

# Fuzzweed Moth

*Australothis volatilis* (Matthews and Patrick, 1998)

## Day moth



Fuzzweed moth (male). Landcare Research

## Quickfacts

Only known from scattered, dry sites in Central Otago and the Mackenzie Basin

Feeds on the fuzzweed herb, *Vittadinia australis*, itself rare and endemic to New Zealand

## Fuzzweeds

The Fuzzweed moth *Australothis volatilis* is a moth that was first discovered in 1989. It is our only specialist diurnal (active during the day) noctuid moth, and has a fast and erratic flying pattern. It is only found in dry sites in Central Otago and the Mackenzie Basin. It is New Zealand's only endemic member the sub-family Heliiothinae of the family Noctuidae. The fuzzweed moth caterpillar feeds on flowerheads, developing seeds and leaves of *Vittadinia australis*, a white-flowered fuzzweed daisy that is rare in New Zealand, but also feeds on the commoner exotic purple-flowered Australian fuzzweed *Vittadinia gracilis*. Caterpillars burrow into the soil where they form a chrysalis before emerging as adults in October and November. Some chrysalises may enter what is known as diapause, or suspended animation, for up to two years before the adults hatch.

Conservation Status: Nationally Critical



## Fuzzweed moth conservation

*Asaphodes frivola* has a threat ranking of Nationally Critical, with the qualifier Range Restricted because of its very limited distribution and the few moths that have been found during searches. There are only six locations that *Asaphodes frivola* is known from, only two of which are protected, and only one of these is inhabited by a substantial population of fuzzweed moths. The other sites are small, only a few hectares in size, and contain only small populations of the host plant *Vittadinia australis* and hence are vulnerable to being lost. Four known sites are on privately-owned land, and therefore potentially at risk from pasture development. Its host plant is itself rare, though it is not considered endangered nationally, and usually found as small widely-spaced patches in drier areas of the eastern North and South Islands (though the fuzzweed moth has not been found at any site outside of Central Otago and the Mackenzie Basin). Fuzzweed moth has also been found feeding on an exotic Australian fuzzweed, *Vittadinia gracilis*, but it is not known whether caterpillars feeding on this exotic fuzzweed obtain the right nutrients to enable them to successfully pupate into adult moths. It has been identified that *Asaphodes frivola* is in urgent need of conservation action.

## What next?

The threats to the survival of the fuzzweed moth are:

1. Only being found at six sites, only two of which are formally protected, and only one of which supports a substantial population.
2. A low total population.
3. Potential loss to their habitat because of human-induced modification (e.g. pasture development), or random events (e.g. fire).
4. Little money to pay for conservation efforts and few people with the time to dedicate to moth conservation.

Protecting fuzzweed moth requires not disturbing some of the wild places in Central Otago and the Mackenzie Basin which are occupied by fuzzweed. Luckily this plant occupies very dry rocky places, which are not currently subjected to development pressures, beyond being planted in vineyards. The plant does need some help as it cannot compete with dense growth of other plants and requires open dry sunny places for its seed to germinate. Luckily, current dryland sheep farming practices benefit fuzzweed as the sheep eat away much of the exotic vegetation, as do rabbits.

Further survey work is needed to more accurately understand how many fuzzweed moths there are and where they live. Survey work can be done by anyone, and would be

a great activity for children to explore wild places. Fuzzweed is a distinctive plant (though only about 10-15 cm high) and most easily found during summer when its white flowers and grey leaves are more visible. The larvae, though large, are well camouflaged, and fuzzweed plants that are found should be carefully inspected for caterpillars. If any are found then send us a photo for confirming that you have found a fuzzweed moth caterpillar. Please also let us know where on a map it was found.

It may be possible to breed fuzzweed moths on fuzzweed plants grown in pots in a garden (in a similar way that monarch butterflies can be raised). This requires harvesting of fuzzweed seed the previous year (note that all plants in conservation areas are protected, and even the seed cannot be removed) and sowing in pots at least 15 cm in diameter and 20 cm deep. Once the fuzzweed plant is growing, leave it in a wild place for 1-2 months over summer to see if it attracts fuzzweed moths to lay their eggs. You might need to try a new place every year before you find fuzzweed moths.

## More information

Webpage: Landcare Research: *Australothis volatilis*. [Link](#)

Book; Wild Central. By Neville Peat and Brian Patrick. University of Otago Press, 2001.

Scientific paper: The Conservation Status of New Zealand Lepidoptera. By Ian Stringer, Rod Hitchmough, John Dugdale, Eric Edwards, Robert Hoare & Brian Patrick. New Zealand Entomologist Vol. 35 (2), pages 120-127, 2012.

Scientific paper: Conservation of New Zealand's tussock grassland moth fauna. By Brian Patrick. Journal of Insect Conservation Vol. 8 (2), pages 199-208, 2004.

Scientific paper: Conservation Status of the New Zealand Lepidoptera. By Brian Patrick and John Dugdale. Science for Conservation, 2000. Department of Conservation [PDF](#)

Scientific paper: A new diurnal species of Heliiothinae (Lepidoptera: Noctuidae) endemic to New Zealand. By M Matthews & Brian Patrick. Journal of Natural History Vol. 32 (2), pages 263-271, 1998.



# Photos



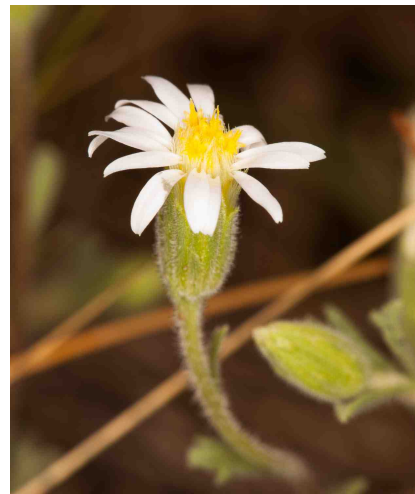
Female fuzzweed moth. Landcare Research



Caterpillar (larvae) feeding on exotic fuzzweed *Vittadinia gracilis* flower. Brian Patrick



Fuzzweed *Vittadinia australis*. Mike Thorsen



Fuzzweed *Vittadinia australis* flower. Mike Thorsen

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