Spotted knapweed

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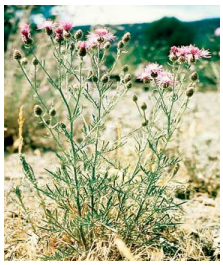
Spotted knapweed Identification and Management



Key ID Points

1. Floral bracts have black tips, with comb-like spines of equal length. Flowers are pink to purple, but rarely white.
2. Leaves are pinnately divided.

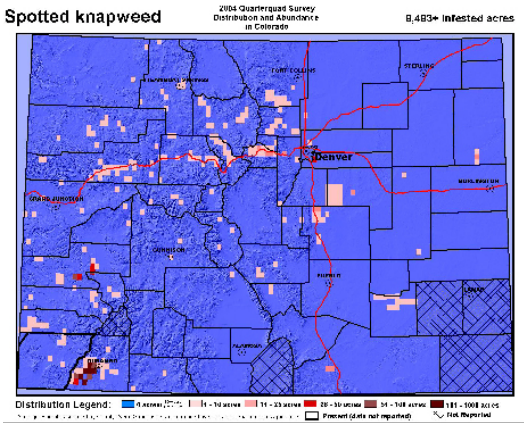
Identification and Impacts

Spotted knapweed (*Centaurea maculosa*) is a non-native short-lived perennial forb that reproduces only by seed. A prolific seed producer, Spotted knapweed can produce up to 40,000 seeds per plant. The key to distinguishing spotted from other knapweeds is the black-tipped involucral bracts (phyllaries) at the base of the flower. Unlike diffuse knapweed, there is no long, distinct terminal spine at the tip of the bracts. Spotted knapweed can grow up to 4 feet tall on erect, ridged stems that are openly branched on the upper half of the plant. Urn-shaped flowers are solitary on the end of each branch tip. Flowers are pink to purple, and rarely white. Leaves are small, oblong in shape and pinnately divided. Multiple rosettes can form on a single spotted knapweed taproot crown. Flowers bloom June to October and seed set usually occurs by mid-August.

Spotted knapweed tends to invade disturbed, overgrazed areas. It also occurs in dry meadows, pastures, stony hills, roadsides, sandy soils and sandy floodplains of streams and rivers. Since it can tolerate both dry conditions and high moisture areas, it is an especially versatile invader. Spotted knapweed and diffuse knapweed infestations often occur together in Colorado. Once established, Spotted knapweed reduces livestock and wildlife forage by out competing native species.

The most effective method of control for Spotted knapweed is to prevent seed production and its establishment through proper land management. Maintain healthy pastures and rangeland and continually monitor your property for new infestations. If Spotted knapweed is already established, using an integrated weed management approach proves to be effective. Details on the back of this sheet can help to create a management plan compatible with your site ecology.

Spotted knapweed is designated as a "List B" species on the Colorado Noxious Weed Act. It is required to be either eradicated, contained, or suppressed depending on the local infestations. For more information please visit www.colorado.gov/ag/csd and click on the Noxious Weed Program Link or call the State Weed Coordinator, Colorado Department of Agriculture at 303-239-4100.



Infestation photo, above,© John M. Randall, The Nature Conservancy. Infestation map, Crystal Andrews, Colo.Dept.of Agriculture. Flower photo, top, © Missouri Extension. Flower bract photo, left,© Paul Slichter, University of Wisconsin, Stevens Point. Leaves photo © Gary Fewless, Unviersity of Wisconsin, Stevens Point.

Centaurea maculosa

Updated on: 08/08

Management Recommendations

Spotted Knapweed

CULTURAL
Establish select grasses as an effective cultural control of spotted knapweed. Contact your local Natural Resources Conservation Service for seed mix recommendations. Bareground is prime habitat for weed invasions, maintaining healthy pastures is crucial.

BIOLOGICAL
Root and Seed head weevils (Cyphocleonus achates and Larinus minutus) attack the roots and reduce seed production in Spotted and Diffuse knapweeds. This is an option for large infestations, though optimum results take 3-5 years. To obtain the insects, contact the Colorado Department of Agriculture's Insectary in Palisade, Colorado at 970-464-7916.

MECHANICAL
Dig when the soil is moist, and remove all the taproot as well as all lateral roots. Mowing spotted knapweed at full-bloom will stress the plant, but not kill it. Be sure to bag the flowering cut plants, since the seeds remain viable even after cutting.

Integrated Weed Management:

Spotted knapweed is best controlled in the rosette stage. Enhance control by applying herbicides to the surviving rosettes in spring and fall. It is imperative to prevent seed production. Do not allow spotted knapweed flowers to appear. Management must be intense and persistent in order to deplete the seed bank in the soil.

HERBICIDES

The following are recommendations for herbicides that can be applied to range and pasturelands. *Rates are approximate and based on equipment with an output of 30 gallons per acre.* **Always read, understand, and follow the label directions. The herbicide label is the LAW!**

HERBICIDE	RATE	APPLICATION TIMING
Aminopyralid (Milestone)	5-7 ounces/acre or 1 teaspoon/gal water	Spring at rosette to early bolt stage and/or in the fall to rosettes. Add non-ionic surfactant @ 0.32oz/gal water or 1 qt/100 gal water.
Clopyralid (Transline, Stinger)	2/3 to 1 pint/acre	Apply to spring/fall rosettes - before flowering stalk lengthens. Add non-ionic surfactant @ 0.32oz/gal water or 1qt/100 gal water.
Clopyralid + 2,4-D (Curtail)	2-3 qts./acre	Apply in spring and fall to rosettes. Add non-ionic surfactant @ 0.32oz/gal water or 1qt/100 gal water.
Picloram (Tordon 22K - *this is a Restricted Use Pesticide*)	1-2 pts/acre or 0.75 oz/gal water	Apply to spring rosettes through mid-bolt and in fall to rosettes. DO NOT apply near trees/ shrubs/high water table.

Weevil photo © J. Johnson, Univ. Idaho, bugwood.org. All other photos © Kelly Uhing.

Colorado State University

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