

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 in New Zealand was granted by ERMA towards the end of 2008, but releases have not yet begun because of the need to clear the beetle of a gut parasite. If a clean colony can be produced it may be possible to begin releases early in 2011. 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 tend to fall off or fly away when disturbed. They are dark metallic bronze in colour with slight iridescence. Adults 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



Adult beetle

many eggs they can lay but similar beetles typically lay 200–400 eggs over several months. The eggs hatch after about a week into pale greyish-brown larvae. The larvae accumulate moulted skins and excrement which they hold as a protective covering over their backs, to presumably deter predators. The larvae feed and grow through 4 or 5 instars. Young larvae are gregarious and may be seen in packs 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 fungus-infected larvae. New adults emerge from their 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.

How do tradescantia leaf beetles damage tradescantia?

The adults chew holes around the edges of the leaves, and may consume entire leaves but do



Larva with protective cover



not feed on the stems or actively growing tips. The main damage is caused by the larvae which graze the epidermal tissue off the leaves, mostly on the undersides, and can eventually skeletonise them.

Will tradescantia leaf beetles attack other plants?

The 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 beetles will have here, but 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. Other agents that feed on the stems and growing tips are also being considered to work alongside this beetle.

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

If the beetle establishes at initial release sites 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?

If the beetles establish we expect that the best way to collect them for redistribution will be using a garden-leaf vacuum machine. These machines comprise a petrol motor attached to a long tube for sucking up leaves, and you can purchase one from a garden equipment supplier or borrow one from an equipment hire firm. 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 that it forms a bag in the mouth of the tube.

You will find it easier to vacuum shorter plants because you can form a better seal with the ground. Every 10 minutes or so, take the sleeve off the end and tip the contents into a holding container. 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 pasture 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.

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