

IDENTIFICATION AND CONTROL OF MINNESOTA
NOXIOUS WEEDS AND WEEDS OF CONCERN
IN THE GRASSLANDS OF
BIG STONE /TRAVERSE COUNTY

WEEDS WON'T WAIT.
DON'T HESITATE!

BIG STONE/TRAVERSE COUNTY
COOPERATIVE WEED
MANAGEMENT AREA

Big Stone/Traverse County Soil & Water



Phone: (320) 839-6149

www.bigstoneswcd.org

Who we are:

The Big Stone/Traverse County Cooperative Weed Management Area (BSCCWMA) is a collective group of the following organizations and agencies:

- MN Department of Transportation (MNDOT)
- Big Stone/Traverse County Highway Department
- Big Stone/Traverse County Weed Inspector
- US Fish and Wildlife Service (USFWS)
- MN Department of Natural Resources (DNR)
- Natural Resources Conservation Service (NRCS)
- Farm Service Agency (FSA)
- Private Citizens
- Pheasants Forever

Our Mission:

The mission of the Cooperative Weed Management Area (CWMA) program is to reduce the environmental and economic threats posed by invasive plants to the grasslands of Big Stone/Traverse County, through education, documentation (mapping), treatment and monitoring, and where necessary, re-seeding with native vegetation. A pro-active program that identifies small infestations of invasive plants and targets them for eradication is the most cost effective approach to preventing invasions. In this way, we are 'working on the weeds of tomorrow, today!'

Our Goals:

Protect the grasslands of Big Stone/Traverse County by decreasing the impacts of invasive plants by:

- Raising awareness of the invasive species problem;
- Building partnerships;
- Preventing the spread of invasive species;
- Identifying new invasive species;
- Managing existing invasive species populations;
- Sharing resources with local citizens, landowners and organizations including: educational materials, supplies and biological controls, expertise, and information on local species.

Why the CWMA is important:

The agencies and organizations involved are actively managing invasive plants, but through the CWMA our efforts can become coordinated. It allows us to improve effectiveness and efficiency of management activities, manage across jurisdictional boundaries, pool available resources, apply for grants, and prioritize issues.

Why You Should Worry About Weeds:

According to Minnesota rules and statutes, noxious weeds are plants that are injurious to public health, the environment, public roads, crops, livestock, and other property. These noxious and invasive plants cause annual economic losses in the billions of dollars for agriculture, natural resources management agencies, and road departments.

Besides the damage to crops, livestock, and range and pasture land, invasive plants are considered to be one of the main causes of native plant and animal extinction. They reduce diversity of native species, degrade habitat and food for wildlife, change plant communities, and alter natural fire regimes. They are also known to prevent establishment of native seedlings, including trees and shrubs, shade out understory plants, out-compete desirable plants for nutrients, moisture, space, and sunlight, and change soil structure and chemistry. Some can be deadly to pets and humans.

By controlling noxious weeds, especially when infestations are small, economic losses can be mitigated, property values and wildlife habitat increased, and the likelihood of illness or injury to humans or livestock reduced. For this reason, the Big Stone/Traverse County CWMA is *working on the weeds of tomorrow, today!*

What You Can Do:

You can help by becoming a trained "weed watcher," skilled in the identification of new invaders. Join the "Rapid Response Team" to help us locate small infestations, so they can be treated before they become well established invasions. These targeted weeds affect our health, our economy, our crops, our livestock, range and pasture land, and some weeds can even be deadly to humans and animals.

You can help prevent the spread of plants by removing seeds from equipment, learning the most effective means and timing of control methods, and participating in the cost-share treatment program if targeted weeds are found on your land.

Cooperation!

Cooperation is paramount to achieve the mission. Invasive plants disperse widely across the landscape. Effective management requires cooperative efforts *across jurisdictional boundaries*.

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Photo credit: U.S. Fish and Wildlife (USFWS)

QUEEN ANNE'S LACE (*Daucus carota*)

Concern: Leaves may be fatal if ingested and handling may cause skin irritation or allergic reactions. A serious pest in pastures.

Habit and Life Cycle: Biennial that reproduces by seed. Found in disturbed areas. Blooms July to October.

Identification: Compound leaves with carrot-like odor. Small white flowers, 5 petals, occur in 3-5 inch flat umbels at ends of stems. Plant height 2-4 feet.

Cultural Control Options: Can be hand pulled or mowed before seed set in mid to late summer. Wear gloves to avoid absorbing toxins. Grazing by sheep or goats.

Chemical Control Options: First year rosettes are susceptible to 2,4-D, triclopyr, and metsulfuron.

Additional Information: Minnesota Secondary Noxious Weed. Also known as wild carrot.



Photo credit: The MN Department of Agriculture (MDA)

GARLIC MUSTARD (*Alliaria petiolata*)

Concern: Roots secrete a toxic chemical that poisons the soil, preventing other plants from growing. Out-competes native early-spring wildflowers.

Habit and Life Cycle: Biennial that reproduces by seed. Found in shady areas. Blooms in May.

Identification: Basal leaves are heart shaped, stem leaves are toothed, and triangular in shape. Flowers have 4 white petals. Plant height is 12-36 inches. The only plant blooming white in wooded habitats in May.

Cultural Control Options: Hand pulling, removing or cutting the flower stalk, or burning. A high-BTU propane torch may be used to burn garlic mustard plants in fall or early spring when most natives are dormant.

Chemical Control Options: Glyphosate is effective when applied in late fall or early spring when other plants are dormant. Monitor annually and treat if necessary for at least five years, or until seed bank is exhausted.

Additional Information: Minnesota Prohibited Noxious Weed. Seeds may be viable in soil for up to 5 years.



Photo credit: The MN Dept. of Ag. (MDA)

COMMON TOADFLAX (*Linaria vulgaris*)

Concern: A concern for livestock owners as parts of this plant are poisonous and can kill off a herd.

Habit and Life Cycle: Colonizing perennial, found in pastures, roadways, and gravelly/sandy soils. Reproduces by seed and rhizomes (roots). Blooms July to late September.

Identification: Leaves are gray-green, numerous, lance-shaped with smooth margins and are hairless. Flowers are yellow with an orange throat. Plant height is 1-2 feet.

Cultural Control Options: Intense cultivation on appropriate sites, or frequent mowing. Hand pull small patches. Do not plant wildflower mixes that contain this species. Two European beetles feed on buds, flowers and seed capsules.

Chemical Control Options: Herbicides are most effective when plants are flowering. Spray with Metsulfuron. Repeated applications will be necessary.

Additional Information: Noxious weed in several western states. Also known as Butter and Eggs. Seeds viable up to eight years. Dalmation toadflax (*Linaria dalmatica*) is similar and equally invasive.



Photo credit: The MN Department of Agriculture (MDA)

CROWN VETCH (*Coronilla varia*)

Concern: Once established it is difficult to remove. Invades native areas such as grasslands, prairies and dunes.

Habit and Life Cycle: Perennial legume, preferring full sun. Spreads from roadsides into remnant prairies and planted grasslands. Blooms May through August.

Identification: Pea-like, pinkish and white flower clusters. Leaves pinnately compound with 15-25 ovate-oblong leaflets.

Cultural Control Options: Annual prescribed burns in late spring for several consecutive years. Mow twice a year in June and August. Hand pull small patches repeatedly.

Chemical Control Options: Spring burning will expose new growth to foliar herbicide applications with clopyralid, or 2,4-D herbicide. If near water use aminopyralid or triclopyr amine herbicide.

Additional Information: Cow vetch (*Vicia cracca*) and hairy vetch (*Vicia villosa*) are similar and equally problematic.



Photo credit: Pope SWCD



Photo credit: Pope SWCD

WILD PARSNIP (*Pastinaca sativa*)

Concern: Sap can cause fierce blisters and burning rashes on skin in humans and livestock, especially once exposed to sunlight. Skin discoloration from rashes can last months, even if treated.

Habit and Life Cycle: Biennial that reproduces by seed. Found in pastures, prairie remnants, planted grasslands, and roadsides. Blooms late May through September.

Identification: Leaves are coarse with large-toothed edges. Flowers are yellow and umbrella shaped.

Cultural Control Options: Hand pulling, wearing gloves. Cutting root with spade. Mowing the second year prior to flowering.

Chemical Control Options: Late fall or early spring applications of 2,4-D or metsulfuron-methyl. Apply to rosettes for best results.

Additional Information: Weed of special concern. Wear protective clothing. Do not compost. Seeds remain viable to germinate for up to four years.



Photo credit: The Minnesota Department of Agriculture, MDA

COMMON TANSY (*Tanacetum vulgare*)

Concern: Consumption of this plant can result in illness, convulsions and even death! Although common tansy is avoided by most livestock, it is toxic to cattle if consumed.

Habit and Life Cycle: Perennial, that reproduces primarily by seed, but also spreads by rhizomes (roots) which aid the persistence of this invasive weed. Blooms July through October. Found in grasslands, roadsides, forest margins, wastelands, and riparian areas.

Identification: Grows 2 to 5 feet tall. The stems are erect, reddish-brown in color and un-branched except for the flowering portion. This plant has an alternate leaf arrangement with pinnately compound leaves and deeply serrate margins. The flowers are yellow, button-shaped disc flowers arranged in clusters at the top of stems. Each disc is composed of many small flowers and is strongly aromatic.

Cultural Control Options: Cultural controls like mowing and hand pulling must be done before flowering to reduce seed production. Mowing and hand pulling will usually leave root fragments that will re-sprout and flower on a short stem. Sheep and goats are known to graze on it and be an effective control method if managed properly.

Chemical Control Options: Chemical control entails spot spraying 2,4-D, clopyralid (Trade names: Transline and Pyramid), or metsulfuron-methyl (Trade names: Ally, Allie, Gropper, and Escort and Cimarron®) with a surfactant. These chemical treatments are effective, but may need to be repeated.

Additional Information: State listed secondary noxious weed. Tansy has a long history of medicinal use, but the plant's toxic properties are cumulative. Wear gloves when hand pulling to avoid absorbing toxins through skin.



SPOTTED KNAPWEED (*Centaurea stoebe* spp. *micranthos* synonym *C. biebersteinii*)

Concern: Serious problem for agriculture and cattle producers because it spreads fast and prevents the growth of neighboring plant species, limiting forage for wildlife and livestock. Although it is not well documented, there are concerns knapweed chemicals may be linked to tumors.

Habit and Life Cycle: Biennial or a short lived perennial that reproduces by seed. Blooms late June through September with individual flowers blooming for two to six days. Found in pastures, prairie remnants, planted grasslands, and roadsides.

Identifications: The leaves are alternately arranged and have a pale grayish green color. Deep narrow lobes divide the basal leaves. Flowers are pinkish or purplish in color.

Cultural Control Options: Hand pull or spray small infestations. It is essential to remove the entire root to prevent re-sprouting. Wear gloves to prevent skin irritation. Use biological control and/or targeted grazing by goats for large infestations. Infestations need to be at least two acres in size to support bio-control insect populations.

Chemical Control Options: Aminopyralid (Milestone®) and Clopyralid (Transline® and Pyramid®), are fairly effective and more selective than other herbicides. It is vital to repeat treatments for several years to deplete the seed bank. When treating rosettes use 2,4-D water-soluble amine formulation in the fall and early spring.

Additional Information: State listed secondary noxious weed. Seeds germinate throughout the growing season and are viable for up to nine years. This makes it hard to control this invasive weed without multiple treatment procedures throughout many years until the seed bank is depleted.



PURPLE LOOSESTRIFE (*Lythrum salicaria*)

Concern: Invades and destroys wetlands, replacing cattails and other native plants, making it extremely difficult for other species of plants and wildlife to create a suitable habitat for their survival.

Habit and Life Cycle: Perennial reproducing primarily by seeds. Found in wetlands and riparian areas. Blooms July to September.

Identification: Opposite leaves are linear, hairy, and have smooth edges. Cylindrical spikes of flowers are deep pink to purple, with 5-7 petals. Square stem. Plant height is usually 4-6 feet.

Cultural Control Options: Small infestations may be dug or hand pulled before plants go to seed. Biological control is an effective tool for most large infestations.

Chemical Control Options: Herbicide should be formulated for wetlands (glyphosate or triclopyr), during bud or early flowering.

Additional Information: Minnesota Prohibited Noxious Weed. Sometimes confused with other plants such as blazing star (*Liatrix* spp.) and fireweed (*Epilobium angustifolium*.)



Photo credit: U.S. Fish and Wildlife (USFWS)

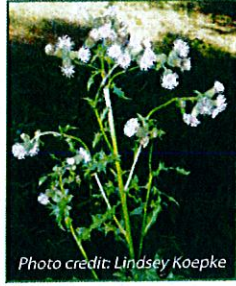


Photo credit: Lindsey Koepke

CANADA THISTLE (*Cirsium arvense*)

Concern: Can greatly reduce crop production, especially corn, wheat and soybeans. Affects forage production. Can greatly reduce species diversity in native restorations.

Habit and Life Cycle: Aggressive, dioecious perennial forb that reproduces by seed and rhizomes. Found in pastures, meadows, roadways, and crop lands.

Identification: Wavy leaves with spiny margins. Flowers are rose-pink to white without spines. Blooms late June to September.

Cultural Control Options: Mowing in early bud stage, several times a year for several years will reduce root reserves and prevent seed production. Mowing after flowering will spread seed. Mowers should be cleaned if used in areas with flowering thistle.

Chemical Control Options: Pre-bud or fall application to rosettes of clopyralid or aminopyralid. May require multiple applications.

Additional Information: Minnesota Prohibited Noxious Weed. A major agricultural pest but usually does not pose a threat to high quality prairie.



Photo credit: U.S. Fish and Wildlife (USFWS)



Photo credit: U.S. Fish and Wildlife (USFWS)

LEAFY SPURGE (*Euphorbia esula*)

Concern: Poisonous to cattle and causes severe eye irritation and possible blindness in humans.*

Habit and Life Cycle: Perennial that reproduces by seeds, root fragments, and rhizomes. Found in pastures, roadways, and grasslands. Blooms June to late July.

Identification: Stems contain a milky juice called latex. Leaves are bluish-green, narrow, and linear. Flower bracts are yellowish-green. Plant height 6 – 36".



Photo credit: Pope SWCD

BIENNIAL THISTLES PLUMELESS (*Cardus acanthoides*), BULL (*Cirsium vulgare*), & MUSK (*Cardus nutans*)



Photo credit: Pope SWCD

Concern: Affects available forage because it is distasteful to most grazing animals.

Habit and Life Cycle: Reproduces by seed. Found in pastures, prairie remnants, planted grasslands, and roadsides. Blooms June through August.

Identifications: Leaves, simple, alternate, very spiny. Flowers large, purplish. Plant height 2 to 7 feet.

Cultural Control Options: Cultural controls consist of proper grazing management and rotational grazing, because overgrazing weakens desirable plant species competition. For smaller infestations, chopping plants 1 to 2 inches below soil surface is an effective control, as well as cutting flower heads off and bagging for proper disposal.

Chemical Control Options: Apply 2, 4-D, aminopyralid, or clopyralid herbicide to rosettes, prior to bolting, usually by the end of May, or in fall. May require multiple applications over several years.

Additional Information: Minnesota Primary Noxious Weeds. Seeds stay viable for up to ten years.

Cultural Control Options: Mow prior to flowering. Consider biological control for large infestations. Spurge beetles are very effective. Sheep and goats can be used in conjunction with biocontrol insects. Contaminated hay should not be moved.

Chemical Control Options: Pre-bud or fall application of imazapic (Plateau) or 2,4-D and Dicamba.

Additional Information: Minnesota Prohibited Noxious Weed.



Photo credit: U.S. Fish and Wildlife (USFWS)

COMMON BUCKTHORN (*Rhamnus cathartica*) or GLOSSY BUCKTHORN (*Rhamnus frangula*)

Concern: Takes away nutrients, sunlight and moisture from native plants around it, causing erosion and the destruction of wildlife habitat and inhibits growth of native saplings.

Habit and Life Cycle: Woody perennial that reproduces by seed or sprouting stumps. Commonly found along woodland edges and in the understory of woodlots.

Identification: Small tree with dark green, glossy, oval shaped leaves. Retains leaves late into fall.

Cultural Control Options: Cut or pull seedlings (limited success) or annual burn during leaf-out.

Chemical Control Options: Foliar or cut stump applications of glyphosate or triclopyr in the late summer through winter.

Additional Information: A Restricted Weed. Can not be bought, sold, or transported in Minnesota. Is an alternate host for crop pests (soybean aphids).



Photo credit: U.S. Fish and Wildlife (USFW)

EASTERN RED CEDAR (*Juniperus virginiana*)

Concern: A significant threat to native prairies where it shades out grasses. Consumption by cattle has been reported to infrequently cause abortions.

Habit and Life Cycle: Evergreen member of the Cypress family. Spreads rapidly in grasslands with drier soils once seed production begins. Reproduces by seed.

Identification: Bark is thin and shreds in strips.

Cultural Control Options: Controlled burns will kill small trees if enough dry grass is present. Cut trunks at the base to kill mature trees.

Chemical Control Options: Chemical control is unnecessary when stump is cut below the lowest branch.

Additional Information: An alternate host for cedar-apple rust.



Photo credit: U.S. Fish and Wildlife (USFWS)

BOX ELDER (*Acer negundo*)

Concern: This tree can invade and dominate grasslands in just a few years. Pollen can cause airborne contact dermatitis in humans.

Habit and Life Cycle: Fast growing native deciduous tree in the Maple family that prefers low, wet areas. Easily invades planted grasslands.

Identification: Compound opposite leaves, 5-8 inches long with 3 oval, paired leaflets and an additional leaflet on the end. Leaflets are 2-4 inches long.

Cultural Control Options: Hand pulling or mowing seedlings. Cut and remove mature seed producing trees.

Chemical Control Options: Basal bark treatment with triclopyr formulated for use with oil is generally effective on this species. Cut-stump treatment with glyphosate or triclopyr is also effective.



Photo credit: U.S. Fish and Wildlife (USFWS)

SIBERIAN ELM (*Ulmus pumila*)

Concern: Can invade and dominate grasslands in just a few years.

Habit and Life Cycle: Fast growing non-native deciduous tree that can form dense thickets of hundred of saplings.

Identification: Small alternate leaves (1-2 inches long), elliptic and toothed. Rarely more than 60 feet tall. Bark is dark gray and shallowly furrowed on a mature tree.

Cultural Control Options: Girdling in late spring. Pulling or prescribed burning will kill seedlings.

Chemical Control Options: Cut-stump treatment with glyphosate or triclopyr, or basal bark spray with triclopyr ester.

Big Stone/Traverse County Soil & Water



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