

Centaurea stoebe

WA – Class B noxious weed

OR – B listed noxious weed

Spotted knapweed

Family: Asteraeae

Range: Washington and Oregon are heavily impacted by this weed. Listed as a noxious weed in Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, North Dakota, South Dakota, Oregon, Washington, Utah and Wyoming.

Habitat: Fields, roadsides, grasslands, rangelands, logged areas, forest land, especially well-drained soils in full sun.

Heavily disturbed lands experience a greater impact from *Centaurea stoebe* due to stimulation of the existing seedbank causing more germination. Heavily shaded areas and wetlands typically are less impacted than other areas, but spotted knapweed will tolerate these conditions in some cases.



Origins: Native to central Europe with some examples of naturalization as far east as Asia Minor. Introduced as an ornamental flower to North America in the 1890s.

Impact: Spotted knapweed is a very aggressive and adaptive species that quickly spreads. As opposed to meadow knapweed, spotted knapweed has little to no forage value for wildlife or livestock. Treating spotted knapweed puts a huge burden on ranchers especially, due to the cost of labor for mechanical treatments and chemical control. Soil erosion is also negatively impacted by the establishment of spotted knapweed which poses ecological issues.

Description: Fast growing perennial with a stout tap root. At maturity may reach up to 4 feet in height. Multiple stems can emerge from a single root-crown, increasing flower and seed production in summer to fall. Nicin and catechin, both allelopathic chemicals, are exuded by the roots of spotted knapweed. This functions as an herbicide, reducing the overall health of surrounding plants. This increases the competitive advantage of spotted knapweed. Seeds are produced in higher quantities during wet seasons and may remain viable in the soil up to 8 years.

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	<p>Scattered plants can be hand pulled with a moderate degree of success. Repeated pulling is necessary in a single growing season. If used as a stand-alone treatment, this may significantly reduce populations over the course of 3 – 5 years. Gloves should be used anytime handling spotted knapweed as compounds in plant matter may be carcinogenic in large quantities. Moist conditions make this option more feasible as it reduces the chance of the taproot breaking in dry soil.</p> <p>Spotted knapweed cannot persist under the pressure of frequent cultivation, making it less of a burden to cropland.</p>
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Cultural	Maintaining overall environmental health can prevent spotted knapweed infestations from getting out of hand. Rotational grazing, limiting disturbance and encouraging healthy stands of desirable plants is key. Goats and sheep can minimize seed production if there is little to no other forage made available.
Biological	The banded gall fly (<i>Urophora affinis</i>), knapweed seedhead fly (<i>Urophora quadrifasciata</i>), knapweed flower weevil (<i>Larnius minutus</i>) and broad-nosed seedhead weevil (<i>Eustenopus villosus</i>) are known biocontrols for spotted knapweed. <i>Larinus minutus</i> is effective at destroying up to 100% of seed in an infested seedhead. <i>Cyphoclenous achates</i> is released to feed on knapweed roots and seem to have a more substantial effect on individual plants than seed produced in an area.

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

2,4-D Several trade names	Rate: 1 to 2 lb a.e./acre; Spot spray: 1 to 2 oz product per gallon of water. Timing: Post-emergence to beginning of bolting; optimal at early flowering. Remarks: Repeated applications necessary; use aquatic formulation if near water.
Aminopyralid Milestone	Rate: 1.25 to 1.75 oz a.e./acre; Spot spray: 0.25 oz product per gallon of water. Timing: Post-emergence to beginning of bolting; pre-emergence for seedlings. Remarks: Provides some soil activity; efficacy increased when a surfactant is added. Members of the Asteraceae and Fabaceae are very sensitive to this product. Do not apply this herbicide if near water. Do not use compost plant material that has been sprayed by this product. Do not use mature from fields that have been sprayed with this product.
Clopyralid Transline, Stinger, Clopyralid 3	Rate: 4 to 8 oz a.e./acre; Spot spray: 0.25 oz product per gallon of water. Timing: Post-emergence prior to bolting; pre-emergence for seedlings. Remarks: Use higher rate for more established stands; can also be applied to fall regrowth; best if used when plants are growing rapidly; do not use near water; use caution due to soil mobility.
Dicamba Banvel, Clarity	Rate: .5 to 1 lb a.e./acre; Spot spray: 0.16 to 0.375 oz product per gallon of water. Timing: Post-emergence to beginning of bolting; optimal to treat at bolting or early flowering stage. Remarks: Not typically used as a standalone active ingredient for knapweed treatments; do not use near water.
Picloram Tordon 22K, Grazon P+D, Picloram 22K	Rate: 4 to 8 oz a.e./acre; Spot spray: ½ to 1 pt/acre; 5.4 ml to 11 ml product per gallons of water. Timing: Pre-emergence and post-emergence; up to mid-bolting stage. Remarks: <u>For use by industry professionals;</u> lasting soil activity; higher rates may damage grasses (use lower rate or spot-treat if this becomes an issue); use caution due to soil mobility; do not use near water.
Glyphosate Roundup, Rodeo, Killzall	Rate: 3.375 lb a.e./acre; Spot spray: 2 to 4 oz product per gallon of water. Timing: Post-emergence; optimal to treat at bud stage. Remarks: Non-selective herbicide; will kill or injure monocots; use an aquatic formulation if near water.

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.