

Leafy Spurge

Aphthona

Aphthona lacertosa (black species) and *Aphthona nigriscutis* (brown species) are small flea beetles (1/8 in. long). These beetles are effective in dry and semi-dry areas. Both may be collected or are available in early to mid-July. Use a sweep net and transport with lots of spurge foliage. Release 1000-2000/site. *A. nigriscutis* may feed on a native Wyoming spurge though this feeding happens temporarily, after leafy spurge is suppressed and before beetle densities decline.



Spurgia

These midges develop in galls on the growing tips of spurge shoots, causing reduced flowering.

Spurgia does best in areas protected by trees, such as along rivers.

Releases should be made by transporting galled stems (with the ends in wet paper towels) to the new site. Collect in July, looking for pink pupae in dissected galls. Release 20-50 galls/site.



Weed Biological Control Resources

WebPages:

www.nysaes.cornell.edu/ent/biocontrol/

Books:

Biological Control of Invasive Plants in the United States. Coombs, Clark, Piper and Cofrancesco. Oregon State University Press, 2004.

WYO BIO Handbook: a Guide to Weed Biological Control in Wyoming. Collier. Wyoming Weed and Pest Council, 2004.

Timothy Collier
College of Agriculture
Dept. of Renewable

Tel: (307) 766-2552
Email: tcollier@uwyo.edu



Weed Biological Control in Wyoming



Weed Biological Control



Invasive plant species threaten the economic and ecological value of rangelands throughout the western United States. Biological control of weeds uses insects (and pathogens) from the weed's native range to suppress weed populations to less damaging levels. Biological control agents have been screened to reduce the risks to plant species other than the target weed. Biological control is typically used when eradication of weed infestations using herbicides is not feasible.

Canada Thistle

C. litura

This small (1/8 in. long) weevil can be an effective agent on Canada thistle growing in wet areas. Weevils may be difficult to collect when they are first abundant in April or May. Sweep netting in July or August may be more productive. *C. litura* are also commercially available.



Release 100-200 adults/site. Effects on non-target plant species have not been reported.

Musk Thistle

T. horridus

This 3/16 inch long weevil feeds on the roots of Musk thistles and can be effective along with the wide-spread weevil *Rhinocyllus conicus*. *T. horridus*



can be collected in late-June/July with a beat bucket or aspirator and is commercially available in June/July. Release 100-200 adults/site. Effects on non-target species have not been reported.

Dalmatian Toadflax

Mecinus

These weevils can effectively suppress Dalmatian toadflax in areas with less extreme winters and/or good snow cover. This 3/16 inch long weevil can be collected in early June by knocking adults into paper cups. *Mecinus* has recently become commercially available. Release 100-200 adults/site. Non-target effects are not known in Wyoming, though in the laboratory *Mecinus* may feed and develop on a native plant from California.



Spotted/Diffuse Knapweed

Cyphocleonus

These large weevils (one inch long or more) feed on knapweed roots and can be effective at sunny sites with coarse soils. Weevils may be collected by hand and are commercially available in August. Release 200/site. These host-specific weevils do not attack native knapweeds or other plants.



Larinus minutus

These quarter inch long weevils feed on knapweed foliage as adults and on flowerheads as larvae. Defoliation can be extreme and reduce knapweed infestations, especially diffuse knapweed. Weevils may be collected by sweep net or in paper cups, and are commercially available in June. Release 200/site. These host-specific weevils do not attack native knapweeds or other plants.



Photo credits: Weed Images: R. Reichenbach. Insect images: Jeff Littlefield (Montana State Univ.) and USDA ARS, and USDA APHIS courtesy of Rich Hansen.