ALBERTA invasive species COUNCIL

BIOCONTROL RELEASE PROGRAM

WHAT IS BIOCONTROL

Biocontrol is the suppression of pest populations using living organisms. The release program started as a collaboration between Agriculture & Agri-Food Canada and several Agricultural Fieldmen in 2001. The AISC took over in 2016 and continues to use host-specific insects for invasive plant control in Alberta.

Leafy spurge, *Euphorbia esula*

LEAFY SPURGE

Leafy spurge (*Euphorbia esula*) is classified as a noxious weed in Alberta. This perennial plant blooms from June to mid-July. It reproduces through creeping roots and capsules that disperse seeds metres away, making it very difficult to control. It produces a milky sap toxic to most livestock and an irritant to human skin.

LEAFY SPURGE BEETLE

The AISC uses *Aphthona lacertosa* (black) and *Aphthona nigriscutis* (brown) beetles as biocontrol agents for leafy spurge populations. Leafy spurge beetles feed on spurge leaves and flowers limiting the plant's ability to grow. Beetles are small (3-5mm) and can lay 200 eggs in the soil. Eggs will hatch and burrow in the soil where the larvae overwinter and feed on leafy spurge roots until early spring.

HOW TO PREPARE

Here's how you can prepare for your biocontrol release:

- **Get your orders in!**
  - Orders are 'first come, first serve'; please contact AISC as soon as possible.
- **Locate ideal site for release.**
  - Spurge patch size (at least 20m x 20m).
  - Full sun, avoid tree canopy.
  - Shelter from winds, choose east, south and southeast facing slopes or bases of them.
  - Separate from herbicide treatments (at least 10m).
  - Avoid floodplains or find highwater mark as saturated soils can be detrimental to beetles that haven't yet emerged.

Leafy spurge beetle damage

Contact us:

587-999-0954

info@abinvasives.ca

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MOVING BEETLES

Once you have an established population of spurge beetles on your property, you can move them to nearby infestations of leafy spurge. Please note, not all biocontrol releases will result in established populations.

Here are some tips to help you start collecting and releasing your spurge beetles:

Leafy spurge beetles feeding on a spurge plant

Signs of leafy spurge beetle damage

When can you move the beetles?

Moving and collecting beetles is most efficient when populations of beetles are high and a site is well established with beetles (usually 3-5 years old). An established site will exhibit signs of damage to spurge plants and/or visible beetles (usually, beetles will aggregate on stems).

Remember, good collection sites will only remain this way for a few years since the plants and beetles go through cycles.

Leafy spurge beetles, *Aphthona* spp.

How do you move the beetles?

- **Gather equipment**
  - GPS, sweep nets (from BioQuipp) and plastic bags.
- **Monitor the site for beetle activity**
  - Signs of damage to spurge plants.
  - Visible beetles on spurge tops.
- **Once beetles have emerged, collect!**
  - Weather must be hot and sunny for collection.
  - Sweep net by swinging the net back and forth over the top of the plants.

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- After sweeping an area, give the beetles ~1-hour break to climb back up the spurge plant.
- Transfer beetles from the net to a plastic bag or yogurt container (with a spurge piece inside!) and store them in a cooler with ice packs.

- **Release the beetles!**
  - Weather is no issue for releasing, release in rain or shine!
  - Choose areas with no tree canopy, away from floodplains and south-facing slopes (see site requirements under 'How to prepare').
  - Release on edge of spurge patch.
  - Spread beetles around spurge plant tops.

That's all folks! The beetles will get to work on your new spurge infestation and you should see changes within a few years!

Note: spend some time collecting beetles by sweeping spurge plants and approximating the number of beetles caught to give you the best idea of the number of beetles at a site. Remember - just because a site is not worth collecting one day, doesn't mean it won't be worth it later in the season, try again in a week or two!

A biocontrol release site in MD of Pincher Creek.

Need help or have any questions?

Feel free to contact the AISC! We offer additional biocontrol agents for several invasive plants found in Alberta, please visit our website at abinvasives.ca to learn more!

Alberta Conservation Association