



Inside Ag

July 2012

Biocontrol Now an Option for Yellow Toadflax



Yellow toadflax, *Linaria vulgaris*, is an invasive perennial weed in the snapdragon family, sometimes called “butter and eggs” to describe the showy yellow and orange flowers. Yellow toadflax is an aggressive invader of rangelands and has now spread to fairly undisturbed areas including thousands of acres of high elevation open forest lands and meadows where it is extremely difficult to control due to the remote and inaccessible nature of the areas.

Yellow toadflax competes with native vegetation and provides poor forage for livestock and wildlife. Until three years ago it was thought that a single weevil species was the main biocontrol option for both yellow toadflax and its relative, Dalmatian toadflax. In Colorado this beetle was effective against Dalmatian but not yellow toadflax. Scientists have since discovered that this weevil actually comprises two species; one that prefers yellow and one that prefers Dalmatian toadflax.

In Colorado we have the Dalmatian toadflax stem boring weevil, *Mecinus janthiniformis* (formerly called *Mecinus janthinus*), which has helped control Dalmatian toadflax but has failed to establish on yellow. We now have the yellow toadflax stem boring weevil, *Mecinus janthinus*, and we are in the process of establishing this insect at sites around Colorado. Our cooperators with the US Forest Service in Montana report that *Mecinus janthinus* is doing very well on yellow toadflax and they have provided us with enough insects to establish them here. Our first releases in Rio Blanco County, in cooperation with the White River National Forest, have been successful and beetle populations are now well established on yellow toadflax.



The stem-boring weevils only have a single generation per season which means that their populations grow slowly. The cylindrical dark-bodied adults emerge from within the old stems where they overwinter, and begin feeding on new toadflax growth in the late spring and early summer, following snowmelt. As toadflax plants grow the weevils lay eggs in the stems, and newly hatched larvae immediately begin feeding, hollowing out the stem and killing the upper portion of the plant. Plants that have weevils boring through the stems become weakened as the tops die out.

The Insectary has released yellow toadflax stem boring weevils at sites in Rio Blanco, Eagle, Archuleta, Delta, Gunnison and San Miguel Counties. We have confirmed establishment, meaning beetles survived from one year to the next, at three sites; two in Rio Blanco County and one in Eagle County. Since most of our releases were made in 2011 we may have several more sites that show establishment.



Our goal is to establish weevils at as many sites as possible, then begin a redistribution program to get them out to all the areas of Colorado where they are needed. Thus far our released weevils have all originated from collections made in Montana and sent to the Colorado Department of Agriculture through our cooperators, the US Forest Service and the USDA APHIS. We hope that this year one or more of our field sites will have sufficient beetle populations for redistributions within the state. In addition to providing weevils for redistribution our sites also provide data on beetle population growth and impacts of weevils on yellow toadflax health and the health of native vegetation as yellow toadflax hopefully declines. This information will be used to better control the yellow toadflax invasion.