

BIOLOGICAL CONTROL OF LESSER CALAMINT

Locations New Zealand

Dates 01/07/2018 - 29/02/2020

Summary

Lesser calamint is an aromatic perennial herb that has been introduced to New Zealand from Europe. Currently present on the east coast of the North Island, lesser calamint is considered an emerging weed; it is affecting desirable pasture species and having negative economic impacts. CABI conducted field surveys and searched for natural enemies from lesser calamint's area of origin in Europe that could be introduced in New Zealand as biological control agents.

The problem

Lesser calamint (*Calamintha nepeta*) is an aromatic perennial herb in the mint family, Lamiaceae. Originating from Europe, it has been introduced to New Zealand where it is a weed on the east coast of the North Island. It is not palatable to livestock and it is displacing desirable pasture species. Although not yet widespread, lesser calamint is already having negative economic impacts on infested properties.

Controlling lesser calamint is difficult. Due to its rhizomatous root system and small hairy leaf area, using chemicals is not feasible, and mechanical control is impractical. However, biological control, i.e. introducing natural enemies from the weed's area of origin, could be a valid option.

One reason for the plant's impact may be the absence of natural enemies that attack it in its area of origin. The challenge is to find natural enemies that attack

lesser calamint but do not damage related popular herb or native species.

What we are doing

A preliminary literature survey revealed several herbivores and fungal pathogens that may have potential as biological control agents for lesser calamint.

In 2018, CABI was asked by Landcare Research, New Zealand to conduct surveys for potential agents in the native range of lesser calamint in Europe, and to collect plant material for DNA analysis to help determine this species' area of origin in New Zealand.

Results so far

In 2018 and 2019, we conducted field surveys in six European countries. Plants were checked for exo- and endophagous herbivores, as well as fungal pathogens. In addition, leaf samples were collected for molecular analyses.

During our surveys, we found a total of 32 insect species, one mite and one fungal pathogen on lesser calamint. Five of these species, i.e. the leaf beetle *Chrysolina suffriani*, the nepticulid moth *Trifurcula saturejae*, the cecidomyiid gall midge *Asphondylia nepetae,* the eriophyid mite *Anthocoptes* sp. and the rust *Puccinia menthae*, may have potential as biological control agents for lesser calamint in New Zealand. We suggest that future work should concentrate on investigating the host-range and impact of these species.

Donors

Manaaki Whenua - Landcare Research, New Zealand, Waikato Regional Council, New Zealand, Horizon's Regional Council (Manawatu-Wanganui region), New Zealand, Hawke's Bay Regional Council, New Zealand, Ministry for Primary Industries, New Zealand, Hawke's Bay Lesser Calamint Control Group, New Zealand

Partners

Biotechnology and Biological Control Agency (BBCA)

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