



BIOLOGICAL CONTROL OF BLUEWEED

Locations Canada, United States

Dates 01/04/2023 - Ongoing

Summary

Blueweed, *Echium vulgare*, is a biennial plant native to Europe and Asia that has become a problematic weed in pasture and rangelands of North America where it is classed as noxious. Biological control can be used to help manage the weed. CABI has been tasked with identifying and studying specialist natural enemies from Europe and Asia that can be potentially introduced into North America as biological control agents.

The problem

Blueweed, *Echium vulgare* (Boraginaceae), is a biennial to short-lived perennial plant with a large taproot – a straight root from which other roots sprout.

Originating from Europe and Asia, the species was introduced to North America sometime during early settlement and spread widely during the 1800s and 1900s. In western Canada, it is currently listed as noxious in Alberta, and in central and southern regions of British Columbia (Cariboo, Central Kootenay, Columbia-Shuswap, East Kootenay, Okanagan-Similkameen and Thompson-Nicola Regional Districts). It is also an invasive species in several states of the US, including Idaho, Washington and Montana.

Blueweed invades a wide range of habitats including pastures and rangelands. However, because the plant is unpalatable and toxic to livestock, it is left to displace desirable forage plants in otherwise productive prairies and rangelands.

Biological control is a method that can be used to manage blueweed. However, steps to use biological means against it in North America have not yet been taken.

In Australia, seven insect biological control agents were introduced against the closely related species Paterson’s curse, *Echium plantagineum*. At least three of them have contributed to the successful control of this pasture weed.

Since these insect species are also associated with blueweed in Europe, they may have potential as biological control agents for this weed in North America, provided they are host-specific enough.

What we are doing

CABI is working to find biological control agents that will successfully help to control the invasive blueweed in North America.

In 2023, with funding from the Ministry of Forests, British Columbia a literature survey for potential biological control agents was conducted for blueweed.

This review revealed 94 insects, one mite and seven pathogen species from blueweed. Of these, seven insects, one mite, and three plant pathogen species are reported exclusively from the genus *Echium*.

As an initial stage of the biological control programme, a test plant list is being established in collaboration with our North American partners. This list includes species native to, or of economic value to, North America. The potential biological control agents will need to be evaluated against these species before they can be considered for release. To that end, host-specificity testing with the root-feeding weevil *Mogulones geographicus* was initiated in 2025. This species is already successfully used as a biological control agent for Paterson’s curse in Australia.

Results so far

A draft test plant list was prepared by Rachel Winston (MIA Consulting) and is currently being revised by CABI and our North American collaborators. The list includes approximately 60 species from the family Boraginaceae, of which about 40 are native to North America. Based on the draft test plant list, we began sourcing and growing non-target plant species for inclusion in host-specificity testing. In parallel, we started conducting host-specificity testing with the root-feeding weevil *Mogulones geographicus*. We are also conducting additional field surveys to collect additional potential biological control agents.

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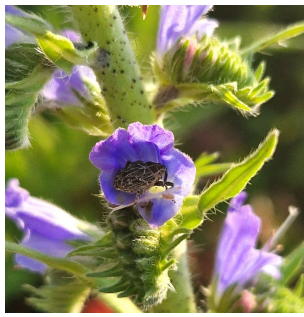
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Partners

Agriculture and Agri-Food Canada (AAFC), MIA Consulting, USA, Montana State University, USA, University of Idaho, USA

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