

Current Status of Biological Weed Control Agents in Idaho, Oregon, and Washington

Weed	Biocontrol Agent	Oregon				Washington				Idaho			
		Distribution ¹	Attack Rate ²	Control ³	Availability ⁴	Distribution ¹	Attack Rate ²	Control ³	Availability ⁴	Distribution ¹	Attack Rate ²	Control ³	Availability ⁴
Bindweed, field (<i>Convolvulus arvensis</i>)	<i>Aceria malherbae</i>	L	M	F	L	L	M	F	M	L	L	F	L
	<i>Tyta luctuosa</i>	L	L	P	U	U	U	U	U	L	L	U	L
Broom, French (<i>Genista monspessulana</i>)	<i>Bruchidius villosus</i>	W	H	G	M	—	—	—	—	—	—	—	—
Broom, Scotch (<i>Cytisus scoparius</i>)	<i>Bruchidius villosus</i>	W	H	G	M	W	H	G	M	L	U	U	U
	<i>Exapion fuscirostre</i>	W	H	G	M	W	H	G	L	L	U	U	U
	<i>Leucoptera spartifoliella</i>	W	M	P	L	L	M	P	L	—	—	—	—
Gorse (<i>Ulex europaeus</i>)	<i>Exapion ulicis</i>	W	H	G	M	M	H	F	I	—	—	—	—
	<i>Sericothrips staphylinus*</i>	L	U	U	L	—	—	—	—	—	—	—	—
	<i>Tetranychus lintearius</i>	W	L	P	U	W	L	P	U	—	—	—	—
Hawkweeds [mouse-ear (<i>Pilosella officinarum</i>); orange (<i>P. aurantiaca</i>); whiplash (<i>P. flagellaris</i>)]	<i>Aulacidea subterminalis*</i>	—	—	—	—	U	U	U	U	—	—	—	—
	<i>Cheilosia urbana*</i>	—	—	—	—	—	—	—	—	—	—	—	—
Hemlock, poison (<i>Conium maculatum</i>)	<i>Agonopterix alstroemeriana</i>	W	L	P	L	W	L	P	L	L	L	P	L
Knapweed, diffuse (<i>Centaurea diffusa</i>)	<i>Bangasternus fausti</i>	W	H	G	M	W	H	G	M	L	L	F	L
	<i>Cyphocleonus achates</i>	L	L	F	L	L	M	E	L	L	M	G	M
	<i>Larinus minutus</i>	W	H	E	M	W	H	E	M	W	H	E	M
	<i>Pterolonche dispersa</i>	L	L	L	U	F	—	—	—	F	—	—	—
	<i>Sphenoptera jugoslavica</i>	W	H	G	L	W	H	G	M	W	H	G	M
	<i>Urophora affinis</i>	W	H	G	M	W	H	G	M	W	H	G	M
	<i>Urophora quadrifasciata</i>	W	H	G	M	W	H	G	M	W	H	G	M
Knapweed, meadow (<i>Centaurea x moncktonii</i> ; = <i>C. jacea</i> x <i>nigra</i> ; = <i>C. debeauxii</i> ; = <i>C. pratensis</i>)	<i>Larinus minutus</i>	L	M	F	L	L	M	F	L	—	—	—	—
	<i>Larinus obtusus</i>	W	H	G	M	W	H	G	M	—	—	—	—
	<i>Urophora quadrifasciata</i>	W	L	F	L	L	M	F	M	—	—	—	—
Knapweed, Russian (<i>Rhaponticum repens</i> ; = <i>Acroptilon repens</i>)	<i>Aulacidea acroptilonica</i>	L	H	U	M	L	M	U	M	L	M	U	L
	<i>Jaapiella ivannikovi</i>	L	L	L	M	L	M	U	M	L	M	U	L
	<i>Subanguina picridis</i>	L	U	U	U	F	—	—	—	U	U	U	U
Knapweed, spotted (<i>Centaurea stoebe</i> ; = <i>C.</i> <i>stoebe</i> ssp. <i>micranthos</i>)	<i>Agapeta zoegana</i>	L	H	G	U	L	M	U	L	W	L	U	L
	<i>Bangasternus fausti</i>	W	L	G	M	L	L	U	L	L	U	U	L
	<i>Chaetorellia acrolophi</i>	L	L	F	L	L	L	U	L	L	L	U	L
	<i>Cyphocleonus achates</i>	W	H	F	M	L	M	F	L	L	M	G	M
	<i>Larinus minutus</i>	W	H	E	M	W	H	E	M	W	H	E	M
	<i>Larinus obtusus</i>	W	H	E	M	L	M	G	M	L	M	F	L
	<i>Metzneria paucipunctella</i>	W	L	F	L	W	L	G	L	W	H	G	M
	<i>Sphenoptera jugoslavica</i>	W	H	G	L	W	H	G	M	L	L	P	L
	<i>Terellia virens</i>	L	M	G	L	L	U	U	U	L	U	U	U
	<i>Urophora affinis</i>	W	M	G	M	W	H	G	M	W	H	G	M
<i>Urophora quadrifasciata</i>	W	H	G	M	W	H	G	M	W	H	G	M	
Knotweed, giant (<i>Fallopia sachalinensis</i> ; = <i>Polygonum sachalinense</i> ; = <i>Reynoutria sachalinensis</i>)	<i>Aphalara itadori*</i> – Hokkaido (northern) strain	U	U	U	L	U	U	U	L	—	—	—	—

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Knotweed [Japanese (<i>Fallopia japonica</i> ; = <i>Polygonum cuspidatum</i> ; = <i>Reynoutria japonica</i>); Bohemian (<i>Fallopia x bohemica</i> ; = <i>Polygonum x bohemicum</i> ; = <i>Reynoutria x bohemica</i>)]	<i>Aphalara itadori</i> * – Kyushu (southern) strain	U	U	U	L	U	U	U	L	—	—	—	—
Loosestrife, purple (<i>Lythrum salicaria</i>)	<i>Galerucella californiensis</i>	W	H	E	M	W	H	E	M	W	H	E	M
	<i>Galerucella pusilla</i>	W	H	E	M	W	H	E	M	W	H	E	M
	<i>Hylobius transversovittatus</i>	W	H	G	M	L	M	F	L	L	L	F	L
	<i>Nanophyes marmoratus</i>	W	M	F	M	L	M	F	M	W	L	F	M
Puncturevine (<i>Tribulus terrestris</i>)	<i>Microlarinus lareynii</i>	L	M	F	U	L	M	P	U	L	L	P	U
	<i>Microlarinus lypriformis</i>	F	—	—	—	U	U	U	U	L	L	P	U
Ragwort, tansy (<i>Jacobaea vulgaris</i> ; = <i>Senecio jacobaea</i>)	<i>Botanophila seneciella</i>	W	H	F	M	W	H	G	M	L	L	F	U
	<i>Longitarsus jacobaeae</i>	W	H	E	M	W	H	E	M	W	H	G	L
	<i>Tyria jacobaeae</i> *	W	H	E	M	W	H	E	M	—	—	—	N
Sage, Mediterranean (<i>Salvia aethiopsis</i>)	<i>Phrydiuchus tau</i>	W	H	G	L	L	M	L	N	W	H	G	M
St. Johnswort (<i>Hypericum perforatum</i>)	<i>Agrilus hyperici</i>	L	H	E	L	L	H	E	L	W	H	E	M
	<i>Aplocera plagiata</i>	W	M	P	M	W	M	F	L	W	M	F	M
	<i>Chrysolina hyperici</i>	W	H	E	L	W	H	E	M	W	H	E	M
	<i>Chrysolina quadrigemina</i>	W	H	E	L	W	H	E	M	W	H	E	M
Saltcedar (<i>Tamarix ramosissima</i>)	<i>Diorhabda carinulata</i> * (formerly <i>D. elongata</i>)	W	M	F	F	—	U	—	U	L	H	G	L
Skeletonweed, rush (<i>Chondrilla juncea</i>)	<i>Aceria chondrillae</i> (formerly <i>Eriophyes chondrillae</i>)	W	H	E	M	W	H	G	M	W	H	E	M
	<i>Bradyrrhoa gilveolella</i>	L	S	P	U	U	U	U	U	L	S	F	L
	<i>Cystiphora schmidtii</i>	W	H	G	M	W	H	G	M	W	H	E	M
	<i>Puccinia chondrillina</i>	W	M	G	L	W	H	G	M	W	H	G	M
Spurge, leafy (<i>Euphorbia virgata</i> ; = <i>E. esula</i>)	<i>Aphthona cyparissiae</i>	L	H	E	L	L	M	F	L	L	L	G	M
	<i>Aphthona czwalinai</i>	L	H	E	M	L	L	U	U	L	L	G	M
	<i>Aphthona flava</i>	L	H	F	L	L	M	F	L	L	L	G	M
	<i>Aphthona lacertosa</i>	W	H	E	M	L	M	U	L	W	H	E	M
	<i>Aphthona nigricutis</i>	W	H	E	M	L	M	F	U	W	H	E	M
	<i>Hyles euphorbiae</i>	F	—	—	—	—	—	—	—	W	M	G	M
	<i>Oberea erythrocephala</i>	W	L	G	M	L	U	U	U	W	H	E	M
Starthistle, yellow (<i>Centaurea solstitialis</i>)	<i>Bangasternus orientalis</i>	W	L	P	L	W	L	P	L	W	L	P	M
	<i>Ceratapion basicorne</i> *	—	—	—	—	—	—	—	—	—	—	—	—
	<i>Chaetorellia australis</i>	W	H	E	M	W	M	G	M	W	M	G	M
	<i>Eustenopus villosus</i>	W	H	E	M	W	H	E	M	W	H	E	M
	<i>Larinus curtus</i>	W	H	E	M	W	M	F	L	W	H	E	M
	<i>Puccinia jacea</i> var. <i>solstitialis</i>	L	S	U	U	U	U	U	U	U	U	U	U
	<i>Urophora sirunaseva</i>	W	L	P	L	W	L	U	L	W	L	U	L
Thistle, bull (<i>Cirsium vulgare</i>)	<i>Urophora stylata</i>	W	H	G	M	L	M	F	L	L	L	U	L
Thistle, Canada (<i>Cirsium arvense</i>)	<i>Hadroplontus litura</i> (formerly <i>Ceutorhynchus litura</i>)	L	H	P	U	L	M	F	L	L	L	F	L
	<i>Puccinia punctiformis</i>	L	H	G	L	U	U	U	U	U	U	U	U
	<i>Rhinocyllus conicus</i> *	W	H	F	N	W	H	F	N	W	F	F	N
	<i>Urophora cardui</i>	W	H	P	M	W	H	F	M	L	M	F	M

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Thistle, Italian (<i>Carduus pycnocephalus</i>)	<i>Cheilosia grossa</i> (formerly <i>C. corydon</i>)	W	H	L	L	—	—	—	N	—	—	—	N
	<i>Rhinocyllus conicus</i> *	W	H	G	N	—	—	—	N	L	H	G	N
	<i>Trichosirocalus horridus</i> *	W	H	U	N	—	—	—	N	L	L	U	N
Thistle, milk (<i>Silybum marianum</i>)	<i>Rhinocyllus conicus</i> *	W	H	G	N	—	—	—	N	—	—	—	—
Thistle, musk (<i>Carduus nutans</i>)	<i>Rhinocyllus conicus</i> *	W	H	G	N	W	H	G	N	W	H	G	N
	<i>Trichosirocalus horridus</i> *	L	M	G	N	—	—	—	N	L	M	G	N
Thistle, plumeless (<i>Carduus acanthoides</i>)	<i>Rhinocyllus conicus</i> *	L	H	G	N	W	H	G	N	W	H	G	N
	<i>Trichosirocalus horridus</i> *	U	U	U	U	L	L	U	N	L	L	U	N
Thistle, slenderflower (<i>Carduus tenuiflorus</i>)	<i>Cheilosia grossa</i> (formerly <i>C. corydon</i>)	W	M	F	M	—	—	—	—	—	—	—	—
	<i>Rhinocyllus conicus</i> *	W	H	G	N	—	—	—	N	—	—	—	—
	<i>Trichosirocalus horridus</i> *	W	H	F	N	—	—	—	N	—	—	—	—
Toadflax, Dalmatian (<i>Linaria dalmatica</i>)	<i>Brachyterolus pulicarius</i>	W	M	P	M	W	M	P	M	W	H	E	M
	<i>Calophasia lunula</i>	L	L	P	U	W	H	F	M	W	L	U	L
	<i>Mecinus janthiniiformis</i> (formerly <i>M. janthinus</i>)	W	H	E	M	W	H	E	M	W	H	E	M
Toadflax, yellow (<i>Linaria vulgaris</i>)	<i>Brachyterolus pulicarius</i>	L	M	F	L	L	M	F	L	L	M	P	L
	<i>Calophasia lunula</i>	L	U	U	U	L	M	F	L	L	M	F	L
	<i>Rhinusa antirrhini</i> (formerly <i>Gymnetron antirrhini</i>)	W	M	U	L	L	H	G	L	L	M	U	L
	<i>Rhinusa pilosa</i> *	—	—	—	—	—	—	—	—	—	—	—	—
	<i>Mecinus janthinus</i>	L	H	E	L	L	U	U	U	L	H	E	L
Watermilfoil, Eurasian (<i>Myriophyllum spicatum</i>)	<i>Euhrychiopsis lecontei</i> *	L	L	U	U	W	M	F	U	W	L	F	L
Whitetop or hoary cress (<i>Lepidium draba</i>)	<i>Aceria drabae</i> *	—	—	—	—	—	—	—	—	—	—	—	—

¹ Distribution within host range: W = widespread; L = limited sites; F = failed to establish; U = unknown status; — = not released

² Attack rate host: H = heavy (> 70%); M = medium (> 30%); L = light (> 10%); S = slight (< 1%); U = unknown status

³ Control ability on seeds and/or plant density: E = excellent; G = good; F = fair; P = poor; U = undetermined

⁴ Availability for redistribution: M = mass collections; L = limited (Limited availability indicates biocontrol agent populations are slow in building or are recently introduced. Work on these species should be coordinated through biological control specialists at the state department of agriculture or state university); U = unavailable; N = not recommended. These biocontrol agents may attack native species and interstate shipments are no longer permitted.

*Indicates biocontrol agents where redistribution limitations may apply. See Table 2 for additional information.

Biological Control Agents and Their Roles

Classical biological control agents introduced into the Pacific Northwest for the management of weeds and the general role of each biocontrol species.

HIGHLIGHTED SPECIES (GREY) ARE NOT APPROVED BY USDA-APHIS FOR INTER-STATE COLLECTION AND RE-DISTRIBUTION.

Biocontrol Agent	Role	Weed Species
<i>Aceria chondrillae</i> (formerly <i>Eriophyes chondrillae</i>)	bud gall mite	Skeletonweed, rush (<i>Chondrilla juncea</i>)
<i>Aceria drabae</i> ^F	gall mite	Whitetop or hoary cress (<i>Lepidium draba</i>)
<i>Aceria malherbae</i>	bud/leaf gall mite	Bindweed, field (<i>Convolvulus arvensis</i>)
<i>Agonopterix alstroemeriana</i>	defoliating moth	Hemlock, poison (<i>Conium maculatum</i>)
<i>Agapeta zoegana</i>	root-boring moth	Knapweed, spotted (<i>Centaurea stoebe</i> ; = <i>C. stoebe</i> ssp. <i>micranthos</i>)
<i>Agilus hyperici</i>	root-boring beetle	St. Johnswort (<i>Hypericum perforatum</i>)