

*Centaurea x moncktonii*

WA – Class B noxious weed

OR – B listed noxious weed

## Meadow knapweed

**Family:** Asteraceae

**Range:** Scattered primarily throughout western Washington and Oregon with some heavy infestations in southeast Washington.

**Habitat:** Pastures, meadows, riparian areas, tree farms, vacant land, waste grounds and rights-of-way are at high risk for meadow knapweed infestations. Heavily disturbed land will experience greater severity and range of infestations.

**Origins:** Native range is throughout Europe. Some suggest it was introduced intentionally as a robust forage crop referred to as ‘bull clover’. Multnomah County has meadow knapweed on record as early as 1911, while the first record of this plant in

Washington was in San Juan County, 1923. Possibly introduced unintentionally through contaminated alfalfa seed, but this is unknown.

**Impact:** Desirable plant species in pastures are greatly impacted by the introduction and establishment of meadow knapweed. While not known to be particularly toxic to grazing animals, meadow knapweed displaces far more beneficial forage. Some evidence suggests meadow knapweed may produce allelopathic chemicals which have a deleterious effects on surrounding plants. Wildlife habitat is diminished by the introduction of meadow knapweed. Once an area is consumed by meadow knapweed, reclaiming that land for native or desirable species is a difficult task.

**Description:** Fast growing perennial sprouting from a root crown. Stems reach from 2 – 4 feet in height after bolting. Leaves are unique for knapweed species, and will be long and lance-shaped when growing vegetative mass. Flowers are purplish in color but some biotypes have expressed white flowers. Seed is produced in late summer to early fall and can spread a long distance due to their small size. Due to it being a hybrid species, variation in genetics causes seed viability to be more unpredictable. On average seeds are viable in the soil for 3 – 5 years after dispersal.



## Integrated Vegetation Management - Control methods

Integrated vegetation management (IVM) is a structured approach to common sense management of weeds. IVM is a vegetation-only subset of integrated pest management (IPM).

Integrated Pest Management, as defined by RCW 17.15, is a coordinated decision-making and action process that uses the most appropriate pest control methods and strategy in an environmentally and economically sound manner to meet programmatic pest control objectives.

### Non-Herbicide Control

#### **Mechanical**

Small infestations of seedlings are easy to remove by pulling or digging. As with most species, this should be repeated multiple times a year for effective control. Resprouting will occur from root crowns if not careful when removing. Bag and dispose of all pulled plants, as pulled plants will produce seed from the energy left in the root crown. Cultivating or tilling repeatedly followed by seeding with desirable species can limit the establishment of meadow knapweed.

<b>Cultural</b>	Meadow knapweed is much more palatable to livestock than other knapweed species in the Pacific Northwest. Maintaining healthy stands of grasses and forage while rotating grazing animals can limit the spread of meadow knapweed.
<b>Biological</b>	<i>Metzneria paucipunctella</i> , <i>Larinus minutus</i> and <i>Urophora quadrifaciata</i> are established biological controls for meadow knapweed. <i>Larinus minutus</i> , a seed-feeding weevil has proven to be the most effective. It is particularly effective for controlling seedlings and sprouts from existing plants when used in conjunction with other control methods.

### **Herbicide Control**

Herbicides listed by trade name are only examples of those containing the active ingredients in each category provided below. When using herbicides, follow the label for each as they provide the best information and rate recommendation. The label is the law. **For best results, a surfactant should be added to spray mixtures.**

### **Foliar Broadcast Spray**

<b>2,4-D</b> Several trade names	<b>Rate:</b> 1 – 2 lb. a.e./acre; <b>Spot spray:</b> 1- 2 oz product per gallon of water. <b>Timing:</b> Post-emergence to beginning of bolting; optimal to treat at bolting. <b>Remarks:</b> Repeated applications necessary; provides no long-term control; if near water use an aquatic formulation.
<b>Aminopyralid</b> Milestone	<b>Rate:</b> 1.25 to 1.75 oz. a.e./acre; <b>Spot spray:</b> 0.25 oz product per gallon of water. <b>Timing:</b> Post-emergence to beginning of bolting; pre-emergence for seedlings. <b>Remarks:</b> Provides some soil activity; efficacy increased when a surfactant is added; members of the Asteraceae and Fabaceae are very sensitive to this product; <b>do not</b> apply this herbicide if near water; <b>do not</b> use compost plant material that has been sprayed by this product; <b>do not</b> use manure from fields that have been sprayed with this product.
<b>Clopyralid</b> Transline, Clopyralid 3, Stinger	<b>Rate:</b> 4 to 8 oz. a.e./acre; <b>Spot spray:</b> 0.25 oz product per gallon of water. <b>Timing:</b> Post-emergence prior to bolting. <b>Remarks:</b> Use higher rate for more established stands; can also be applied to fall regrowth; best if used when plants are rapidly growing; do not apply near water.
<b>Dicamba</b> Banvel, Clarity	<b>Rate:</b> .5 to 1 lb a.e./acre; <b>Spot spray:</b> 4.8 – 9.6 mL product/gallon of water. <b>Timing:</b> Post-emergence to beginning of bolting; optimal to treat at bolting or early flowering stage. <b>Remarks:</b> Not typically used as a standalone active ingredient for knapweed treatments; do not apply near water.
<b>Picloram</b> Tordon 22K, Picloram 22K, Grazon P+D	<b>Rate:</b> 4 to 8 oz a.e./acre; <b>Spot spray:</b> ½ to 1 pint per acre; 5.4 ml to 11 ml of product/gallon of water. <b>Timing:</b> Pre-emergence and post-emergence; up to mid-bolting stage. <b>Remarks:</b> <b>For use by industry professionals;</b> lasting soil activity; higher rates may damage grasses (use lower rate or spot-treat if this becomes an issue); do not apply near water.
<b>Glyphosate</b> Roundup, Rodeo, Killzall	<b>Rate:</b> 3.375 lb a.e./acre; <b>Spot spray:</b> 2 to 4 oz product per gallon of water. <b>Timing:</b> Post-emergence; optimal to treat at bud stage. <b>Remarks:</b> Non-selective herbicide; will kill or injure monocots including desirable grasses; if near water use an aquatic formulation.

Information for this control sheet includes excerpts from the Written Findings of the Washington State Noxious Weed Control Board. Herbicide information from the PNW Weed Management Handbook (ISBN 978-1-931979-22-1) and product labels.