Invasive Knapweeds

Centaurea jacea x nigra, C. biebersteinii, C. Diffusa

Asteraceae Family

WASHINGTON STATE UNIVERSITY
KITSAP COUNTY EXTENSION

Noxious Weed of Concern
Control Recommended

Identification Tips

- Perennials or biennials that form flowers in heads similar to thistle flowers but have leaves without spines. Leaves are typically blue-green and can be deeply lobed
- Begin as rosettes in the spring and develop flowering stems early in the summer

Spotted knapweed

- Flower heads are small, oval with light purple flowers like Canada thistle and have obvious vertical veins below the black triangular spot on the bract tip.
- Perennial with several upright branched stems up to 5 feet tall from a stout taproot.
- Leaves are highly lobed and sparse.

Diffuse knapweed

- Biennial or short-lived perennial that is shorter than spotted knapweed.
- Growing from a deep taproot, its upright stems have numerous spreading branches giving the plant a ball shape.
- Flower heads are small, yellowish green with spines on the edges with white flowers (sometimes pink to purple). Flower heads are solitary or in clusters of two or three at the ends of the branches.

Meadow knapweed

- Flower heads are round and fairly large, light golden brown and somewhat shiny with bright pink flowers like a bull thistle or red clover.
- Has one to several upright-branched stems from 20 to 40 inches tall from large root.
- Leaves are variable but usually coarsely lobed and long, larger at the base of the plant and smaller on the upper stem.

Diffuse Knapweed

Meadow Knapweed

Spotted Knapweed

Impacts

- Knapweeds are highly competitive plants that can exclude more desirable plants and form large, dense infestations.
- Can quickly invade disturbed sites and from these areas invade relatively undisturbed, beneficial plant communities.
- Threatens wildlife habitat and pastures and causes problems for tree growers.
- Knapweed invasions cause losses averaging up to 63 percent of available grazing forage.

Questions?

Kitsap County Noxious Weed Control Program Line: **360-307-4242**
http://kitsap.wsu.edu/noxious_weed

Management Plan

- For small sites with limited distribution, pull or dig up plants and remove s much root as possible so the plant will not re-sprout. Carefully monitor sites throughout the growing season to remove missed plants. Expect the level of control work to be intensive for the first several years due to seed banks and the soil disturbance that occurs when pulling or digging.
- Larger infestations can be treated with an appropriate herbicide for the site. Monitor the site throughout the growing season to catch any missed plants.
- For areas that have competitive grass species present, a fertilization and irrigation regime will greatly reduce the growth of knapweed. Areas that do not have competitive vegetation should be seeded whenever possible.
- Mowing alone is not recommended for control. Since the plant has the ability to flower below the mower height, mowing alone will not prevent seed production.

Early Detection and Prevention

- Survey for flowering and pre-flowering knapweed from May to July along roadsides, railroads, unmanaged grasslands and industrial areas.
- Isolated small populations can be dug up but the site should be monitored for several years to look for plants growing from root fragments and from the seed bank.
- Prevent plants from spreading from existing populations by washing vehicles, boots and animals that have been in infested areas. Seeds are small and are easily carried in mud and in animal fur.

Manual:

- Pull or dig up small infestations including the entire root if possible. Plants in sandy soil pull easily but those in hard-packed soil will require a shovel or stout trowel.
- Plants are most susceptible to hand pulling if the soil is still moist and uncompacted. Roots still tend to break off four to six inches beneath the ground. A small percentage of these root fragments will re-sprout.
- Sites where weeds are pulled need to be watched closely for new rosettes and re-sprouts throughout the growing season. The disturbed soil from pulling and digging aids in germination of any seeds present.

Mechanical:

- Plants that are periodically mowed will generally continue to flower and produce seed on shorter plants below the mower blade height.
- Cultivation can bury seeds and plant parts under the soil surface and repeated cultivation can be effective if combined with monitoring for and controlling re-sprouts.
- Provide a healthy cover crop to help prevent knapweed from re-establishing.

Biological:

There are several approved biological control agents for knapweed control. For most effective control, use a combination of several different kinds of insects on an infestation. Some biocontrol agents that may be effective are:

- Gall flies, (*Urophora affinis* and *Urophora quadrifasciata*), feed on the developing seed heads and can dramatically reduce seed production in diffuse and spotted knapweed. These insects co-exist well and are both available for collection throughout the northwest.
- Sulphur knapweed moth (*Agapeta zoegana*) attacks the roots of spotted knapweed killing young plants and stopping large plants from flowering. Favorable habitats are temperate and humid. Established in parts of Washington but difficult to collect.
- Green clearwing fly (*Terellia virens*) attacks the seeds of spotted and to a lesser extend diffuse knapweed. Available from Oregon in limited quantities.

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