

TRADESCANTIA LEAF BEETLE

Neolema ogloblini

The history of tradescantia leaf beetles in New Zealand

The tradescantia leaf beetle is native to south eastern Brazil and north eastern Argentina. It was first imported from Brazil by Landcare Research into containment for testing in 2007. Permission to release this beetle was granted by ERMA towards the end of 2008, but releases did not begin until 2011 because of the need to clear the beetle of a gut parasite. The beetle is establishing well and showing early promise, with widespread releases continuing. This beetle has not been used as a biocontrol agent anywhere in the world before.

How would I find tradescantia leaf beetles?

Adults may be seen feeding or resting on the upper leaves and shoots during the warmer months but may fall or fly away when disturbed. They are dark metallic bronze in colour with slight iridescence. Adults are about 4-5 mm long and females are usually slightly larger than males. The adults are probably fairly long-lived, as they have survived for up to 5 months in captivity.

Females lay white eggs on the lower surfaces or undersides of the leaves, sometimes singly but mostly in clusters of 2-5. It is not known how many eggs they can lay but similar beetles typically lay 200-400 eggs over several months.



Larva with protective cover



Adult

The eggs hatch after about a week into pale greyish-brown larvae. The larvae accumulate moults and excrement which they hold as a protective covering over their backs, presumably to deter predators. The larvae feed and grow through 4 or 5 instars. Young larvae are gregarious and may be seen forming feeding fronts. Older larvae feed individually.

The pupal cocoons are extremely unusual and are often visible on damaged foliage. They are white, star-shaped and resemble styrofoam in texture and appearance. This may be another survival mechanism, as predators may be fooled into thinking they are larvae infected with a fungus. New adults emerge from cocoons after about 2 weeks.

Development from an egg to an adult can occur in as little as 6 weeks at warm temperatures. It is not yet known how many generations the beetles will be able to complete each year in New Zealand, but 2-3 are likely.

You may confuse some life stages of the leaf beetle with other tradescantia biocontrol agents. Tradescantia stem beetle (*Lema basicostata*) and tip beetle (*Neolema abbreviata*) adults are a similar size but have different colouration. Stem beetle adults are black with a knobby appearance and tip beetle adults are black with yellow wing covers with black markings. If tip beetle larvae are feeding on the leaves, in the absence of growing tips, they will be hard to



distinguish from leaf beetle larvae. Cocoons made by the three species will be difficult to tell apart. However, stem beetle pupae are more likely to be found lower down on plants or in the litter than leaf or tip beetle pupae.

See *Tradescantia stem beetle*, *Tradescantia tip beetle*.

How do tradescantia leaf beetles damage tradescantia?

The adults chew the edges of the leaves, and may consume entire leaves. However, the main damage is caused by the larvae which graze the epidermal tissue off the leaves, mostly on the undersides, and can skeletonise them.

Will tradescantia leaf beetles attack other plants?

The leaf beetle is highly host-specific and it is highly unlikely that anything other than tradescantia (*Tradescantia fluminensis*) will be attacked. It is possible that some other very closely-related ornamental species (such as *T. albiflora*) may be attacked to a lesser degree.

How effective are tradescantia leaf beetles?

It is too soon to know what impact the leaf beetle will have here, but extensive damage has already been seen at some release sites and

laboratory studies have shown that they can be extremely damaging to tradescantia. Few parasitoids are believed to occur in New Zealand that could attack this beetle. The tradescantia leaf beetle should complement attack by the tradescantia tip beetle and tradescantia stem beetle. A monitoring programme to measure the effectiveness of the three beetle species is underway.

How can I get the most out of tradescantia leaf beetles?

The beetles are not expected to disperse rapidly so it would be worth helping to establish them in all areas where they are needed.

How do I choose a release site?

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

How do I collect tradescantia leaf beetles for release?

Collect beetles for redistribution either with a simple pooter or by using a garden-leaf vacuum machine. You could also use an ordinary vacuum cleaner if you have access to a portable generator. Modify the tube of the garden-leaf vacuum so that the beetles are collected and not sucked through. Take a sleeve of coarsely-woven material, with one end sewn shut and the other end open (old socks or pantyhose could be used), and fit it securely around the end so it forms a bag in the mouth of the tube.

We recommend that you shift at least 50 adults in the spring. Use a pooter to separate them from other material collected during the vacuuming process, which may include pests.

How do I manage the release sites?

Avoid any activities that will interfere with the beetles, such as herbicide application. If you need to undertake control measures then avoid the release site.

For further information contact:

Simon Fowler
Landcare Research
PO Box 40
Lincoln 7640
NEW ZEALAND
Email: fowlers@landcareresearch.co.nz
Ph (03) 321 9671
Fax (03) 321 9998