

NOXIOUS WEEDS IN CLALLAM COUNTY

SPOTTED KNAPWEED

(*Centaurea biebersteinii*)

Spotted knapweed grows 8 to 40 inches tall. The upright stems are somewhat branched, mainly in the upper half.

The leaves at the base of the plant are about four inches long and divided into lobes. The blue-gray leaves become smaller higher up the stem.



The flower heads are solitary at the ends of clustered branches. The flowers, which bloom from June to October, are pink to purple, sometimes white.



The bracts, which occur at the base of the flower head, have a spinelike fringe on the upper edge and at the tip; the center “spine” is shorter than the others. The bracts also usually have a black spot on the tip but this may be lacking on white-flowered plants. If it is missing, the shorter central “spine” is usually a good ID feature.



Bracts are modified leaves, usually near a flower. In most knapweed species the bracts form a cup-like structure that supports the flower head. Some knapweeds are similar looking and differences in the bracts can be an important way of distinguishing species.

Threats:

- Spotted knapweed is an aggressive and invasive species that invades pastures and meadows, displacing forage plants but having little value as forage itself.
- It reduces the water storage capacity of soil and increases erosion.

**Spotted knapweed is a Class B designate weed in Clallam County.
Control is required county-wide.**

Look-a-likes:

At least six other knapweed species occur in Clallam County; all of them could be mistaken for spotted knapweed. They are listed below, together with some key differences.



Brown knapweed (*Centaurea jacea*):

- The basal leaves of brown knapweed are **up to six inches long and not usually divided**; basal leaves of spotted knapweed are shorter, four inches long, and are divided into lobes.
- The flowers of brown knapweed are rose to purple in color; flowers of spotted knapweed, although usually pink to purple, are sometimes white.
- Brown knapweed bracts are rounded and hairy with papery margins; the bracts of spotted knapweed are not so rounded, have a fringe and often have a black spot at the tip.



Brown knapweed bract

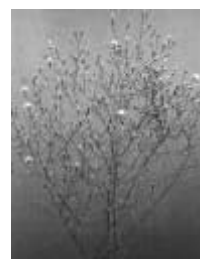
Diffuse knapweed (*Centaurea diffusa*)

- Diffuse knapweed has a branching stem and a ball-like appearance; spotted knapweed also branches but does not have the ball-like appearance.



Diffuse knapweed bract

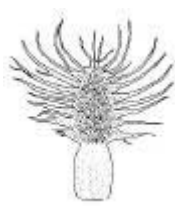
- The **bracts of diffuse knapweed have spines at the edges and tip**; the bracts of spotted knapweed are fringed on the upper edges and at the tip, usually have a black spot, and do not have spines.



Meadow knapweed (*Centaurea jacea x nigra*):



- The basal leaves of meadow knapweed are up to six inches long and are not divided; the basal leaves of spotted knapweed are shorter, about three inches long, and are divided into lobes.
- The flower heads of meadow knapweed are at least one inch wide; the heads of spotted knapweed are narrower, about half an inch wide.



Meadow knapweed bract

- Meadow knapweed bracts have **fringes as wide as the body of the bract**; spotted knapweed bracts have a smaller fringe on the upper edge and at the tip, and usually have a black spot at the tip.



Russian knapweed (*Acroptilon repens*):



- Russian knapweed **leaves are not obviously divided**; the leaves of spotted knapweed are very obviously divided into lobes.



Russian knapweed bract

- Russian knapweed bracts are green and not fringed, just slightly hairy; the bracts of spotted knapweed are brown, have a fringe on the upper edge and at the tip and usually have a black spot on the tip.



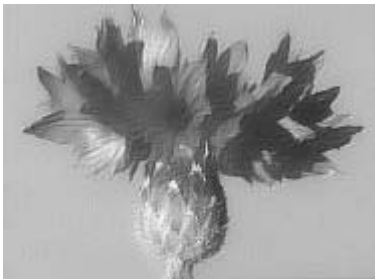
The four lookalikes listed above are all weedy species and control of them is required by state law. The remaining two, although they can be weedy are not as invasive as those described above, and are not listed as noxious weeds.

Montana knapweed (*Centaurea montana*):

- The leaves have an extension that looks like a wing growing down the stem; spotted knapweed does not have this.
- The flower heads are large—up to two and a half inches across; the flower heads of spotted knapweed are about an inch and a half across.
- The **flowers of Montana knapweed are usually blue**; spotted knapweed are pink to purple, sometimes white.



Bachelor's button (*Centaurea cyanus*)



- The **leaves of bachelor's buttons are entire**; spotted knapweed leaves are obviously divided into lobes.
- The flowers of bachelor's button can be white, blue, pink, purple or red; spotted knapweed flowers are usually pink or purple, occasionally white.

All of our thistles (Canada thistle, bull thistle and the native, edible thistle) look a little like spotted knapweed, but they all have prickly leaves which spotted knapweed does not have.

History:

Spotted knapweed is native to central Europe. It was probably introduced to this country with alfalfa seed. Some sources indicate its presence in the Pacific Northwest as early as 1893. It was first observed in Washington in 1923. It is fairly common on roadsides and disturbed sites on the east side of Clallam County, with one major infestation in and around the Carlsborg Business Park.

Ecology:

- Much of the spotted knapweed in Washington grows on land classified as industrial, including gravel pits, railroads and equipment yards—places from which seed can easily disperse.
- It is perennial which reproduces mainly by seed.
- The seeds are too heavy to be distributed very far by wind alone; they fall to the ground within a few feet of the plant. Movement over greater distances requires a form of transport such as rodents or livestock or, quite frequently, vehicles. The roots of the plant can sprout, giving rise to new plants, but reproduction is primarily by seed.

CONTROL

Prevention and early detection are the best means of control.

- **Practice** good pasture management; avoid overgrazing, irrigate and fertilize as needed, and reseed bare ground. A healthy pasture will resist weed invasion.
- **Use** weed free hay and seed; avoid introducing weed contaminated soil
- **Clean** equipment which has been used in areas known to have spotted knapweed.
- **Revegetate** disturbed areas quickly to prevent infestation by spotted knapweed.
- **Remove** seedlings when young; newly established plants can usually be pulled without leaving root fragments in the ground.
- **Replant** newly weeded areas with desirable (preferably native) plant species that will discourage reinfestation.
- **Dispose** of weeds properly, bag or burn seed heads or fragments that may resprout.
- **Monitor** site for several years; promptly remove new seedlings.

HANDPULLING can be effective for small infestations, especially when the ground is moist, but disturbing the soil may increase germination of seeds still present in the soil.

MOWING, if used as a means of control, should be done after most of the flowering has ended, but before seeds have matured (flower is open less than 10 days). At this time there is not usually enough moisture available for the plants to regrow.

Caution: Anyone working with spotted knapweed should wear protective gloves and avoid getting sap into open cuts or other abrasions.

BIOLOGICAL CONTROL: Two gall flies, *Urophora affinis* and *Urophora quadrifasciata*, a moth, *Metzneria paucipunctella*, and a beetle, *Shenoptera jugoslavica*, have been introduced into North America for biological control of knapweeds.

HERBICIDES can be effective, but should always be applied with care. Do not apply herbicides over or near water bodies. Read the label to check that you are applying an herbicide in the right place, to the right plant, at the right time, and in the right amount.

- Selective herbicides such as Curtail™ (2,4-D + clopyralid), Stinger™ (clopyralid) are effective, but consult the label for crop rotation restrictions before using either of these. Several crops may be injured up to four years after application of the herbicide.
- Roundup™ (glyphosate) is also effective on spotted knapweed, but it is non-selective and will kill other plants also, including grasses that might outcompete knapweed seedlings. Application of Roundup™ should be followed by revegetation.

None of these herbicides will prevent germination of weed seeds already in the soil, so monitoring and retreatment are necessary.