programs for declared plants.

English broom is an erect shrub to 3 metres high. It reproduces from seed and plants flower after 2 years of age. The hard-coated seeds are ejected up to several metres from ripe flower pods in summer.

## HOW THIS BIOCONTROL WORKS

The microscopic broom gall mite originates from western Europe, feeding and developing exclusively on English broom. It feeds by inserting its stylet (piercing mouthpart) into plant cells to extract sap.

The female lays eggs one at a time inside the gall, on new buds on the same plant, or on a new host plant after being carried there by the wind. Once on a new broom plant the mite will locate an unopened shoot bud in which to feed and shelter during winter.

Galls develop in spring and summer and provide shelter for the expanding colony. Gall formation reduces flowering and seed production and stunts growth.

Over a year the gall can grow up to 10 mm in diameter and harbour hundreds of mites. As galls grow, they become more hairy until they senesce. At this time the mites leave the galls and migrate to colonise new buds or are wind-dispersed to new plants.

## RELEASE OF AGENT IN SOUTH AUSTRALIA

The broom gall mite's first field release in Australia was at Summit Rd, Cleland Conservation Park in 2008. Four inoculated plants were planted out and watered through the first summer. The gall mite has established at this location and has begun to spread to nearby plants.



English broom with gall mites formed (right) and without (left)  
Image courtesy of W Chatterton TIAR



English broom gall mite colony  
Image courtesy of W Chatterton TIAR

## English broom infestations across SA NRM Boards

- > Adelaide & Mt Lofty Ranges:  
scattered heavy infestations in paddocks and roadsides
- > Northern & Yorke:  
possible isolated patches
- > SA Murray Darling Basin:  
scattered infestations in higher rainfall areas
- > South East:  
isolated patches around Mt Gambier

In 2009/2010 the mite was released across eight sites in the Adelaide and Mt Lofty Ranges Region. It appears to be establishing at several sites and this will be confirmed in the spring and summer of 2010/2011.

The broom gall mite was released in the SA Murray Darling Basin Region in 2010 with no conclusive results yet available.

At this initial stage the mite shows positive signs of establishing and spreading. It could be a promising biocontrol agent for use in South Australia.

### OTHER AGENTS USED ON ENGLISH BROOM

The **broom twig-mining moth** (*Leucoptera spartifoliella*) was released in Cleland Conservation Park in 1998 but it did not appear to establish.

It was released again in 2009, however is it too early to determine its establishment status.

The larvae feed on broom from January to October by mining up and down inside the stems of the previous season's growth. Creation of these mines is capable of stunting plant growth.

**English broom psyllid** (*Arytainilla spartiophila*) stunts shoot growth and generally reduces the plant's vigour, and indirectly, its ability to produce flowers and seed.

This agent was released in Cleland Conservation Park in 1999. Only a few specimens have ever been collected over the years to confirm establishment.

**Broom seed beetle** (*Bruchidius villosus*) larvae feed on seeds. Releases were conducted in eastern Australia in 1995 and it was recently found to be well established in the Adelaide and Mt Lofty Ranges Region, although it was not part of a distribution program there.

Two new agents soon to undergo host specificity testing are the **broom leaf beetle** (*Gonioctena olivacea*) and the **broom leaf-feeding moth** (*Agonopterix assimilla*).

### INTEGRATED CONTROL

Integrated weed management aims to maintain or reduce weed densities to manageable levels by utilising a variety of control practices, including biocontrol where appropriate.

Integrated English broom control can utilise herbicides and grazing in addition to biocontrol.

Herbicides are effective but expensive and only provide short-term control.

In inaccessible locations, or where there is a risk of damage to sensitive native vegetation, conventional control methods may be difficult or impossible to implement.

In such cases biocontrol may be the only feasible management option, although alone, it will not eradicate the weed. The likely effect is to reduce the growth and rate of spread of the weed, allowing more time for control by other means.

### REFERENCES / LINKS

[Declared Plants of South Australia](#)

[Integrated Weed Management](#)

[English Broom Weed Identification Notes](#)

[Biocontrol of English Broom with the Broom Gall Mite](#)

[Scotch Broom Biocontrol Agent: Twig-Mining Moth](#)

[Biocontrol of Scotch Broom](#)

[Scotch Broom Biocontrol Agent: Psyllid](#)

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