

Frequently Asked

Questions

Are the biocontrol agents specific to the toadflaxes?

Host specificity tests are accomplished on insect predators by the USDA before they are approved for release. If the population of the weed species declines in one area, the insects will seek out other infestations of the weed.

Will the insects kill the target weed?

Biological control of weeds is a long term, sustainable, natural method of managing noxious weed problems. In most cases many years are needed for the insect population to increase enough to begin to recognize a decrease in weed population.

How and when can the general public obtain these weevils?

Private land owners as well as public land managers can contact the Insectary with their requests for insects. These requests are filled on a first come first serve basis, with no guarantee that all can be filled. The *Mecinus janthinus* adults are available in May and June and are released at that same time.

Is there a charge for the controls?

The Insectary charges a fee for most of our biological controls. Please visit our website or call for pricing.



Dalmatian Toadflax infestation at Morman Mesa, elevation 6,800 ft.

About the

Palisade Insectary

Mission Statement

Our mission is to develop and distribute safe and effective biological controls for non native weed and insect pests.

The Toadflax Biocontrol Program

Insectary personnel have been working with the two species of toadflax for more than 20 years. Previously, several other biocontrol agents were reared and released before the first shipment of *Mecinus janthinus* was received.

For more info on the toadflax biocontrol program at the Insectary please write or call:

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Biological Control of

Yellow and Dalmatian Toadflax



Division of Conservation Services
Biological Pest Control Division
Palisade Insectary

What Is

Toadflax?



Yellow Toadflax

There are two species of toadflax that are serious invasive pests in the United States. Yellow toadflax, *Linaria vulgaris*, was introduced in the 1800s from Eurasia as an ornamental. It was, and sometimes still is, sold as “butter and eggs” or wild snapdragon. It is an aggressive, invasive herbaceous perennial that reproduces by both seed and creeping rootstocks. Leaves of yellow toadflax are pale green, narrow and pointed at both ends. Flowers are yellow with an orange bearded throat and long spur. Each plant can produce up to 500,000 seeds that remain viable for up to 10 years in the soil. Seeds do not require dormancy before germination.

Dalmatian toadflax, *Linaria dalmatica*, is a native of Dalmatia, Croatia, hence the name. It has waxy, heart shaped blue green leaves that clasp the stem. Its flower is similar to yellow toadflax, except it is larger and two-lipped. It reproduces by seed and creeping rootstocks as well.



Dalmatian Toadflax

Where Is

Toadflax?

Yellow toadflax has infested 41,048+ acres in Colorado. It generally prefers higher elevations and more moist soil conditions than Dalmatian toadflax. Its range includes many acres of public land, wilderness areas, forest service, BLM and ski resorts. In fact, several ski towns maintain potted yellow toadflax plants as part of their landscaping.

Dalmatian toadflax has spread to 11,366+ acres mostly in drier, lower elevation sites throughout Colorado. It is extremely difficult to control chemically because of its waxy leaf which prevents absorption of herbicides.

Toadflax's Effect on

the Environment

The presence of the toadflaxes has a tremendous effect on the environment. These species displace natives, promote erosion, reduce ecological diversity and decrease the value of land. They also contain a poisonous glucoside that can be harmful to cattle in large amounts. Cattle, however, rarely eat toadflax. The glucoside does not harm sheep or goats but, again, its bitter taste decreases the desirability and palatability of the plants. It has been suggested that deer, elk, and birds may eat the mature seed pods which would help explain the existence of the weeds in extremely isolated areas.



Are These Insects

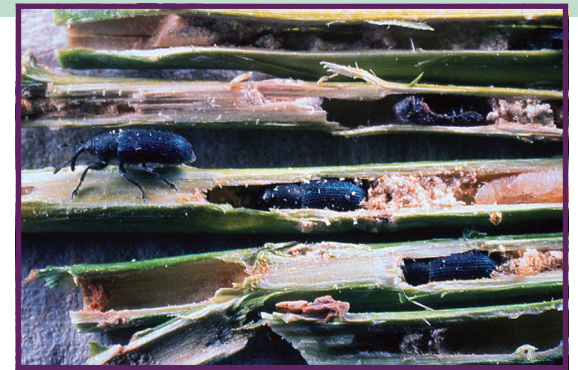
Effective?

Releases and establishments of *Mecinus janthinus* have been shown to significantly reduce flowering, seed production, and stem growth and ultimately kill Dalmatian toadflax plants. Releases in Canada and in several Western states have resulted in successful establishment, creating insectary sites from which beetles can be obtained. There have been many releases in Colorado with a high percentage of recoveries and successful establishments.

Biological Control of

Toadflax

There are several insect species that have been identified and tested for use against the toadflaxes. The most successful of these in controlling Dalmatian toadflax is *Mecinus janthinus*, a stem boring weevil. It originated in Europe's Rhine Valley and was approved for release in the U.S. in 1995. The adult weevil is shiny black, slender, 3-4 mm long and is found on the foliage of the plant. Larvae are creamy white with a light brown head capsule and are found inside toadflax stems. The weevil attacks both species of toadflax although it seems to prefer Dalmatian, because of its thicker stem.



A subspecies of *Mecinus janthinus*, *Mecinus janthinus vulgaris*, is showing promising results in controlling yellow toadflax and is being released and monitored by Insectary staff on several test plots. If proven to be effective it will be made available when populations grow to sufficient numbers for collection and distribution at our field sites.