Weed Identification and Control Sheet:

GOOD OAK LLC ecological services

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Spotted Knapweed (*Centaurea biebersteinii*)

WI NR-40: Restricted

-5 Highly Invasive

DESCRIPTION:

Spotted knapweed is found in 46 states in the US, 89 national parks, covering over 7 million acres and causing hundreds of millions of dollars of economic damage each year. It is an extremely difficult weed to control especially in dryer sandy or rocky soils. It is typically found in disturbed sites such as roadsides, pasture and old fields, but is also capable of invading relatively undisturbed natural areas. This member of the Aster family was likely introduced from Eurasia as a contaminant in alfalfa or hay seed. It is legally classified as a noxious weed in fifteen states.

The primary means of reproduction is by seed, producing roughly 1,000 per plant, which can remain viable for up to 8 years. The seeds typically do not travel far from the parent plant on their own, but can be widely spread by livestock, contaminated hay, vehicles, and mowers. Knapweed seedlings germinate in the fall or early spring. They form deep tap roots, and a network of lateral roots (rhizomes) that allow it form large colonies. These roots exude an allelopathic compound into the soil that inhibits growth of other plants hinder restoration efforts.

Spotted knapweed grows to 1-4' in height. The vegetation has a pale "frosty" appearance. Leaves of this species are rough and upon closer inspection you can see they are covered with translucent dots. The lower basal leaves are relatively large, up to 6" long and finely divided with deep lobes. The upper leaves are 1-3" in length and narrow. The stems are thin, hairy, erect and finely branching. The flowers looks similar to those of thistles with a pinkish-purple flower that blooms from late June through September. The flowers occur individually at the tip of the branching stems.

CONTROL METHODS:

Organic: For small populations, try hand-pulling or digging when the soil is loose and/or moist, making an effort to remove as much of the root as possible. This is best done during the blooming stage before seeds develop. If even some of the seed heads have developed seeds then be sure to dispose of them in the trash or incinerate it. This method is only complete effective on first year, seedling plants, for more mature individuals much of the root will remain in the soil, so repeated treatments will be needed.

Repeated mowing from mid-summer to mid-fall as the plants flower will help reduce seed production, and weaken the knapweed, but has not proven successful as a method of eliminating this species.

Prescribed burns conducted in fall or early spring may be helpful at killing new seedlings before they can become established.

Chemical: Knapweed is well know to being resistant to management including most herbicides. Clopyralid (Transline®) is a broadleaf specific herbicide that is effective on spotted knapweed, but should not be used on highly permeable soils since groundwater contamination may occur. Aminopyralid (Milestone®) is an effective alternative. Both of broadleaf specific herbicides will generally not harm grasses, but may kill any broadleaf plant they encounter, particularly plants in the aster and legume families. Use them with caution. If the above are not available then glyphosate (Round-Up®, etc.) will have some effect but multiple applications will be needed for control. Foliar application can be done on the rosettes and bolting plants just prior to flowering. Carefully read the label of any herbicide you intend to use and follow instructions for application.

NATIVE ALTERNATIVES:

Since this is a full-sun weed we recommend a diverse selection of prairie species to replace and compete against spotted knapweed in order to develop a more stable and productive plant community for the site. Initially, interseeding with native grasses will allow the continued use of broadleaf-specific herbicides on the knapweed until the population is eliminated from the site. Contact us for specific recommendations.

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