

HEMLOCK MOTH

Agonopterix alstromeriana

The history of hemlock moths in New Zealand

Hemlock moths are native to Europe, and they were first discovered in New Zealand in big numbers in Central Otago in 1990. We do not know how the moths got here but, since their arrival, they appear to have spread fast and can now be found throughout the country. This insect has also introduced itself to, and established widely, in the United States.

How would I find hemlock moths?

The moths are small (about 10 mm long) and pale greyish-brown in colour, with a distinctive large, dark brown spot on each wing. The moths are nocturnal and hide away during the day. However, if windows are left open during the warmer months, then you may see the moths inside houses at night as they are attracted to light. In the United States the moths apparently spend the winter beneath the bark of cut firewood. When the wood is taken into a warm house, the moths become active and fly around.

The females lay about 200 tiny pale-coloured eggs singly on the undersides of leaves in the spring, and you should be able to see these with your naked eye. The eggs hatch after about 6 days into caterpillars that are predominantly yellow with black head capsules. As they feed and grow they become light green in colour with three dark green stripes along the sides of their bodies. You should easily be able to see these caterpillars in later spring and early summer.



Hemlock moth

Look for hemlock leaves that have been rolled together with fine webbing to form tubes. Older caterpillars also make tubes from the flowers and developing seed heads.

If disturbed the caterpillars wriggle wildly and will often abandon their leafy tubes and fall to the ground. This is why you often find a lot of empty tubes on some plants. The caterpillars take nearly a month to complete development, and once fully grown measure about 10 mm long. They pupate in the soil for about a fortnight so you are unlikely to see the reddish-brown pupal cases. New adult moths begin to emerge in mid-summer. These new adults must survive the winter before they can breed the following spring.





Leaves damaged by hemlock moth caterpillars

How do hemlock moths damage hemlock?

The caterpillars are the damaging stage. They are voracious and can reduce large hemlock plants to bare stalks.

Will hemlock moths attack other plants?

No, hemlock moth will only damage hemlock. A close relative, the soft shoot moth (*Agonopterix ulicetella*) has been released in New Zealand to attack gorse, and another close relative (*Agonopterix assimilella*) is being released to attack broom.

How effective are hemlock moths?

This insect looks to be a promising control agent. Already severe damage to hemlock has been seen at many sites, with up to 40 caterpillars per stem. Because the flowers are eaten too, the amount of seed produced by hemlock plants is reduced.

How can I get the most out of hemlock moths?

The moth seems to be spreading fast naturally. If you find any areas where they are absent, you could collect caterpillars and shift them there in late spring. Read *Guidelines for collecting, relocating & releasing insect biocontrol agents*. Wear rubber gloves as hemlock is poisonous. Cut hemlock leaves with caterpillars on them, and put these in a chillybin (that will not be used for food in future) or a paper rubbish bag. The more caterpillars you can shift, the greater the chance they will have of establishing, and we recommend moving at least several hundred caterpillars. At the release site, wedge or tie the cut material into large hemlock plants so the caterpillars can easily move across.

Avoid activities that will interfere with the moth's life cycle. If undertaking control measures over a large area, then leave a couple of infested hemlock plants nearby to act as a hemlock moth reservoir.

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