TRADESCANTIA TIP BEETLE

Neolema abbreviata

The history of tradescantia tip beetles in New Zealand

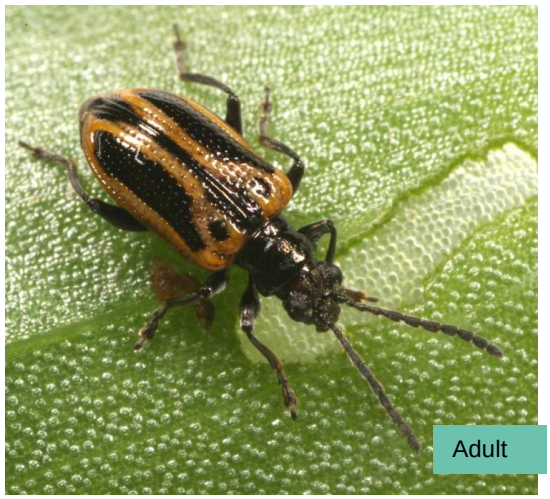
The tradescantia tip beetle is native to south eastern Brazil and north eastern Argentina. It was first imported from Brazil by Landcare Research into containment for testing in 2009. Permission to release this beetle was granted by ERMA towards the middle of 2011. Releases of the beetle have not yet got underway because of the need to clear it of a gut parasite. Releases are expected to begin in spring 2012. This beetle has not been used as a biocontrol agent anywhere in the world before.

How would I find tradescantia tip 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 mostly black in colour but their wing cases are yellow with black stripes and dots. 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 small opaque white eggs on the lower surfaces or undersides of the leaves or in new unfurled 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. The eggs hatch after about a week into pale greyish-brown larvae.

Pupa



Adult

Larvae prefer to feed by boring into the young growing tips and accumulated brown frass may become obvious. They will readily move from tip to tip, and will also feed on the leaves if no actively growing tips are available. The larvae feed and grow through 4 or 5 instars. Older larvae accumulate moulted skins and excrement which they hold as a protective covering over their backs, presumably to deter predators.

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 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 tip beetle with other tradescantia biocontrol agents. Tradescantia leaf beetle (*Neolema ogloblini*) and stem beetle (*Lema basicostata*) adults are a similar size but have different colouration. Leaf beetle adults are dark metallic bronze and stem beetle adults are black with a knobbly appearance. If the stem beetle larvae are feeding on the leaves, in the absence of growing tips, they will be hard

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TRADESCANTIA

Larva damaging tip, and adult feeding damage

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

See*Tradescantia leaf beetle, Tradescantia stem beetle.*

How do tradescantia tip beetles damage tradescantia?

The adults chew long windows in the upper surfaces of leaves. They may consume entire leaves and occasionally feed on the stems. However, the main damage is caused by the larvae which destroy the growing tips.

Will tradescantia tip beetles attack other plants?

The tip 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 tip beetles?

It is too soon to know what impact the tip beetle will have here, but laboratory studies have shown that they can be highly damaging to tradescantia, stunting the plant's growth by destroying its growing points. Few parasitoids are believed to occur in New Zealand that could attack this beetle. The effect of the tradescantia tip beetle should complement attack by the tradescantia leaf 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 tip 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 tip beetles for release?

We expect that the best way to collect the beetles for redistribution will be 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 that 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.

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