

Biological Control Insects for Toadflax

Introduction to the Dalmatian and Yellow Toadflax:



Dalmatian and yellow toadflax are tap-rooted, short-lived, perennial forbs which have been declared noxious by the Idaho Department of Agriculture. Both of these highly competitive and invasive weeds were introduced to North America from Eurasia during the 1800's as ornamental plants, and for use in fabric dye and folk remedies. Their widespread



distribution in North America is likely due to their use as ornamental plants. These toadflaxes continue to be sold commercially in the United States as "butter and eggs", "wild snapdragon", "Jacob's ladder", or "yellow toadflax", although the sale of these two species is illegal in Idaho.

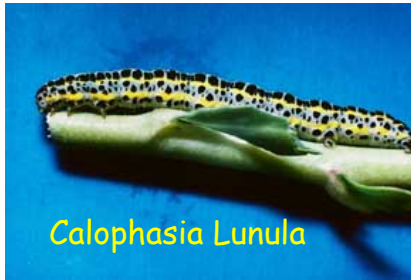
Biological Control:

Biological control of weeds is the deliberate use of natural enemies to limit the distribution and abundance of a target weed. Since Dalmatian and yellow toadflax are not native to North America, their natural enemies had to be found in Eurasia. The first biological control agents for toadflaxes were unintentionally introduced into North America with infested toadflax plants from Europe. During the late 1950s, two seed-feeding weevils, *Rhinusa antirrhini* and *R. netum* and a flower-feeding beetle, *Brachypterolus pulicarius* were discovered in Canada on yellow toadflax. These biological control agents can be found in most toadflax patches, but have not brought the plants under control.



Since then, five additional species have been screened for safety and released in North America as biological control agents: a defoliating moth,

Calophasia lunula, two root-feeding moths, *Eteobalea intermediella*, and *E. serratella*, a root-galling weevil *Rhinusa linariae*, and a stem-mining weevil, *Mecinus janthinus*. The defoliating moth is widely distributed but not reducing toadflax abundance, we are not certain if the root feeding moths or the root galling weevil have established in North America, and the stem mining weevil is beginning to show promise in controlling Dalmatian Toadflax.



Calophasia Lunula



Eteobalea sp. larvae in



Rhinusa linariae



Mecinus janthinus in Dalmatian Toadflax Stem

For more information about biological control of Dalmatian or yellow toadflax, please contact your local county noxious weed superintendent or your county extension office.