OLD MAN'S BEARD SAWFLY

Monophadnus spinolae

The history of old man's beard sawflies in New Zealand

Old man's beard sawflies were imported into containment by Landcare Research from central Europe, where they are native in 1997, after being approved for release in New Zealand in 1996. Field releases began in 1998, but difficulties with mass-rearing the flies meant that although they were released widely it was only at a limited number of sites. The sawfly has not been used as a biocontrol agent anywhere else in the world. A recent survey has found that the sawfly appears to have only established at one site near Nelson where it remains rare. The reasons for the poor establishment of the sawfly are not well understood, but predation by wasps could be important. No further efforts to establish the sawfly are anticipated currently while other, possibly more useful agents are being sought.

How would I find old man's beard sawflies?

Adult females sit on the undersides of the leaves and are often hard to see. You are more likely to see the males when they are swarming around the plant searching for females to mate with. It is easy to tell the sexes apart. The males are smaller (about 5.4 mm long) than the females (about 6.4 mm). Both look like small black wasps but the colouration of their abdomens is different. The males' abdomens are black above and yellow below, whereas the female's abdomens are all yellow except for a black tip (ovipositor) that looks like a stinger.

Adult

Larva

Adult females produce 50–60 whitish eggs and use their ovipositors to lay them singly on the leaves. Although quite large (3–5 mm across), these eggs are not easy to spot in the field. Larvae hatch after about 2 weeks and resemble white caterpillars. The larvae feed and develop through four stages for males and five stages for females and get quite big (2.5–3 cm long). Saw flies are easiest to spot at this stage and, being white, the larvae stand out quite readily against a green backdrop. Search in areas where you can see damaged leaves and balls of black frass. The only thing on old man's beard that you could confuse the larvae with is the occasional pale green leafroller caterpillar. However, sometimes other insects damage the leaves in a similar way, so to be sure that the old man's beard sawfly is responsible you would also need to see the white larvae and/or their black frass.

In southern central Europe the old man's beard sawfly has two generations per year. The first generation of larvae, produced in the spring, drop to the ground and pupate for a few weeks, emerging as adults by midsummer. The second

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generation remain in their cocoons from late summer right through until the following spring. In the milder oceanic climate of New Zealand, there may be sufficient time for the sawflies to complete a third generation.

How do old man's beard sawflies damage old man's beard?

The larvae are the damaging stage. Before a larva begins to feed on a leaf it cuts the vein at the base. This unusual behaviour may limit the defensive reaction of the plant by stopping the translocation of unpalatable substances into the leaf, or nutrients out of it. The larva usually starts feeding at the tip of a leaf and makes semicircular excisions along the leaf margins. A single larva may eat several leaves, sometimes leaving only the central vein intact.

How effective are old man's beard sawflies?

Currently the old man's beard sawfly is having no impact on its host plant at the one site where it has established. However, saw flies can be highly damaging if they can build up large

Feeding damage

Frass

populations. For example, the willow sawfly (*Nematus oligospilus*), an exotic invader, can causing severe damage to willow trees.

Will old man's beard sawflies attack other plants?

No, old man's beard sawflies are extremely unlikely to attack any plants other than old man's beard (*Clematis vitalba*). Host specificity testing suggests that the sawfly can damage leaves of several species of *Clematis*, but only if larvae have access to old man's beard as well, for example when the vines are intertwined. This situation would be rare in New Zealand and, therefore, the threat posed to other *Clematis* is minimal.

How can I get the most out of old man's beard sawflies?

Because the sawfly is only present in low numbers at one site it is not feasible to attempt to establish it in other areas, and it would not be advisable to attempt to do so unless further research could show that current limitations could potentially be overcome.

For further information contact:

Hugh Gourlay
Landcare Research
PO Box 6940
Lincoln 7640
NEW ZEALAND
Email: gourlayh@landcareresearch.co.nz
Ph (03) 321 9683
Fax (03) 321 9998