



INSECTS COMMONLY MISTAKEN FOR BIOCONTROL AGENTS



Before biological control agents are introduced into New Zealand, great care is taken to ensure that they will only damage their target weed (see *How safe are biocontrol agents for weeds?*). Sometimes, there are other species present in New Zealand that look a lot like these biological control agents, or damage other plant species in a similar way. Often, only people with a specialised knowledge of insect taxonomy are able to tell them apart. Also, some people are not aware that New Zealand native plants have natural enemies of their own and become alarmed if they notice any damage. All these factors can lead to false reports that biological control agents are damaging non-target plants. Below we describe some species that can easily be mistaken in this way.

Bronze beetle

The common native bronze beetle (*Eucolapsis brunneus*) is sometimes mistaken for the ragwort flea beetle (*Longitarsus jacobaeae*). However, unlike the ragwort flea beetle, which has a limited host-range, the bronze beetle has a wide host range. Bronze beetles feed on the foliage of many native trees and shrubs and have also become a well-known pest of orchards, gardens and even pine trees. Although they are normally harmless, bronze beetles can sometimes completely defoliate plants and seriously damage fruit crops (especially apples, stone fruit, and berry



Bronze beetle



Ragwort flea beetle

fruit). You are most likely to see bronze beetles from October to January. Ragwort flea beetles can often be seen all year round now that they are completing more than one generation per year in New Zealand. Bronze beetles are larger (about 6 mm long) than ragwort flea beetles (about 2.5-3.8 mm long) and darker in colour, being bronze to black as opposed to golden-brown. When disturbed, bronze beetles leap around like ragwort flea beetles do and they make similar 'shot-holes' in foliage.

See also *Ragwort flea beetle*

Flower thrips

New Zealand flower thrips (*Thrips obscuratus*) can be found on flowers of a wide range of native and introduced plants, such as flax, kiwifruit, pip fruit, stone fruit, citrus, and commercially grown cut flowers. They may also be found on the surface of various fruits.

The adults look similar to many other species of thrips found in New Zealand, and sometimes more than one species will be present. If you are checking for gorse thrips (*Sericothrips staphylinus*), particularly at flowering time, you are likely to encounter flower thrips. You may need a hand lens to be able to tell the two species apart. Gorse thrips are short and

squat while flower thrips are longer and thinner. As a general rule, gorse thrips are about two-thirds the length of flower thrips. Gorse thrips tend to jump, while flower thrips more commonly walk. The UK strain of gorse thrips seldom has wings, only wing buds. Wings are more common in the Portuguese strain. Flower thrips always have full-length wings. Host specificity tests have indicated that gorse thrips are unlikely to damage anything except gorse.

See also *Gorse thrips*.

Magpie moth

The caterpillars of a native insect, the magpie moth (*Nyctemera annulata*), are sometimes mistaken for the cinnabar moth caterpillar (*Tyria jacobaeae*).

You may find both on ragwort, but unless newly hatched, they are not difficult to tell apart. The magpie moth caterpillar has predominantly black with yellowish-orange stripes running along the length of its body and has long black bristles.

By contrast, the cinnabar caterpillar has a smooth body and alternating yellow- and black-coloured rings along its body.



Woolly bear caterpillar

The adult moths, although similar in size, are also easy to distinguish. Magpie moths are brownish-black with white markings whereas cinnabar moths are brownish-black with striking red markings. You would not easily be able to tell their eggs apart, although magpie moth eggs tend to be paler yellow. The magpie moth has a wide host range, including

many composite weeds (such as ragwort and groundsel), but where ornamental cineraria are grown, these are preferred. The Cinnabar moth has a much narrower host range. It will only be seen feeding on ragwort or occasionally on other closely related *Senecio* species. The magpie moth has at least two generations per year, whereas cinnabar moth has only one.



Cinnabar moth caterpillar

See also *Cinnabar moth*.

Spider mites on *Coprosma*

Large colonies of reddish spider mites can be found on *Coprosma*. These mites and their webbing bear an uncanny resemblance to gorse spider mites (*Tetranychus lintearius*). However, the mites on *Coprosma* are in fact a closely related species (*Tetranychus* sp. near *pacificus*). Host specificity tests have indicated that gorse spider mites are unlikely to damage anything except gorse. You may see gorse spider mites on other plants from time to time. They will be crawling over these plants seeking out new gorse bushes to attack but they will not be feeding on them.

See also *Gorse spider mite*.



Gorse spider mite



Closely related mites on *Coprosma*

Seed feeding fly on *Celmisia*

Larvae can be found feeding on the developing seeds inside New Zealand native cotton plant (*Celmisia spectabilis*) flower heads. These larvae are similar to nodding thistle gall fly (*Urophora solstitialis*) larvae but have also been mistaken for nodding thistle receptacle weevil (*Rhinocyllus conicus*) grubs. However, the fly that lives on cotton plant has been identified as *Trypanea* sp. This native seed-feeding fly and the introduced nodding thistle gall fly belong to the same family (Tephritidae). We have several other native tephritid flies in New Zealand. All have patterned wings and you may see them on native daisies (Asteraceae) such as *Celmisia*, *Helichrysum*, *Brachyglottis* and *Senecio*. Host specificity tests have indicated that the two nodding thistle seed feeders are unlikely to feed on anything except *Carduus* and *Cirsium* thistles.

See also *Nodding thistle receptacle weevil*, *Nodding thistle gall fly*.

Leaf miner on native *Clematis*

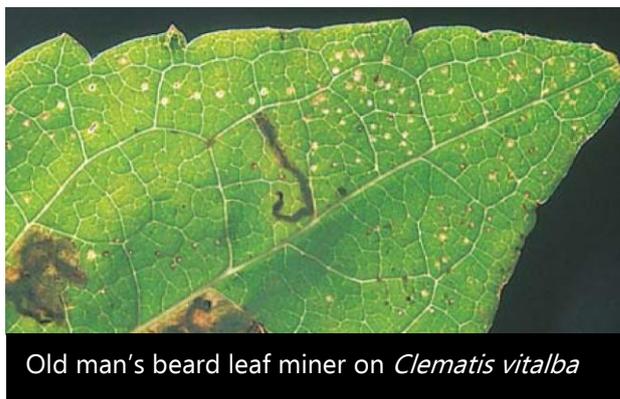
Mines may be found on the leaves of native *Clematis* (e.g. *Clematis forsteri*). These mines are most commonly made by the native leaf miner (*Phytomyza clematadi*); a close relative of the old man's beard leaf miner (*Phytomyza vitalbae*). Nevertheless, the old man's beard leaf miner has occasionally been recorded attacking native *Clematis* plants (mainly *C. foetida*, but also *C. forsteri* on one occasion). The native leaf miner also occasionally attacks old man's beard. The adult flies are hard to tell apart, but old mines can be identified: the native species pupate inside their mines whereas the introduced species does not, leaving a distinctive semi-circular exit slit.



Native leaf miner on *Clematis forsteri*

Some ornamental *Clematis* species may be at risk from the introduced leaf miner, but only if they are grown close to old man's beard infestations. This is because the old man's beard leaf miner cannot lay fertile eggs unless it has fed on old man's beard.

There are many kinds of leaf-mining insects in New Zealand, including flies, moths, beetles and wasps. As a general rule, introduced leaf miners attack introduced plants and native leaf miners attack native plants.



Old man's beard leaf miner on *Clematis vitalba*

See also *Old man's beard leaf miner*.

Weevils on *Carmichaelia* and *Sophora* spp.

Larvae can be found feeding on developing seeds inside the pods of native *Carmichaelia* and kowhai (*Sophora*) species. Although they may look a bit like gorse seed weevil (*Exapion ulicis*) or gorse pod moth (*Cydia succedana*) larvae, these insects are native species. Weevil larvae feeding inside *Carmichaelia* pods have been identified as *Peristoreus sudus* and caterpillars inside kowhai pods as *Stathmopoda aposema*. Although the gorse seed weevil is common in New Zealand and has been here for more than 60 years, it has never been recorded attacking anything other than gorse. You may find

the adult weevils sitting on other plants, but they will not be feeding on them. Host specificity tests have indicated that it is unlikely that the gorse pod moth will attack anything other than gorse. Field studies checking for damage to other legumes found no sign of attack.

See also *Gorse seed weevil*, *Gorse pod moth*.

Identifying insects

If you are uncertain about the identity of an insect you find on one of our target weeds, or you are concerned that you have found one of our introduced biological control agents attacking a non-target plant, please feel free to contact us. We take safety extremely seriously and investigate all claims of non-target attack.

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