



# Knapweed Biocontrol Agents

## - a checklist for your property -



Biocontrol (short for biological control) reduces a target plant's population through carefully monitored releases of its natural enemies, such as insects. The goal is not to eliminate the weed but to reduce its population to levels that no longer cause significant environmental or economic impacts. Biocontrol agents are extensively tested and available for only some weed species. Biocontrol agents have been used in the Central Kootenays since 1951 to help control invasive plants. This long-term method of weed management may take decades to show effects.

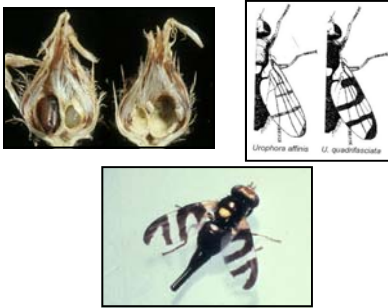
Many bioagent species have been released on knapweed in the Central Kootenay area. These agents are primarily root-attackers (weakening the plants ability to store food and water) and seedhead-attackers (reducing the number of seeds each plant produces). Given the large number of insects already released in the area, and the insects dispersal ability, many properties in this region likely have these insects present. This handout was developed by the Central Kootenay Invasive Plant Committee to assist landowners in identifying bioagents on their property.



**Seedhead-attackers** - check for these by opening seedheads throughout the year, or looking for adults in summer

*Urphora spp.*

Seedhead-attacking flies



Barrel shaped larva. Hard galls.  
Adult flies easy to see in summer.

*Metzenaria paucipunctella*

Seedhead-attacking moth



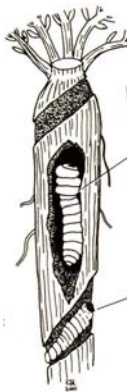
Larvae have distinct body segments.  
Papery pupal cases. Adult moths can be seen in summer.

*Larinus minutus and Larinus obtusus*

Seedhead-attacking weevils



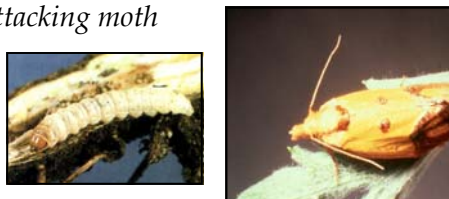
The larvae leaves a distinct shothole in the centre of the seedhead. Adults are easy to see in summer.



**Root-attackers** - check for these by scraping roots in early summer, or looking for adults in late summer

*Agapeta zoegana*

Root-attacking moth



This bright yellow moth is easy to spot in summer. The larvae is segmented and remains straight.

*Cyphocleonus achates*

Root-attacking weevil



This weevil is well camouflaged. Leaves large holes in the middle of the root. The larvae curls into a "C" and the pupae have distinct wings.

*This handout was developed for educational purposes only.*

*Illustrations taken from Ministry of Forests and Range and from Wilson and Randall (2003) "Biology and Biological Control of Knapweed". Central Kootenay Invasive Plant Committee. (250) 352-1160. [www.kootenayweeds.com](http://www.kootenayweeds.com)*