The Weed Watch

A Publication of Panhandle Research Integration for Discovery Education Weed Management Area in conjunction with High Plains, Sandhills, West Central, Platte Valley and Twin Valley Weed Management Areas and the Middle Niobrara Weed Awareness Group

SPRING 2017

The Value of Nebraska's Native Thistles

By Erin Divine, Bird Conservancy of the Rockies, Coordinating Wildlife Biologist

Thistles. Those pink or purple flowered prickly plants in the sunflower family (Asteraceae) that tend to evoke feelings of antagonism and strong dislike. Culturally we really just don't like thistles. In the case of invasive non-native invasive thistles, the dislike makes sense. The spread of non-native thistles presents environmental and agricultural problems that people expend great effort to address. Unfortunately, some of that effort may be unnecessary since it is often directed at eradicating all thistles indiscriminately. Our native thistles tend to get a bad reputation right along with the non-natives even though native thistles do not typically exhibit the same invasive, weedy tendencies. In reality, native thistles are a group of wildflowers that are just as much a part of prairie ecosystems as more well-loved groups of wildflowers like coneflowers, penstemons, or prairie clovers. A lot of information is available about the need to get rid of invasive thistles and how to do it. This article focuses on why we should keep native thistles around and start thinking of them as "wildflowers" rather than "weeds".

Platte Thistle at Big Alkali Lake, Cherry County

Thistle Identification

Telling thistle species apart can be difficult. To the best of my knowledge, there are no fully reliable physical characteristics to distinguish all native thistles from non-native thistles, but in general, native thistles tend to be less spiny with the spines more localized on leaf margins. Many native thistles also have thick, white hairs on the underside of leaves, giving the leaves a two-toned appearance; light on bottom, darker on top. Most of the non-natives have hairless or sparsely haired leaves. Native thistles are usually found as single plants or in small clumps rather than the expansive stands often formed by non-native thistles. Occasionally, in disturbed sites, native thistles such as Flodman's thistle, can form localized stands, but are less likely to expand than non-native thistles.

We have 10 species of thistle in Nebraska, 5 native (tall, Platte, Flodman's, yellowspine, and wavyleaf) and 5 non-native (plumeless, musk, Canada, bull, and Scotch).

Eastern tiger swallowtail butterfly on Flodman's thistle. Open Fields and Waters land west of Ainsworth, Brown County.

The Value of Native Thistles

Native thistles provide highly valuable food resources for a wide variety of insects, including: honey bees, bumble bees, long horned bees, leafcutter bees, sweat bees, syrphid flies, butterflies, hawk moths, soldier beetles, leaf beetles, scarab beetles, and parasitoid wasps. This food source is increasingly important as many of our pollinating insect populations are in decline. The large flower heads and flower density of many native thistles encourages greater visitation by pollinators. Native thistles also provide nesting sites for cavity nesting bees, which are known to use the stalks of thistles

Thistles are also an important resource for native herbivorous insects that feed on their leaves, stems, and flowers. Many of these herbivorous insects that feed on native thistles also feed on non-native thistles and may help suppress thistle invasions. Native herbivorous insects can do the most damage to invasive thistles when both the native and non-native thistle have similar growth and bloom periods. For example, non-native bull thistle and native tall thistle share over 80% of their herbivore community. Populations of native thistles can act as a reservoir of these insect herbivores and help suppress invasions of non-nat ive thistles.

Native thistles provide food for songbirds such as American goldfinch, indigo bunting, pine siskin, dark-eyed junco, several species of sparrow, and ruby-throated hummingbird. Small mammals such as thirteen-lined ground squirrels, mice, rabbits, and moles also feed on thistles.

The next time you jump on your ATV to address noxious and invasive vegetation on your property please give some thought to which thistle you target and which ones you leave.

Did You Know?

A thistle is the national emblem of Scotland. Legend has it that at some point during a 13th century invasion, Norsemen tried to surprise sleeping Scottish Clansmen by sneaking up on bare feet. As they crept barefoot, they came across an area of ground covered in thistles. One of the Norsemen unfortunately stepped on a thistle and shrieked out in pain, thus alerting the Clansmen to the advancing Norsemen. The Scots defeated the Norsemen at what is known as the Battle of Largs, and saved Scotland from invasion.

Did You Know?

Many species of thistles have edible roots, inner stems, young leaves, young inner parts of flower buds and seeds.

Goldfinches are among the strictest vegetarians in the bird world, selecting an entirely vegetable diet and only inadvertently swallowing an occasional insect.

Did You Know?

Contrary to the name, Canada thistle did not come into the U.S. from our northern neighbor, but rather was introduced in the 17th century from the Mediterranean region and southeast Europe. Tea made from Canada thistle leaves has been used as a diuretic as well as for treatment of tuberculosis.

Cattle can be trained to eat Canada thistle and other weeds. Learn more at: http://www.livestockforlandscapes.com/about.htm

Pictured above is Jon Myers broadcast seeding and (below) following up with a rolling packer.

Pollinator Habitat Trial Plots

By Merle Illian, Project Coordinator

In the spring of 2016 the Twin Valley Weed Management Area (TVWMA) worked with several landowners along the Republican River to re-seed areas where undesirable woody species such as eastern red cedar and locust had been mechanically removed. TVWMA has selectively thinned over 2800 acres along the river, and landowners questioned what could be done to revegetate the disturbed acres and further improve the site.

In cooperation with Pheasants Forever (PF) and Ron Seymour, Adams County Extension Educator/ Entomologist, wildflower trial plot seedings were established within the disturbed sites. Funding from both the Nebraska Environmental Trust and Nebraska Department of Agriculture, paid for the wildflower seed which can be expensive, depending upon species used, and seeding rates. The seed mixtures designed by TVWMA and PF included 30 species of grasses and wildflowers beneficial to pollinators. Shade tolerant cool season grasses were recommended because of the remaining tree canopy. These plots are very secluded and next to water, which make them attractive to butterflies, bees, and other pollinating insects. These seed mixtures also provide improved habitat for deer, turkey, and other wildlife.

Typically, this type of seed mixture is recommended for Conservation Reserve Program (CRP) and other revegetation programs where access and use of planting equipment is easily accomplished. However, seeding along the river in heavily wooded areas that have been mechanically thinned was somewhat of a challenge. At least 25% tree canopy still exists, there are tree stumps to contend with and rough terrain that make it difficult to use large seeding equipment. A grassland drill was used in areas that were cleaned up extremely well. A broadcast seeder and rollopacker was used in the remaining areas.

In addition to determining what seed mixture is going to work best in these riparian areas, Ron Seymour, is using these trial plots for an Arthropod Ecosystem Enhancement Demonstration Project. When the habitat is essentially changed to include these wildflowers, beneficial arthropods that provide pest management and plant pollination services are attracted. "If these types of plantings can survive along the river in these wildlife and wasteland areas, it will be a big plus to our pollinating insects," says Seymour.

For more information about this or other TVWMA projects, contact Merle Illian at 402-746-3560

High Plains Weed Management Area Continues Russian Olive Work

By Justin Relka, Acting Coordinator

High Plains Weed Management Area (HPWMA) has been very busy the past few months. There have been some changes, as Clint Reisen has moved on from the project manager position to pursue teaching at Western Nebraska Community College. HPWMA is currently searching for a good candidate to be project manager. The search is currently underway to find a new project manager; in the meantime, Justin Relka, past project manager, has agreed to step in and help out. Due to federal restrictions laid out by the Migratory Bird Treaty Act, in order to avoid negative impact to breeding birds, olive cutting will not take place between April 1 – July 15.

HPWMA is working on three Russian olive tree removal projects along the North Platte River in Scotts Bluff and Garden counties. This work is being accomplished by two contractors. Glen Lemburg, of Lemburg Tree Removal has recently completed a project near Broadwater, which contained nearly 75 acres of extremely dense Russian olive infestation. The project took Glen a few weeks to complete, and the landowner was happy with the end result of the project. Glen has started on a 1,000 acre Russian olive infestation removal project along Highway 92. The goal at this point is to complete the portion of the project north of the river before April, which would make the project nearly 50% complete. Glen is diligently working to accomplish this goal and is close to being finished. Any idea when work will begin again?

Miles Fiscus, of Fiscus Construction, is currently working along the North Platte River near Oshkosh, on a project to remove 205 acres of heavily infested Russian olive. Miles, too, has been working nonstop to complete this project and has made great progress with a goal to be finished by April. HPWMA is very appreciative of the great amount of work both contractors are doing to help control and remove Russian olive, and we know they will continue to work hard completing these projects.

HPWMA is utilizing grant funds we received through Nebraska Environmental Trust and the Nebraska Department of Agriculture to pay for these projects. HPWMA will apply for more grants this fall in order to continue our work in controlling and removing Russian olive and spraying to control phragmites along the North Platte River. We would like to thank everyone that is involved, including the landowners, contractors, people behind the scenes, like Joyce Mick, the HPWMA Board, and the county weed superintendents for the continued support of our program.

For more information about HPWMA projects, please call our office at 308-632-1311.

Russian olive removal on the North Platte river by Lemburg Tree Removal.

HIGH PLAINS WEED MANAGEMENT AREA

Coordinator	Banner County	Cheyenne County	Deuel County	Garden County	Kimball County	Morrill County	Scotts Bluff County	Sioux County
Joyce Mick	Cris Burks	Cris Burks	Cris Burks	Cris Burks	Rick Wangler	Cody Renkoski	Jeff Schledewitz	Nick Sanderson
308-633-1264	308-760-1111	308-760-1111	308-760-1111	308-760-1111	308-235-2681	308-262-0372	308-436-6709	308-668-9453

TWIN VALLEY WEED MANAGEMENT AREA

Coordinator	Adams County	Clay County	Fillmore County	Furnas County	Gosper County	Harlan County	Kearney County	Nuckolls County	Thayer County	Webster County
Merle Illian	Eric Walston	Bruce Rumsey	Todd Boller	Todd Weverka	Marty Craig	Tim Burgeson	Joseph Anderson	Nick Elledge	Brian Schardt	Dennis VenWay
402-746-3560	402-461-7173	402-762-3652	402-366-1921	308-268-2824	308-324-3771	308-928-9800	308-832-2854	402-879-1900	402-365-4366	402-746-2890

Cooksley Ranch – Management of Eastern Red Cedar on a Sandhills Ranch

By Barb Cooksley, Landowner

The Cooksley Ranch located near Anselmo in the Nebraska sandhills was established in 1916 by Walt and Myrtle Cole, grandparents of George Cooksley. George and Barb Cooksley now operate the ranch.

When the ranch was first established, there were very few trees anywhere on the place. As summer range for livestock grazing, it wasn't necessary to have windbreaks. The only trees planted in those days by George's grandparents were cottonwood to provide shade over their one room home with a lean-to kitchen. By the 1940's the ranch transitioned to year round livestock use. George's parents, Steve and Wanda Cooksley, enrolled in the Great Plains Conservation Program in the 1960's. This program administered by the Natural Resources Conservation Service (formerly Soil Conservation Service), allowed the family to implement additional livestock management practices. Our pastures were cross fenced, water facilities were added, and miles and miles of cedar windbreak planted close to the buildings for winter livestock protection. Both George and his father, Steve, grew up hand planting trees where needed. During these times there were so few trees on the ranch that it was a joke that they all had names!

Landowner Barb Cooksley works to control Eastern red cedar on the ranch near Anselmo, NE.

So what changed that allowed cedar trees to become a problem? We have better fire suppression, and we have seen wet cycles, especially the 1990's at the ranch that allowed for many plant species including cedar trees to survive, even thrive. There are also many cedar windbreaks that have been planted across the state since the 1930's, which has helped to increase the seed bank. In addition to self-seeding, the fruit is a favorite of numerous birds and other wildlife which aid in its spread.

By the early 2000's the spread of cedar trees was becoming an issue on our ranch. I bought a folding saw and set out to cut no less than three trees while checking pastures. I now have a personal goal of killing 1,000 cedar trees by hand per year! I use spot spraying as an additional tool to kill cedars with multiple trunks close to the ground. These "multi-trunked" trees develop when cattle and deer rub and break the main stem of the tree. They may be only 3 feet tall but are over 10 years old. I have found that clipping 3-5 branch tips before spraying allows the herbicide to enter the plant more effectively.

There are many herbicides labeled for spot spraying cedars. I use a 1% solution of Tordon 22K®. We have the Tordon on hand already for spot spraying musk thistle. I also keep lopping shears beside the folding saw and can lop many seedling trees with one cut of the shears. Another "tool" would be long, gauntlet gloves to protect me from the prickly cedar branches, as well as poison ivy that occurs in and around cedar trees! I have also started using a professional tree cutter who uses a skidsteer with a shredder attached, which has the ability to cut and grind the cedar trees in minutes. In two years, we have controlled scattered cedar trees on over 3,000 acres. The contractor was able to complete this work in 60 hours. I plan to schedule another 30 hours of cedar tree cutting by this contractor in 2017. I have monitored the pastures that were treated the last two years and no cedar tree seedlings are coming back in the areas where the contractor cut and ground the trees.

Controlling cedar trees outside of the windbreaks allows for better pasture management. In the sandhills, blowouts can be caused by either cattle rubbing on young trees and loafing around a mature tree. Cattle tend to congregate around trees rather than graze throughout the entire pasture. I appreciate the fact that a pasture without cedar trees allows me to identify our red angus cattle from a distance now! We have neighbors who are also removing cedars from their pastures through cutting, prescribed burning, and spot spraying. Prescribed burning is an excellent tool for cedar management. On our ranch George is not supportive of prescribed burns as the ranch has been burned by wildfires over the decades. The timing of a prescribed burn, as well as sufficient post-burn moisture and proper grazing management is critical to range recovery in the sandhills.

As the fourth generation to live and work at the ranch, George and I will continue to improve the landscape for the fifth and sixth generations that are living and working at the ranch with us.

Cooksley's tools include a folding saw to control small cedar trees.

Lopping shears are also used.

"As the fourth generation to live and work at the ranch, George and I will continue to improve the landscape for the fifth and sixth generations that are living and working at the ranch with us."

TAKE 2

Two minutes to read about two invasive plants that are either already present, or working to establish themselves in Nebraska.

By: Kristi Paul, Sheridan County Weed Superintendent

ABSINTH WORMWOOD (*Artemisia absinthium)*

LIFECYCLE: Absinth wormwood is a long lived perennial, native to Europe, which reproduces by seed or short roots. The mature absinth wormwood plant is a clump forming, shrub-like plant with several erect woody stems that reach 4-5 feet tall. Stems and leaves are covered with fine silky hairs, giving the plant a grayish appearance. Inconspicuous, tiny, dull yellow flowers bloom in late summer. One mature plant can produce over 25,000 seeds, which may remain viable for 3-4 years in the seed bank.
Impacts: Absinth wormwood is generally found in over-grazed or disturbed areas, pastures, farmsteads, roadsides, and anywhere infested hay has been fed, stacked or stored. Livestock avoid it, but if they are forced to eat it, all parts of the plant are toxic. Absinth wormwood out-competes desirable forbs and grasses in pastures, fields and native grasslands.

WHERE FOUND IN NEBRASKA: Nearly all infestations in Sheridan County, Nebraska, are on acreages that were short on hay in 2012-2013, and purchased hay from out of state. Absinth wormwood quickly appears on roadsides (from seeds) and invades farmsteads where infested hay has been fed, stacked or stored. Brown, Custer, Dawes, Holt and Sheridan Counties have reported finding it. Absinth wormwood is on South Dakota and Colorado's noxious weed lists.

CONTROL METHODS: Tillage can control absinth wormwood in cropland. Mowing before seed production is effective, if the area is accessible. Clopyralid, dicamba, picloram, glyphosate and 2,4-D have been used as herbicide control methods. Spray when actively growing, at 12 inches or so. The more mature the plant, the more difficult it is to control with herbicide.

PREVENTION: Proper grazing management to prevent the establishment of absinth wormwood is very important. Learn to identify this plant, so it can be controlled before it gets the chance to spread.
(University of Nevada Cooperative Extension)

Right: Leaves of absinth wormwood are 1-3 inches long, deeply dissected, and covered with fine, silky hairs.

Left: Landowners that have received infested hay from out of state should survey property for invasive absinth wormwood.

BLACK HENBANE (*Hyoscyamus niger L.)*

LIFECYCLE: Black hen bane, a member of the nightshade family, may be annual or biennial. This plant, native to Europe, reproduces by seed. The mature plant grows up to 3 feet tall, with erect, leafy, branched stems, which are densely covered with long glandular hairs. Leaves are alternate, oblong, gray-green and covered with short glandular hairs. Flowers, which can occur anytime from June to September, are brownish-yellow, with a purple center and purple veins. Flowers are arranged in a long spike-like inflorescence in the upper leaves with the youngest flower at the tip. Two rows of pineapple shaped fruits appear after flowering. Each fruit capsule contains black pitted seeds. Each plant can produce 10,000 to 500,000 seeds. Black henbane has an unpleasant odor at all growth stages, especially when it is crushed.
Impacts: Black henbane is capable of forming dense infestations, replacing desirable native species, impacting agricultural production, and reducing plant biodiversity. It is often found in disturbed open sites, roadsides, abandoned gardens. Black henbane is narcotic and poisonous to livestock, who unless other forage is unavailable, usually avoid it because of its' foul odor and bitter taste. It can also be poisonous to humans.

WHERE FOUND IN NEBRASKA: So far, only two small patches of black henbane have been identified in Sheridan County, so identification and awareness is important! Work to eradicate new patches, before it becomes widespread, and costly to control. Black henbane is on the noxious weed list of South Dakota, Wyoming and Colorado.

CONTROL METHODS: Hand pulling or digging is effective if the taproot is entirely removed. Mature plants should be disposed of carefully to prevent seed dispersal, and the area monitored for new seedlings for at least four years. Wear gloves and protective clothing to prevent skin irritation. Dicamba (rosette stage), picloram, and metsulfuron (actively growing up to early flower stage) are recommended for herbicide control.

PREVENTION: Learn to identify unusual plants. Sow weed-free seed. Clean equipment after being in an infested area.
(Nevada Cooperative Extension) (Montana State University Extension Guide)

Black henbane

PRIDE WEED MANAGEMENT AREA

Box Butte County	Dawes County	Sheridan County	Sioux County
Cody Renkoski	Dan Wordekemper	Kristi Paul	Nick Sanderson
308-203-1454	308-432-3056	308-327-5629	308-668-9453

Death Camas - Potential Impacts of a Native Wildflower

Lora O'Rourke, PRIDE WMA President

This spring, keep an eye out for meadow death camas (Zigadenus venenosus), a wildflower that can be toxic to livestock and some wildlife. Meadow death camas is a perennial, native forb that produces grass like leaves in groups of three from a deeply buried bulb. The plant may be 4 to 10 inches tall with yellowish-white flowers that grow in clusters at the end of a stalk. Flowering occurs in early May. The bulb of meadow death camas may be mistaken for those of the edible camas or wild onion, and can cause severe illness in humans. If bulbs are eaten, take the affected person to the emergency room immediately.

How Death Camas Affects Livestock

Meadow death camas contains toxic steroidal alkaloids that occur throughout the plant, and are considered dangerous at all stages of growth and throughout the growing season. Since sheep are less discriminate grazers, they are more likely to be affected by feeding on meadow death camas. Occasionally, cattle and horses are poisoned.

Death camas causes a marked decreased disturbance in respiration and heart action (Knight and Walter 2002). A 100 pound sheep may die if it eats ½ to 2 pounds of green death camas foliage in one day. The amount of foliage that will cause an animal's death depends on the rate of consumption. Animals that consume a small amount of death camas may be slightly affected, and can recover; however, severely poisoned animals usually die.

Death camas species contain a wide range of toxic alkaloids with meadow death camas having the most diverse group of alkaloids in the genus (Burrows and Tyrl 2001). A lethal dose is estimated to be 1% of body weight of green plants in sheep, but severe illness can occur with dosages as low as 0.2% to 0.5% body weight (Panter and James 1989). Cattle are more susceptible to illness from death camas ingestion, but sheep are at greater risk because they are more likely to eat the plants (Marsh et al. 1915).
Signs of poisoning can begin several hours to a day after ingestion. Indications include frothy salivation and strings of saliva hanging from the mouth (Burrows and Tyrl 2001). Depression, vomiting, and grinding of the teeth are also signs. In severe cases, loss of appetite, loss of coordination, weakness and death follow. Treatments for death camas poisoning in livestock include atropine for relief of the cardiovascular effects and picrotoxin to counteract depression (Burrows and Tyrl 2001).

How to Reduce Losses

To avoid poisoning, delay moving livestock to spring pastures until adequate, good forage is available. This occurs when the majority of the native grass species are at the 4 to 5 leaf growth stage. If livestock are moved to spring pastures before adequate forage when death camas is the only choice and little other forage is available, then livestock will more readily eat death camas. Do not introduce hungry sheep or cattle into heavy stands of death camas. Avoid feeding, bedding, or trailing sheep through heavy stands of death camas.

Meadow death camas. Photo by Eve Warren, USDI BLM.

Updates from the Platte Valley Weed Management Area

Charles Brooks, PVWMA Chairman

The Platte Valley Weed Management Area (PVWMA) is starting the 2017 spraying season early to treat phragmites in our project area on the Platte River. We will begin with a herbicide application in late May into June when the phragmites plants start growing. In previous years we have sprayed phragmites in late August through first frost in October. This allowed the plant to absorb the herbicides into the roots as it stores its winter nutrients. Late spring herbicide application will control growth and prevent the plants from going to seed, reducing the spread of new infestations to other nearby areas of the Platte River. Control work will start at Columbus, NE, and work westward toward the Elm Creek diversion (west of Kearney). Previous work has controlled large areas of the phragmites infestations, and this spring application will continue to control existing patches and new growth.

We continue to have generous partners. In addition to the Riparian Vegetation Management Grant, we will be using funds from Platte River Recovery Implementation Program (PRRIP). The PRRIP funds for this year will continue to ensure control of phragmites on the main and side channels on the Platte River within PVWMA . Other valuable contributors are the Natural Resource Districts, Ducks Unlimited, Nebraska Public Power District, and Central Nebraska Public Power Irrigation District.

Over 1,000 letters were sent to landowners promoting our cost share programs. This is where the landowner helps, by applying the herbicide to control phragmites patches on their property. We know that noxious weed infestations along streams, creeks, and drainage ditches need to be managed by landowners, as it is their responsibility under state law. While this project helps with initial treatment, eventually landowners/ partners will be responsible for the control without cost share.

For more information about PVWMA's projects, call Charles Brooks, PVWMA Chairman at 308-995-7502.

WEST CENTRAL WEED MANAGEMENT AREA

Arthur County
Kent Anderson
308-764-2203

Keith County
Tim Ryan
308-284-6601

Lincoln County
Todd Herndon
308-532-4939

Logan/McPherson County
Richard Cook
308-636-6157

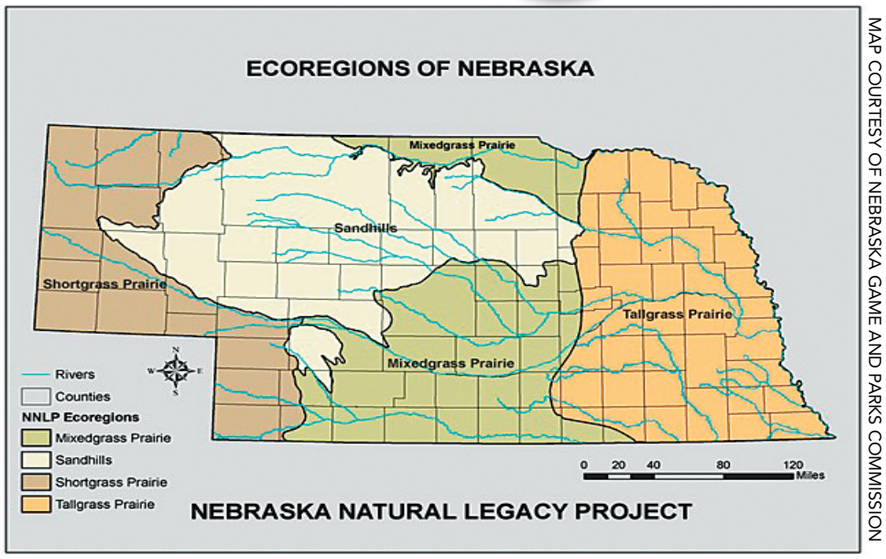
PLATTE VALLEY WEED MANAGEMENT AREA

Project Coordinator Rich Walters • 308-390-2511
Buffalo County • Bret Stubbs – 308-236-1244
Dawson County • Marty Craig – 308-324-3771
Hall County • Rob Schultz – 308-385-5097
Hamilton County • Brian Crabtree – 402-694-3666
Howard County • Rob Schultz – 308-380-2099
Merrick County • Kevin Koziol – 308-536-2523
Phelps County • Charles Brooks 308-995-6688
Polk County • Jim Carlson – 402-747-2921
Sherman County • Mitch Dzingle – 308-745-1513 Ext 111

Invasive Plants Watch List: 2017

Kristi Paul, Sheridan County Weed Superintendent and PRIDE Board Member

These lists were developed to provide a region-based list of invasive plants to be "on the watch for" in Nebraska. Each ecoregion's species were categorized based on early detection and rapid response potential. A complete list and images of invasive plants in Nebraska can be found at http://snr.unl.edu/invasives.



MAP COURTESY OF NEBRASKA GAME AND PARKS COMMISSION

CATEGORY 1: Future Invasive Species

These 6 plants are the same for all ecoregions in Nebraska, as they pose a significant risk if introduced. The aquatic weeds are just one boat ride away from invading any Nebraska lake.

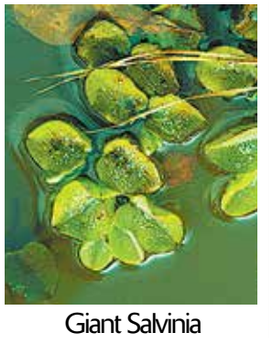

Giant Reed


Oriental Bittersweet


Water Hyacinth


Brittle Naiad


Hydrilla


Giant Salvinia

CATEGORY 2: Shortgrass Prairie Ecoregion


Russian Knapweed


Goat's-rue

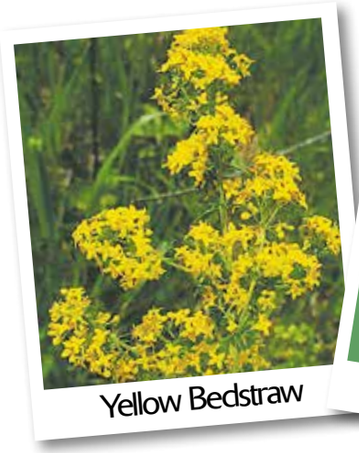

Black Henbane


Houndstongue


Saltlover


Perrennial Pepperweed

CATEGORY 2: Sandhills Ecoregion


Yellow Bedstraw


Meadow Knapweed

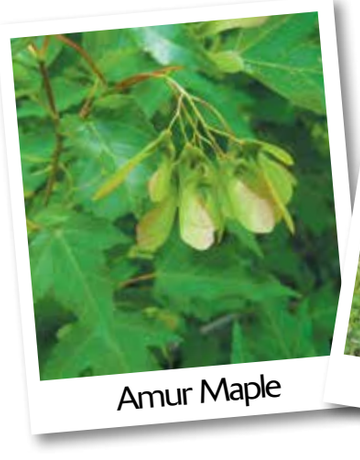

Sulfur Cinquefoil


Eurasian Watermilfoil

BLACK KNAPWEED
HOUNDSTONGUE
YELLOW BEDSTRAW
BROADLEAF PEPPERWORT/
PERRENIAL PEPPERWEED
EURASIAN WATER-MILFOIL
SULFUR CINQUEFOIL

CATEGORY 2: Mixed-grass Prairie Ecoregion

AMUR MAPLE
RUSSIAN KNAPWEED
GARLIC MUSTARD
AUSTRALIAN BEARDGRASS
(CAUCASIAN BLUESTEM)
CUTLEAF TEASEL
EUROPEAN ALDER-BUCK-
THORN
JAPANESE HONEYSUCKLE
EURASIAN WATER-MILFOIL
SULFUR CINQUEFOIL


Amur Maple


Garlic Mustard


Caucasian Bluestem


European Alder Buckthorn

CATEGORY 2: Tallgrass Prairie Ecoregion


Cutleaf Teasel


St. Johnswort


Japanese Honeysuckle

AMUR MAPLE
RUSSIAN KNAPWEED
GARLIC MUSTARD
AUSTRALIAN BEARDGRASS
(CAUCASIAN BLUESTEM)
YELLOW BLUESTEM
BLACK KNAPWEED
YELLOW STAR THISTLE
SWEET AUTUMN
VIRGIN'S-BOWER
HOUNDSTONGUE

CUTLEAF TEASEL
SICKLWEED
GOAT'S-RUE
YELLOW BEDSTRAW
JAPANESE HONEYSUCKLE
EURASIAN WATER-MILFOIL
KUDZU
HOARY CRESS
ST. JOHNSWORT
CROWN VETCH

The Invasive Plants Watch List also lists which counties in Nebraska have "County Added" noxious weeds. This list is described on page 11 of The Weed Watch.

The complete list of Invasive Plants in Nebraska along with species photos can be found at the Nebraska Invasive Species Project website: http://snr.unl.edu/invasives

Common Mullein Takes Advantage

By Cris Burks, C Weed Management LLC

Common mullein. The name doesn't sound so bad. In fact, the "common" part makes it sound rather, well, common. And maybe that's the rub, the recent increase of invasion in Western Nebraska is alarming. Sometime in the 1700's, common mullein boarded a ship from Europe, and upon arrival, found it liked our country. This biennial plant decided to spread out, make itself at home in U.S. soil. You might say, it put down roots.

Common mullein has a tap root securing an erect, stout stem that grows 1 to 6 feet tall. The bluish gray-green stem and soft velvety leaves are covered in wooly hairs. This led some folks to nickname the plant cowboy toilet paper or fishermen's friend! Mullein starts blooming at the bottom of the stalk and works its way up. Small yellow flowers bloom throughout the summer. It is estimated a single mullein plant can produce upwards of 150,000 seeds, with some seed remaining viable for 100 years. A common mullein infestation can begin as just a few plants and spread to several acres in two or three years, thanks to the prolific seed production. The black stalk of the mature, dead plant can stand for months. Mullein inhabits a wide array of habitats including rangeland, roadsides, disturbed areas and woody areas. While it does not survive tillage, it often surrounds crop fields. Dense stands may reduce grass production by 50%. It is not palatable to livestock.

Common mullein is an herb that has been used for medicinal purposes. Tea made from the leaves helped combat a cough or diarrhea while dried flowers, stems and leaves were smoked to help fight asthma or pulmonary diseases. It's interesting to note, in the mid 1700's common mullein was used in Virginia to kill fish. The toxin found in the seed is a member of the saponins, which can be taken directly into the gills and breaks down red blood cells. Saponins can kill fish, but if the fish can get in to untainted waters, they can get it out of their system and be just fine. This type of chemical doesn't impact the meat or anyone who would eat the fish.

In the past twenty years, common mullein has been referred to as "cyclical", meaning it shows up for a few years, then kind of dies out for a few years, depending on moisture, etc.. However, since the 2012 drought and fires in western Nebraska, common mullein has increased dramatically in disturbed sites, burned areas, and pastureland. While common mullein is not considered to be competitive in a healthy prairie ecosystem, it seems to be invading more each year. Concern about common mullein has been one of the most frequent questions directed to western Nebraska county weed control superintendents in the last few years.

Common mullein

The flowering stalk of common mullein results in 100,000 seeds per plant.

Common mullein quicking invades areas affected by drought, fire ormechanical disturbance.

CONTROL OF COMMON MULLEIN:

Several management practices are available to make common mullein feel less at home in our soil.

- Proper pasture management with limited grazing so native rangeland can remain healthy and out-compete common mullein seedlings is beneficial.
- A light infestation of mullein could be pulled or dug, hopefully before seed production begins. For large infestations this is not practical.
- Biological control is the use of specific insects to control an invasive plant. The mullein seed head weevil, (Gymnetron tetrum), which is a natural common mullein predator in Europe has been approved for release in North America. The weevil larvae mature in the seed capsules and feed on the seeds, helping to substantially reduce seed production. A limited number of the mullein seed head weevil releases have been made in Nebraska. Contact your local county noxious weed superintendent to learn the protocol for releasing biological control agents on your property.
- Several herbicides are labeled for controlling common mullein. The UNL Extension Guide for Weed, Disease, and Insect Management in Nebraska lists the herbicides Cimarron Plus®, Escort®, Grazon P+D® and Overdrive®. Herbicide application at rosette stage will achieve best results. Common mullein has a wooly leaf with a thick cuticle, so the use of a good crop oil surfactant is recommended to help the herbicide "stick" to the plant leaves, allowing the plant more time to intake the herbicide. Always read and follow the herbicide label directions.
- Remember too that any of the herbicides that will control common mullein can also kill native wildflowers and shrubs, so treatments by spot spraying are strongly recommended.

PRIDE to Host 30th Leafy Spurge Task Force Conference

By Lora O'Rourke, PRIDE WMA President

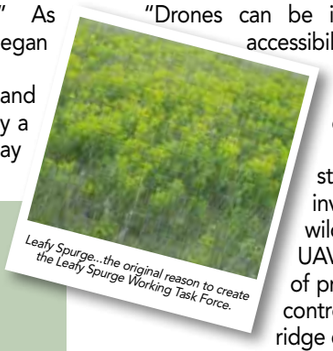
The Panhandle Research Integration for Discovery Education Weed Management Area (PRIDE WMA) will host the 30th Annual Nebraska Leafy Spurge Working Task Force (NLSWTF) meeting in Chadron. PRIDE, who hosted the conference in 1998 and 2003, are excited to have the meeting back in Chadron.

"Sid Salzman, an Ainsworth area rancher, was instrumental in establishing the Nebraska LSWTF," said Doug Mulligan, Chairman of the LSWTF. The NLSWTF was formed by local weed superintendents, area ranchers and invasive species management specialists in 1987 to bring awareness to leafy spurge, Euphorbia esula, a very aggressive invasive plant. Leafy spurge was becoming a major issue in Nebraska in 1987. "The goal of the LSWTF tour in the early years was to make landowners aware of leafy spurge, and to get them more active in control efforts, which made a difference. The tours held during the LSWTF meetings are always very educational for landowners and weed professionals" As the Nebraska's list of noxious weeds grew, the tours began to show case much more than leafy spurge.

This year's conference will be held July 25th -26th and include a half day field tour on the 25th, followed by a half day of conference presentations on Wednesday morning, the 26th.

TOUR HIGHLIGHTS:

- Nebraska Game and Parks Ponderosa Wildlife Management Area – Mapping and monitoring with unmanned aircraft vehicle (UAV or drone), timber management
- Fort Robinson State Park – Noxious and invasive vegetation (Scotch thistle, St. John's Wort)
- Bordeaux Wildlife Management Area – Noxious and invasive vegetation (Poison hemlock)



Leafy Spurge...the original reason to create the Leafy Spurge Working Task Force.

"Drones can be invaluable in areas with limited accessibility" said Jason Rust of Midwest Vegetation who will be demonstrating the use of his company's UAV.

Topics for the presentations are still being planned but may look at invasive weed management after wildfire in the Pine Ridge, discussion of UAV's to map invasive species, benefits of prescribed burning in invasive weed control, and an introduction to the pine ridge ecosystem.

For more information on the Leafy Spurge Working Task Force call Rod Stolcpart, Rock County Weed Superintendent, 402-822-0186 or Kristi Paul, Sheridan County Weed Superintendent, 308-327-5629.

SANDHILLS WEED MANAGEMENT AREA - MIDDLE NIOBRARA WEED AWARENESS GROUP*

WMA Office – 308-346-3393
Blaine/Thomas • Carol Conard – 308-346-4047
Boone • Todd Buettner – 308-750-5214
Brown • Matt Wambold – 402-875-0118 *
Cherry • Barbara Small – 402-322-1067 *
Custer • Ridge Horky – 308-872-2410
Garfield • Jimmy Petersen – 308-201-0045
Grant • Cody Renkoski– 308-203-1454
Hooker • Neal Hayward – 308-546-2706
Greeley • Walter Bjorklund – 308-428-5955
Keya Paha • Travis Mundorf – 402-497-3800 *
Loup • Zane Young – 308-214-0923
Nance • Kevin Koziol – 308-536-2523
Rock • Rod Stolcpart – 402-822-0186 *
Valley • Darrel Kaminski – 308-383-2701
Wheeler • Doug Reiter – 308-654-3397

Don't Move a Mussel This Summer

By: Allison Zach, Coordinator of the Nebraska Invasive Species Program

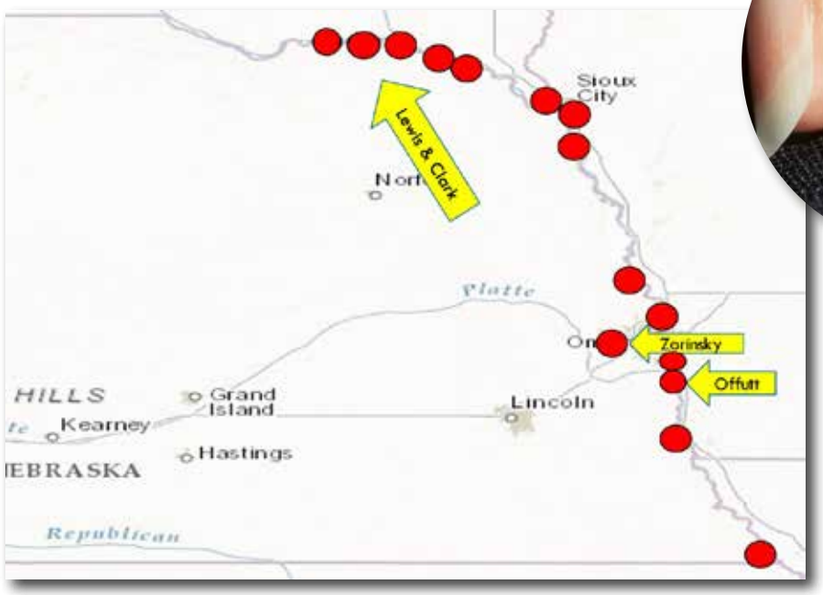
Not all invasive species are weeds. Aquatic invasive species are non-native plants, fish, and mollusks that have the potential to harm the environment, economy and society. Once established, aquatic invasive species are some of the most difficult to control and manage due to sensitive wetland ecosystems; therefore, prevention is critical! Knowledge of invasive mussels found in surrounding states prompted Nebraska to be on the lookout for them in our lakes, ponds or streams.

The first invasion of zebra mussels in North America was in the Great The Lakes in 1988. The first report in Nebraska was in 2006, at Lake Zorinsky near Omaha. lake was drained and treated that same year.. The second appearance of zebra mussels was at Offutt Lake near Bellevue, NE in 2014. That same year, zebra mussels were found on the South Dakota side of Lewis and Clark Lake near Yankton. This infestation continues to grow. Signage and enforcement of aquatic invasive species laws at Lewis and Clark Lake are expected to be increased in 2017 to help contain this infestation. New infestations of zebra mussels were discovered in 2016 on several boat launches from Blair to Rulo. With this discovery the entire length of the river on the Nebraska side is considered to be infested. This increases the urgency to educate the public on how to clean, drain and dry their watercraft to prevent spread from infested waterbodies to uninfested waterbodies. It is important to remove mussels from watercraft since they can live out of water for up to two weeks, or persist in residual water in a boat motor or live well.

Zebra mussels are filter feeders, which means they are like a small living pump. They draw in water, syphon out oxygen and food, mostly phytoplankton, and then push the water out again. Each zebra mussel filter feeds 1 liter of water a day. This changes the ecosystem of a waterbody by removing resources that could otherwise be used by native and desired aquatic species. Filter feeding by zebra mussels also increases water clarity. Clearer water allows sunlight to penetrate deeper, potentially warming the water and creating ideal conditions for undesirable algal blooms. This can then promote shifts in the composition of aquatic species inhabiting the waterbody. Zebra mussels are also known to clog pipes that transfer water out of the waterbody for municipal water systems and irrigation. The mussels are also known clog boat motors and cover boat slips.

It may seem inevitable that Nebraska's waterbodies will become infested with zebra mussels. But it is important to be vigilant and not throw our hands up in despair. Extensive research is underway to find effective treatments to kill zebra mussels in open water settings. The fewer zebra mussel infested waterbodies we have will increase our ability to use treatments that may become available in the future. **Prevention of the spread of zebra mussels is key and can be accomplished by cleaning, draining and drying watercraft and any items that have been in the waterbody between launches.** Seeds and parts of aquatic invasive plants and larvae of invasive organisms can be invisible to the naked eye and can live in damp conditions for up to 2 weeks. Inspect your watercraft and equipment before leaving the boat launch and remove any visible plants and organisms, disposing of them in the trash or on land away from the water. Drain all compartments, pull drain plugs and tilt outboard motors before leaving the boat launch to prevent moving water from one waterbody to another. Place unused live bait in the trash, never release it into the waterbody.

The Nebraska Game and Parks Commission and the Nebraska Invasive Species Program will employ technicians to conduct boat inspections this summer. These positions are funded mainly by the new resident motorboat registration fee and non-resident motorboat sticker.



Above: Zebra mussel infested waterbodies (red dots). Lewis & Clark Lake, Missouri River (12 locations), Lake Zorinsky & Offutt Air Force Base Lake.

Below: Boat Launches where adult zebra mussels were found in 2016 on the Missouri River

If you enjoy recreating on Nebraska's lakes, ponds, and rivers, YOU can help make a difference. Please educate yourself on ways to help prevent the spread of zebra mussels and other invasive aquatic species. For more information visit www.neinvasives.com or contact Allison Zach, Nebraska Invasive Species Program Coordinator at (402)472-3133 or Email: invasives@unl.edu.

Thank you to the Nebraska Environmental Trust, and the Nebraska Department of Agriculture for helping to fund The Weed Watch.

The Nebraska Environmental Trust

NEBRASKA Good Life. Great Roots. DEPARTMENT OF AGRICULTURE

PHOTO CREDITS

PAGE 1
Farrar, Nguyen, NEBRASKAland Magazine, Nebraska Game and Parks Commission
Page 2
Merle Illian; Glen Lemburg
PAGE 3
Barbara Cooksley
PAGE 4
Kristi Paul
Jan Samanek, Bugwood
PAGE 5
Eve Warren USDI BLM; Bernd Blossey, Cornell University
PAGE 6
Wilfredo Robles, MSU, Bugwood.org - common water hyacinth
Jil Swearingen, USDI NPS, Bugwood.org - oriental bittersweet
Scott Robinson, GDNR, Bugwood.org - giant salvinia
Steve Dewey, USU, Bugwood.org
black henbane/Russian knapweed/ perennial pepperweed
Catherine Herms, TOSU, Bugwood.org - goat's rue
Troy Evans, GSMNP, Bugwood.org - brittleleaf naiad
Robert Vidéki, Doronicum Kft., Bugwood.org - hydrilla
Bonnie Million, National Park Service, Bugwood.org - halogeton
Leslie J. Mehrhoff, UC, Bugwood.org
Nebraska Game & Parks, Ecoregion map
PAGE 7
Cindy Roche, Bugwood.org - meadow knapweed
Chris Evans, IWAP, Bugwood.org - garlic mustard
James R. Allison, GDNR, Bugwood.org - Japanese honeysuckle
Theodore Webster, USDA ARS, Bugwood.org - sulfur cinquefoil
Chris Evans, IWAP, Bugwood.org - Eurasian water-milfoil - cutleaf teasel Norbert Frank, UWH, Bugwood.org - European black alder
Rob Routledge, Sault College, Bugwood.org - Amur maple
Mike Haddock, kswildflower.org - Caucasian bluestem, St Johnswort
PAGE 8
UNL Invasive Species Council; Amy Benson USGS
PAGE 9
Theodore Webster, John Cardina, Dave Powell / Bugwood; Kristi Paul
PAGE 11
Loke T. Kok, VPI, Bugwood.org - bull thistle
John Cardina, TOSU, Bugwood.org - bull thistle
Howard F. Schwartz, CSU, Bugwood.org - field bindweed
Howard F. Schwartz, CSU, Bugwood.org - woollyleaf bursage
Steve Dewey, USU, Bugwood.org - Scotch thistle- houndstongue
John Cardina, TOSU, Bugwood.org - bull thistle
Jan Samanek, SPA, Bugwood.org - field bindweed
PAGE 12
Sara Rosenthal, USDA ARS, Bugwood.org - diffuse knapweed
Jil Swearingen, USDI NPS, Bugwood.org - common reed
Jil Swearingen, NPS, Bugwood.org - Japanese knotweed
Steve Dewey, USU, Bugwood.org - plumeless thistle
Barbara Tokarska-Guzik, University of Silesia, Bugwood.org
giant knotweed
Bonsak Hammeraas, Bioforsk - NIAER, Bugwood.org - Canada thistle
Barry Rice, sarracenia.com, Bugwood.org - leafy spurge
Eric Coombs, ODA, Bugwood.org - purple loosestrife
Mike Haddock, kswildflowers.org - Sericea lespedeza

something for KIDS OF ALL AGES

E V I T A N R E A S T E R N R E D C E D A R
J P S S O L G U B N O M M O C R I V E R S U
A L E Q B E D S T R A W E L P O E P W M A O
P U R P L E L O O S E S T R I F E O N E N T
A M I L P O I S O N I O U S D L I W M S D D
N E C A E E D E E W T O N K T N A I G S H N
E L E T L E N U T U M R O D E G D H T Y I A
S E A T T G K E G N S R G E N E I A E L L E
E S L E S R R R R T A N O E E G O L I A L C
K S E V I U P T O G I L I W H G L O I I S N
N T S A H P H O W W Y G P P H A S N N N E E
O H P L T S R O O I H A L A V T N E E N M R
T I E L E Y A R O B N A N N O E N T A E A E
W S D E V F G M O K I V I K R E V I R I N F
E T E Y I A M R D N S W A E A B S A S B N N
E L Z L T E I E S E T L P S S U U L E B U O
D E A S A L T C E D A R S U I R A G O L A C
X E W C N T E D F N I U O F U V O N L O L F
D O R S O N S I D D R O W F I R E H I O T T
C E N P T E R S E E L T S I H T K S U M S W
S E S E A E L T S I H T A D A N A C U A A S
P P R E S C R I B E D F I R E N W O D N A L

HIDDEN WORD FIND - Responsible landowners take pride in their management efforts to control weeds on private lands in order to protect our environment. Sometimes the greatest challenge is to understand how invaders spread, the groups involved in treating them, and tools they use. Find the words listed below in the puzzle to the left.

Words are arranged horizontally, vertically, diagonally, forwards (left to right) and backwards (right to left) and top to bottom or bottom to top.

ACRES
ANIMAL
ASSURE
BEDSTRAW
BIENNIAL
BLOOM
BUGLOSS
CANADA THISTLE
CENTER
COMMON BUGLOSS
COWS
DEAL
DIFFUSE KNAPWEED
EASTERN RED CEDAR
ENERGY
FIRE
FIRES
GIANT KNOTWEED
GOATS
GROW
GROWING
HIGH PLAINS
HORSE
INVASIVE
JAPANESE KNOTWEED
LANDOWNER
LANDS
LEAFY SPURGE
LEAVE LINE
LSWTF CONFERENCE AND TOUR
MESSY
MNWAG
MUSK THISTLE
NATIVE
NEAR
NEIGHBOR
PENS
PEOPLE
PERENNIAL
PHRAGMITES
PLANT
PLATTE VALLEY
PLUMELESS THISTLE
PRESCRIBED FIRE
PRIDE
SEEDS
PURPLE LOOSESTRIFE
RIVER
ROOTS
ROW
SALTCEDAR
SANDHILLS
SERICEA LESPEDEZA
SOIL
SPOTTED KNAPWEED
TOOLS
TWIN VALLEY
WILD
WMA
WORK

Can you spot the 10 differences in these pictures?

ANSWERS

COUNTY-ADDED NOXIOUS WEEDS

Kristi Paul, Sheridan County Weed Superintendent and PRIDE Board Member. In addition to the twelve weeds that have declared noxious in Nebraska, every county has the option to petition the Director of the Department of Agriculture to place additional weeds on the "county-added noxious weed" list. Many counties in Nebraska have county-added noxious weeds, which landowners are required to control.

FIELD BINDWEED

Banner
Box Butte
Cheyenne
Dawes
Deuel
Garden
Morrill
Scotts Bluff
Sheridan

5 to 6 feet long. Perennial - spreads by seeds and rhizomes.

PRIDE
Panhandle Research Integration for Discovery Education

PRIDE serves as a cornerstone to build and maintain partnerships between the many cooperators in invasive weed management and education. With this collaborative effort, a more efficient and successful approach to invasive weed management and awareness is achieved. PRIDE's efforts in pooling of funds and resources from contributors will result in a compounding of investments and rewards.

HOUNDSTONGUE

Dawes
Sheridan

1 to 4 feet tall. Biennial - spreads only by seeds.

SCOTCH THISTLE

Banner
Box Butte
Cheyenne
Dawes
Morrill
Kimball
Scotts Bluff
Sheridan
Sioux

1 to 10 feet tall. Biennial - spreads only by seeds.

BULL THISTLE

Rock

1.5 to 6.5 feet tall. Biennial - spreads only by seeds.

WOOLYLEAF BURSAGE

Banner

1 to 2.5 feet tall. Perennial - spreads by seeds and rhizomes.

PERENNIAL YELLOW BEDSTRAW

Cherry

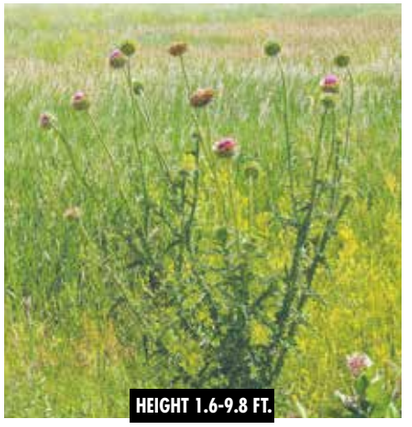
2 to 4 feet tall. Perennial - spreads by seeds and rhizomes.

NEBRASKA'S NOXIOUS WEEDS

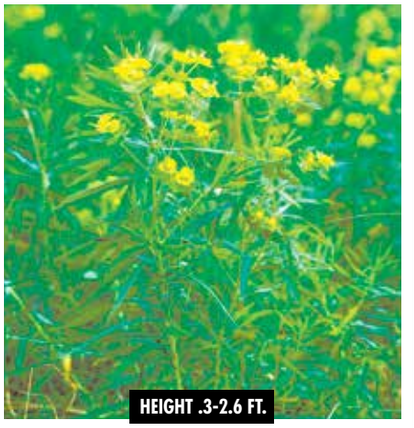
It is the duty of each person who owns or controls land to effectively control noxious weeds on such land.

Noxious weed is a legal term used to denote a destructive or harmful weed for the purpose of regulation.
The Director of Agriculture establishes which plants are noxious. These non-native plants compete aggressively with desirable plants and vegetation. Failure to control noxious weeds in this state is a serious problem and is detrimental to the production of crops and livestock, and to the welfare of residents of this state. Noxious weeds may also devalue and reduce tax revenue.

Canada Thistle



Musk Thistle



Leafy Spurge

Spotted Knapweed

Plumeless Thistle

Saltcedar

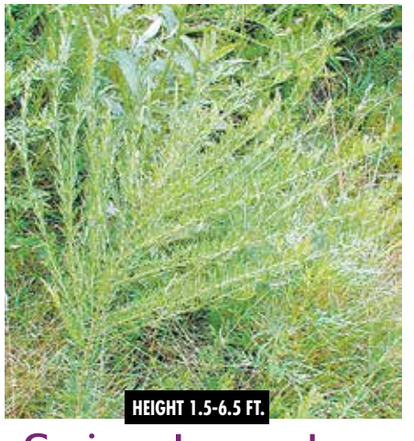
Phragmites

Diffuse Knapweed

Japanese Knotweed

Giant Knotweed

Purple Loosestrife



Sericea Lespedeza

For more infromation or to get additional copies of The Weed Watch, contact Kristi Paul, Sheridan County Weed Superintendent, PO Box 449, Rushville, NE 69360. Phone 308-327-5629