



Control of Cape broom with the Cape broom psyllid, *Arytinnis hakani*

By Susan Ivory, Angela Lush, Joanne Kent and Ken Henry

Target plant

Order:	Fabales
Tribe:	Genisteae
Species:	<i>Genista monspessulana</i> (L.) L.A.S. Johnson
Common name:	Montpellier, Cape or French broom



Cape broom, *Genista monspessulana*, with
flowers and pods at Candelo, NSW
Photo courtesy of Jackie Miles

Biological control agent

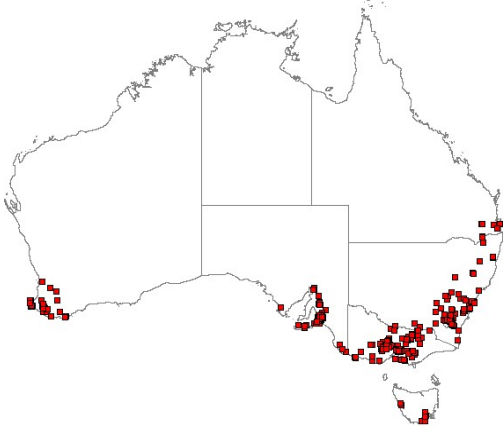
Order:	Hemiptera
Family:	Psyllidae
Species:	<i>Arytinnis hakani</i> (Loginova, 1972; Percy, 2003) (= <i>Arytainilla hakani</i> Loginova)
Common name:	Cape broom psyllid



Adult Cape broom psyllid, *Arytinnis hakani*

Background

Cape broom is a noxious weed of Mediterranean origin in all southern states of Australia. It invades bushland, forestry, amenity and recreation areas and is ranked 37th amongst the nominations for Weeds of National Significance. Cape Broom is estimated to have invaded at least 600,000 ha. It is a leguminous shrub that forms dense thickets and produces vast numbers of seeds. Dormant seeds can remain in the soil for at least a decade, so management of Cape broom infestations requires a long-term commitment.



Distribution of Cape Broom

Map generated from the Australian Virtual Herbarium
<http://www.chah.gov.au/avh/>

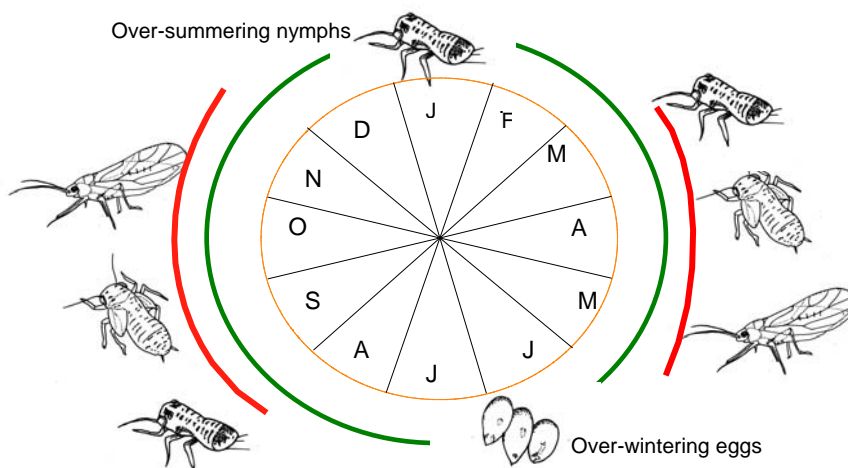
Seed dormancy can be broken by fire, and as Cape broom establishes quickly, it can out-compete other plants after a fire event. Dense thickets of Cape broom pose a significant fire hazard and can cause major problems for the forestry industry. In addition to a fire threat, Cape broom can hamper movement of personnel and machinery through forests.

Cape broom is widespread in southern Australia, extending north to southern Queensland. Cape broom is also considered a weed in south-western North America, Hawaii, Chile and forest areas of South Africa. Its weedy distribution is largely restricted to Mediterranean and warm temperate climate areas.

Cape broom psyllid lifecycle

The Cape broom psyllid is a sap sucking plant louse that can complete several generations in a year. Egg to egg generation time varies between 30 and 60 days depending on season.

Eggs can survive over winter until spring, when first instar nymphs emerge and begin feeding on leaves and buds. Observations suggest that as temperatures increase over summer there is a decrease in the number of late nymphal instars and adults. The psyllid appears to survive the hot dry summer months as early instar nymphs sheltering in the youngest leaves.



Spring - four generations

Autumn – one generation

A generation can take between one or two months depending on the season.

Adults – Adults have wings and are mobile with bright green, mid-green or yellow-green bodies. Adults are approximately 2-3 mm long, with transparent wings that have light brown veins. Females lay their eggs amongst fresh leaves and buds and have been known to lay over 200 eggs. Up to five generations can occur per year, with four generations developing in spring and possibly one in autumn.

Eggs – Eggs are less than 1mm long and are laid on young leaves and flower buds. They vary from cream to orange in colour and are an oblong/teardrop shape. Eggs are very difficult to detect with the naked eye.

Nymphs – Nymphs are wingless but can be quite mobile on their host plant. There are five nymphal stages in this psyllid. From 1st instar to 5th instar the colour changes from orange to bright green. Second instars are approximately 1 mm long and 5th instars are just over 2 mm long.



Arytinnis hakani eggs



Second and fifth instar nymphs



Adult *Arytinnis hakani*

Impact on Cape broom

Nymph and adult *A. hakani* insert their mouthparts into Cape broom plants, injecting saliva and then sucking plant cells and sap. Infested Cape broom can be identified by the presence of green/orange nymphs and crystal-like sugary deposits. They are most likely to be found on young leaves in the growing tip.

Plant damage can be impressive with heavily attacked plants suffering from shoot-blackening, reduced growth and flowering. High-density populations of *A. hakani* can occur on Cape broom, especially on young actively growing foliage. In the Adelaide Hills, reduced flowering and seed set has been observed as a result of *A. hakani* infestation, as well as decreased shoot growth.

Arytinnis hakani has the potential to slow the growth, reproduction and spread of Cape broom. It will complement existing herbicide and physical controls, as an additional control method for integrated weed management practices. It will provide a level of control in native vegetation and in areas that are difficult to access.



Green/orange nymphs and crystal-like sugary deposits on shoot tips

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All photographs courtesy of SARDI unless otherwise stated.

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