Chilean flame creeper

The introduction of a leaf beetle, *Blaptea elguetai*, is being proposed as a biological control agent against Chilean flame creeper in New Zealand.

What is happening?

Weed biocontrol agents (insects, mites, plant fungi) are used to control exotic pest plants such as the Chilean flame creeper. Biocontrol agents won't eradicate the target weed, but the aim is to reduce infestations to acceptable levels. Rigorous host range testing ensures these agents don't harm native or desirable plant species.

The National Biocontrol Collective (NBC, a consortium of regional councils, unitary authorities, and the Department of Conservation), must obtain approval from the Environmental Protection Authority (EPA) before releasing biocontrol agents. Environment Southland, representing the NBC, proposes introducing a leaf-feeding beetle (*Blaptea elguetai*) as a biocontrol agent for Chilean flame creeper. A release application to the EPA will evaluate the environmental, economic, and socio-cultural risks, costs and benefits associated with introducing the beetle into New Zealand. Manaaki Whenua - Landcare Research (MWLR) is the science provider managing the EPA application process on behalf of Environment Southland. We are seeking feedback on the application, prior to submission to the EPA.

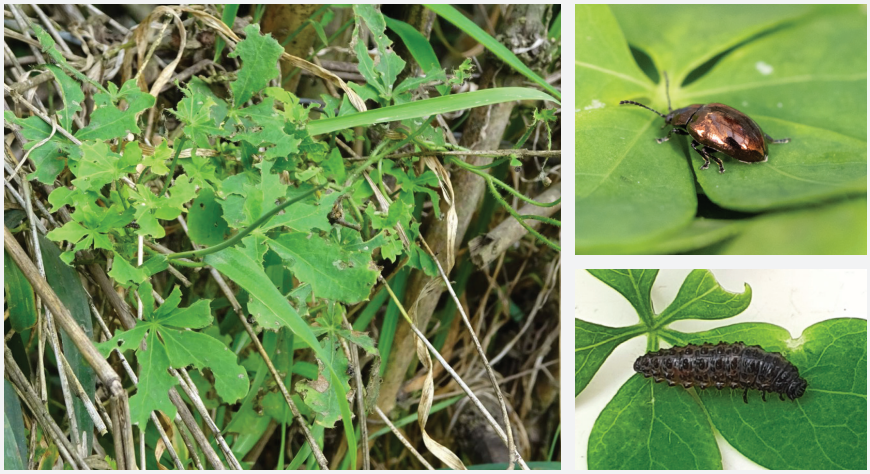
Left to right: Typical climbing growth of Chilean flame creeper covering tree-tops; close-up of flowers and leaves (Images provided by MWLR); records of Chilean flame creeper (DOC Bioweb and Weed App data as at mid-Jan 2024).

Why is Chilean flame creeper a pest?

Chilean flame creeper (*Tropaeolum speciosum*) is native to Chile and Argentina. It is an important environmental weed in New Zealand, particularly in Southland, Otago, and Canterbury. It is also present in lower parts of the North Island, and becoming a problem weed in Manawatū-Whanganui. Chilean flame creeper is a vigorous climbing plant that thrives in full sun. It grows high into tree canopies, blocking sunlight for plants below and inhibiting their growth and seedling establishment. Chilean flame creeper can reproduce both vegetatively and by bird-dispersed seeds. It is difficult to control by chemical and mechanical methods.

Chilean flame creeper beetle

The Chilean flame creeper leaf beetle is a natural enemy of Chilean flame creeper in its native range of Chile. Adults and larvae of the beetle feed on the leaves and, when available, the flowers of Chilean flame creeper, reducing plant vigour and potentially seed formation.



- *Typical feeding damage by the Chilean flame creeper beetle on its host plant (left); adult (top right); larva (bottom right) (images provided by MWLR).*

Will it pose a threat to other valued plants?

Testing was done on species based on their relatedness to Chilean flame creeper. Closer relatives are more likely to share similarities, making them the most likely non-target hosts for specialist natural enemies. Testing included several non-target crop plants in the distantly related Brassica genus, because of their economic importance in New Zealand.

The results indicated that the Chilean flame creeper beetle is host specific to the genus Tropaeolum. In addition to Chilean flame creeper, there are two naturalized exotic Tropaeolum species in New Zealand: garden nasturtium (*T. majus*) which is commonly grown as a companion plant in home vegetable gardens, and ladies' legs (*T. pentaphyllum*) which is grown as an ornamental. Larval feeding on these two species during host range testing was significantly less when compared to the target weed. For gardening enthusiasts that hold value in these species, beetle attack could be managed using insecticides. Both garden nasturtium and ladies' legs have become naturalized, escaping cultivation to form self-sustaining populations in the wild, thus having the potential to become invasive. Non-target attack by the beetle in these situations would be beneficial in helping to keep these species in check.

In the laboratory tests, very limited feeding and larval development occurred on Pak choi (*Brassica chinensis*), however, it is highly unlikely that this species, or any other Brassica species, will be field host plants of the beetle in New Zealand. To further support conclusions from laboratory experiments, field surveys of the beetle in Chile were conducted which found no evidence of attack by the Chilean flame creeper beetle on Brassica crops or wild plants. Literature searches found no association of the beetle with any Brassica crops cultivated in the native range. This combination of evidence indicates it is highly improbable that the Chilean flame creeper beetle will use Brassica species as host plants, should it be released into the New Zealand environment.

You can find more information about the Chilean flame creeper and host range testing of the leaf beetle here: https://www.landcareresearch.co.nz/discover-our-research/biodiversity-biosecurity/weed-biocontrol/approvals/chilean-flame-creeper-beetle/

Have Your Say

We value your feedback, questions, and concerns regarding the proposed release of the biocontrol agent for the Chilean flame creeper, so these can be included in the application.

Please share your feedback online at es.govt.nz/biocontrol-feedback. You will also have opportunity to submit feedback to the EPA during the public consultation process.

environment SOUTHLAND REGIONAL COUNCIL
Te Taiao Tonga