HEATHER BEETLE

Lochmaea suturalis

Heather beetle

The history of heather beetles in New Zealand

Heather beetles are native to north-west Europe, and they were first imported from the UK by Landcare Research in 1992. While in quarantine, routine health checks revealed that the beetles were commonly infected with a protozoan parasite. This microsporidian tends to severely debilitate or kill the beetles and may help to explain why outbreaks can be patchy in Europe. A special programme was put in place to identify and destroy any infected beetles, eventually enabling healthy populations to be produced and released widely in and around Tongariro National Park during the late 1990s. Heather was planted in this area in the late 1800s to provide food and cover for introduced grouse. The grouse failed to establish but the heather has gone on to infest approximately 10 000 km^2 of the central North Island. The heather beetles have established here but are doing better at sites they were released at in Rotorua.

Heather beetle larvae

How would I find heather beetles?

You are unlikely to see the adult beetles, which are a brownish colour and about 6 mm long, because of their cryptic behaviour and tendency to drop to the ground when disturbed, unless present in large numbers. Adults spend the winter in moss or litter at the base of plants until rising temperatures in the spring stimulate them to emerge, feed, and produce eggs. The beetles are capable of flying at least several kilometres after this spring emergence, but they probably only do this when surrounding heather is in poor condition.

The females lay on average 175 pale yellow pinhead-sized eggs which turn dark orange and then brown just before hatching. This process takes about 1–2 weeks. The greyish-white larvae with black heads are the easiest stage to see but, unless they are extremely common, you will still need to look quite hard to see them feeding on the young shoots and leaves during the summer. The larvae feed and develop through three stages and over 4–5 weeks grow to about 12 mm long. Once fully grown the larvae pupate inside earthen cells. You are unlikely to see these pupae as they

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are usually formed just below the soil surface or in the litter layer. After about 3–4 weeks new adults emerge. By now it is usually late summer and the new adults spend the autumn feeding until cooler temperatures induce hibernation. There is only one generation per year.

How do heather beetles damage heather?

Both the larvae and the adults feed on the foliage. When present in large numbers they can severely defoliate whole plants causing them to turn reddish-brown and die.

Will heather beetles attack other plants?

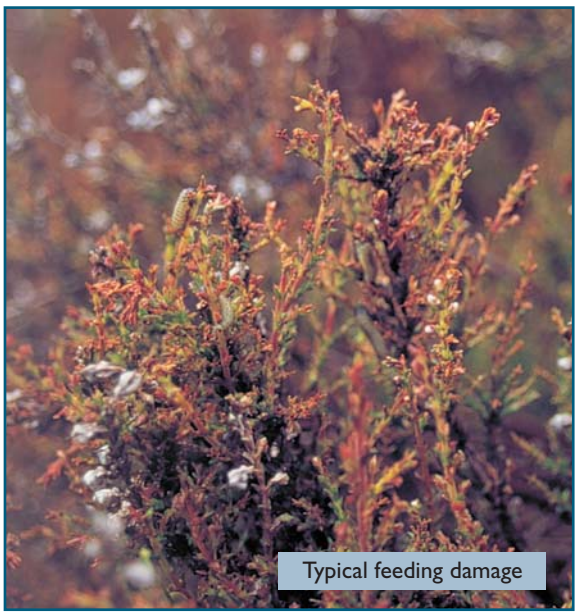
No, it is extremely unlikely that the beetles will attack anything other than Scottish heather *(Calluna vulgaris)*. Spanish heath *(Erica lusitanica)* and other *Erica* species are not considered to be suitable hosts — heather beetles may be found on them but are unlikely to be damaging.

How effective are heather beetles?

The impact of heather beetles has not yet been measured in New Zealand. Damaging outbreaks have occasionally occurred but have not been sustained in Tongariro National Park. Studies have shown this is not due to parasitism, predation or disease, but is most likely to be due to poor climatic adaptation. Anecdotally the beetles are successfully controlling heather near Rotorua where conditions are less harsh.

How can I get the most out of heather beetles?

Although the adults are capable of flying at least several kilometres after spring emergence,



Typical feeding damage

they probably only do this when surrounding heather is in poor condition. Distribution is still quite limited so harvesting and moving the beetles to new areas is likely to be useful.

How do I choose a release site?

Read *Guidelines for selecting release sites for biocontrol agents.*

How do I collect heather beetles for release?

Cut foliage with larvae on it during summer and carefully place it inside a chillybin. Aim to shift at least several hundred larvae and several thousand would be better. Wedge the infested foliage into new plants so the larvae can move across.

How do I manage the release sites?

Avoid activities that will interfere with the heather beetles life cycle. Avoid herbicides if possible.

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