

Biological Control Insects for Knapweed

Introduction to the Knapweeds:

Knapweeds in the genus *Centaurea* are members of the sunflower family and are not native to North America. In the state of Idaho diffuse, meadow, and spotted knapweed have been declared noxious by the Department of Agriculture.

Landowners with these weeds growing on their property are required by law to manage them.



Biological Control:

Biological control is the deliberate use of natural enemies to limit the distribution and abundance of a target weed. Since the knapweeds are not native to North America, we have to go to Europe to find their natural enemies. Thirteen natural enemies have been brought to North America to control the knapweeds, including flies, moths, and beetles. These natural enemies feed in either the seedheads, or on the roots (Table 1).

The seedhead *Urophora* flies and seedhead moth are widely distributed and have not been able to control the knapweeds on their own. The other seedhead flies have not become widely distributed. More recently the seedhead feeding beetles, the root boring moth *Agapeta zoegana*, and the root boring beetle *Cyphocleonus achates* have become more abundant. Researchers now feel that a combination of the seedhead feeding and root boring beetles show the most promise for managing the knapweeds.

Seedhead Moth



Seedhead Fly



Urophora quadrifasciata

Seedhead Beetle



Root Boring Beetle



Root Boring Moth



Agapeta zoegana

Table 1: Biological control agents for the knapweeds and the noxious knapweed species they attack.

Insects		Knapweeds			
Type	Insect	Diffuse	Meadow	Spotted	
Seed-Head Feeders	Flies	<i>Urophora affinis</i>	X		X
		<i>Urophora quadrifasciata</i>	X	X	X
		<i>Terellia virens</i>	X		X
		<i>Chaetorellia acrolophi</i>	X		X
	Moth	<i>Metzneria paucipunctella</i>	X	X	X
	Beetles	<i>Larinus minutus</i>	X	X	X
		<i>Larinus obtusus</i>	X	X	X
<i>Bangasternus fausti</i>		X	X	X	
Root Borers	Moths	<i>Agapeta zoegana</i>	X		X
		<i>Pelochrista medullana</i>	X		X
		<i>Pterolonche inspersa</i>	X		X
	Beetles	<i>Cyphocleonus achates</i>	X		X
		<i>Sphenoptera jugoslavica</i>	X		X

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