



Gorse soft shoot moth

(Agonopterix umbellana)

The gorse soft shoot moth is a biological control agent for gorse (*Ulex europaeus*). The soft shoot moth was successfully introduced into Australia in 2007 and is the fourth gorse biological control agent released in Australia.

Biocontrol uses natural organisms to control pest species.

Gorse biocontrol agents released in Victoria include the gorse soft shoot moth, gorse seed weevil, gorse spider mite and gorse thrip. Their combined impact may reduce the abundance, growth rate and seeding capacity of gorse, however they will not eradicate it. Biological control is best suited for use in areas where the application of conventional control methods is inappropriate due to practical or environmental constraints.



Larvae. Photo: Wade Chatterton - Tasmanian Institute of Agriculture

Description

Adults

Have light brown forewings with distinctive dark brown diagonal lines.

- They are approximately 1cm long with a 2cm wingspan.
- When resting their antennae lie characteristically along their folded wings.
- Adults are nocturnal so they are unlikely to be seen.

Larvae

Young larvae are dark brown with black heads and black thoracic plates. Mature larvae turn a dull olive-green colour and are approx. 2cm in length.

Eggs

Are barrel-shaped, about 1mm in length and bright yellow in colour when first laid.



Adult. Photo: Wade Chatterton - Tasmanian Institute of Ag.

Lifecycle

Gorse soft shoot moths have only one generation per year. Depending on local climate their life cycle can take between 8-32 weeks.

- ▶ In early spring adults emerge, then mate and lay eggs near buds in the axils of gorse spines and stems. Egg hatching coincides with the availability of succulent new growth.
- ▶ Newly hatched larvae migrate to young buds and spin a silken tube, feeding on the developing spines of the apical tip. As larvae develop, they spin larger tubes and feed on the lateral spines of the growing shoot.
- ▶ Larvae develop within the silken tube by mid-summer and adults emerge by late summer moving into the centre of the gorse bush to begin their winter diapause or suspended development.

Impact on gorse

Feeding during the moth's juvenile stage will cause the most damage to gorse plants.

The early larvae stage will cause some damage, but it is the later larvae stage feeding on the developing lateral spines of the growing shoots that cause the greatest impact. If the larvae fail to kill the shoot, the destruction of spines from larval feeding destroys the plant's reproductive buds, which reduces or prevents flower production in the following spring.

Collection and release

The gorse soft shoot moth has been approved for release into Australia, there are no limitations or legal requirements for landholders when collecting and releasing moths.


Collections from private property will need approval from the landholder.

Optimum collection

Collection of larvae in their webbed shelters found on gorse branch tips is preferred.

For optimum results collect a minimum of 500 larvae in December.

A single webbed shoot tip a few centimetres in length will generally contain a single larva. Avoid taking larger cuttings with several webs as there is a risk of including gorse reproductive materials in larger cuttings (see note on the *Catchment Land Protection Act 1994* below). Collection of adult moths is not currently recommended by Agriculture Victoria.

 **Note:** Be mindful that transportation of reproductive plant parts is prohibited under the *Catchment Land Protection Act 1994*, therefore only branch tips that are not capable of re-establishing can be taken and transported.



Release. Photo: Cindy Hauser - Department of Energy, Environment and Climate Action



Gorse shoot damage. Photo: Greg Lefoe - Department of Energy, Environment and Climate Action

Transport and storage

Place gorse branch tips with larvae in a cool esky with an ice brick, separating the ice brick from the collection with a cloth or newspaper.

Keep the esky in a cool dry location, away from direct sunlight. For optimum results transport the larvae directly to the release site. Avoid making new releases during weather extremes and do not leave larvae in the esky longer than 24 hours.

Release

The use of biocontrol is best for large inaccessible or difficult to control gorse infestations. E.g., steep embankments or riparian zones.

Remove collection from esky and place cut branches and larvae directly on to healthy gorse bushes. Larvae will emerge from the cut branch tips and recommence feeding and development on the new gorse bush.

Ensure the release site hosts healthy gorse infestations for optimal breeding opportunity.

Monitoring the release site

Revisit the site in late-spring or early summer and look for larvae in their white casings at the end of gorse branch tips.

Adult moths are found deep in gorse bushes during the day making them harder to find.

If your release has been successful, you will observe damage on the new growth. Survey nearby bushes incrementally over time to monitor spread of the agent.

Locating collection sites

Agriculture Victoria are currently working on creating a list of collection sites. For more information visit the Biocontrol Hub <https://biocollect.ala.org.au/biocontrolhub>.

Further Information



Contact Agriculture Victoria on 136 186
Visit the Biocontrol Hub website

Disclaimer:

The information provided by the Victorian Gorse Taskforce is intended for general information only. We do not guarantee this information is without flaw of any kind, or is wholly appropriate for your particular purposes, and therefore disclaim all liability for any error, loss or other consequence which may arise from you relying on any information contained on the website for any purpose.



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Harvey, K.J., McConnachie, A.J., Sullivan, P., Holtkamp, R. and Officer, D. (2021) *Biological Control of Weeds: a practitioner's guide to south – east Australia*. New South Wales Department of Primary Industries, Orange. 208pp

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