



TRADESCANTIA TIP BEETLE

Neolema abbreviata



History in New Zealand

The tradescantia tip beetle is native to south-eastern Brazil and north-eastern Argentina. It was first imported from Brazil by Manaaki Whenua - Landcare Research into containment for testing in 2009. Permission to release this beetle was granted by ERMA towards the middle of 2011, but releases did not begin until 2013 because of the need to clear the beetle of a gut parasite. The beetle is establishing slowly. This beetle has not been used as a biocontrol agent anywhere in the world before.

How would I find/recognise them and what is their lifecycle?

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 mostly black in colour but their wing cases are yellow with black stripes and dots. Adults are about 4–5 mm long and females are usually slightly larger than males. Adults have survived up to 5 months in captivity.



Adult beetle

Females lay small opaque white eggs on the undersides of 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. 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 leaves if no actively growing tips are available. Larvae feed and grow through 4 or 5 instars.



Pupa

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 in the litter. 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 usually takes around 10 weeks at warm temperatures. The beetles are likely to complete 2-3 generations per year in New Zealand.

You may confuse some life stages of the tradescantia tip beetle with other tradescantia biocontrol agents.

Tradescantia leaf beetle (*Neolema ogloblini*) and 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 knobby appearance. 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. 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 stem beetle*, *Tradescantia leaf beetle*

How do they 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.



Larva damaging tip and adult feeding damage

Will they attack other plants?

The tip beetle is host-specific and it is highly unlikely that it will attack anything other than tradescantia (*Tradescantia fluminensis*) and a few other closely-related ornamental species (such as *T. albiflora*).

How effective are they?

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. 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 this agent?

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 select a release site?

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

How do I collect them for release at other sites?

Collect beetles for redistribution either with a pooter, small plastic container or a butterfly net.

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.