

The Weed Watch

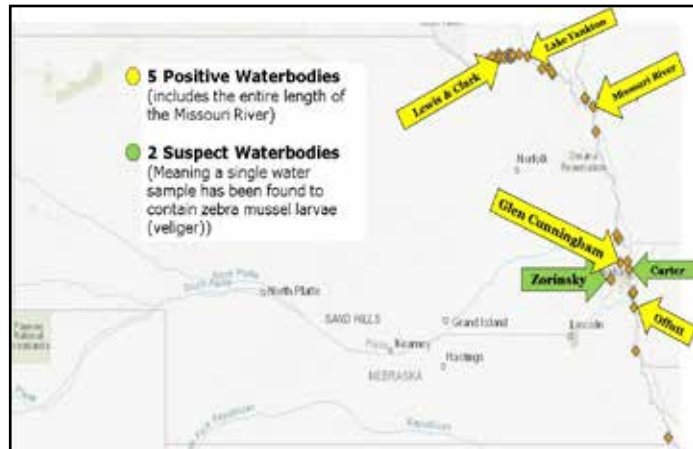


A Publication of Panhandle Research Integration for Discovery Education
Weed Management Area in conjunction with High Plains, Sandhills, West
Central, Platte Valley and Twin Valley Weed Management Areas and the
Middle Niobrara Weed Awareness Group

FALL 2018

Invasive Species Are More Than Just Plants

Usually when we think of invasive species we think about plants, but other living things can be invasive too. Non-plant invaders in Nebraska include birds like Eurasian Collared-Doves, fish like Asian carp, insects such as emerald ash borer, and aquatic invertebrates like zebra mussels.



Zebra Mussel Update

August 2018

By: Allison Zach, Nebraska Invasive Species Program Coordinator

Nebraska now has 5 waterbodies infested with zebra mussels. In July 2018 veligers (larvae) were found in a water sample in Glenn Cunningham reservoir in Omaha, NE. This was not a great surprise as it is in close proximity to the Missouri River which is heavily infested with zebra mussels. Nebraska's other infested waterbodies also include: Lewis & Clark Lake, Lake Yankton, the Missouri River and Offutt Air Force Base Lake. Nebraska has 2 suspect waterbodies (meaning a single water sample has found zebra mussel larvae, but no larvae or adults have been found



since) at Carter Lake in Omaha, NE and Lake Zorinsky in Omaha, NE.

It is imperative to clean, drain and dry watercrafts and angling equipment for at least 5 days before launching into another waterbody. Much research is being conducted to find treatments to kill zebra and quagga mussels in an open water setting. It is important we limit the number of our waterbodies that have zebra mussel infestations so that in the future we will be able to effectively use any technologies and management tools that become available. Detection of zebra and quagga mussels at this time is imprecise as it is dependent on finding larvae in a water sample, which is like finding a needle in a hay stack until

the waterbody is infested. Environmental DNA tests to detect zebra and quagga mussels are being developed and will likely be affordable in the near future. This will allow us to find zebra and quagga mussel infestations much earlier increasing our chances of containing the infestation. Learn more at: <http://neinvasives.com/>

the waterbody is infested. Environmental DNA tests to detect zebra and quagga mussels are being developed and will likely be affordable in the near future. This will allow us to find zebra and quagga mussel infestations much earlier increasing our chances of containing the infestation.

Learn more at: <http://neinvasives.com/>

Buy It Where You Burn It

By Kyle Martens, Nebraska Forest Service Staff

Since the discovery of the emerald ash borer (EAB) in 2016, additional finds of the metallic green invader were limited in Nebraska. This was until the recent detection at Mahoney State Park outside of Omaha. What is significant about this sighting isn't so much as where, but how it ended up in the park.

Mahoney is a quick exit off Interstate 80 between Omaha and Lincoln. This makes it a popular camping spot for Nebraskans



and out-of-state visitors too. That is also what made the recreational hotspot a prime target for an introduction—unsuspecting campers bringing their own firewood.

If you camp or recreate outdoors, there is a high likelihood you have seen a "buy it where you burn it" sign. We can argue about the slogan's effectiveness; we can't argue about the biology of the emerald ash borer.

"The fact is that EAB is a slow traveler if left to its own devices—venturing less than five miles during its lifecycle," said Nebraska Forest Service's Forest Health Specialist, Laurie Stepanek.

When we haul our own firewood, EAB is free to travel as far as we take it, sometimes even hundreds of miles. This only makes matters worse for unsuspecting park personnel and native woodlands.

"EAB is an extremely destructive pest," Stepanek said. "During the height of an infestation, EAB can attack and kill trees in just a few years."

EAB hitchhiking in firewood is a big deal. The Nebraska Department of Agriculture established a five county quarantine (Cass, Dodge, Douglas, Sarpy and Washington) restricting the movement of all ash wood and its byproducts in the state. There are now 35 states with confirmed infestations. The primary reason for its unprecedented spread: the movement of firewood by campers.

While many of us consider toting wood as being resourceful, bringing your own kindling or logs is frowned upon and in some cases banned. "Buy it where you burn it" may not always be the convenient approach to camping, but if we continue spreading invasive species to trees across our public lands, no one is going to be a happy camper.

About: Kyle Martens is a Communications Specialist with the Nebraska Forest Service and practices Leave No Trace camping.

CONTINUED ON PAGE 2

Invasive Species Are More Than Just Plants

CONTINUED FROM PAGE 1

Another non-plant species that has been introduced to North America is a fungus, *Pseudogymnoascus destructans*, or Pd for short. This fungus is native to Europe and Asia and it is uncertain how it got to North America, but was most likely carried on the outdoor gear of unknowing human travelers.

White-nose Syndrome Update

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

White-nose syndrome (WNS) is a disease that affects hibernating bats and is caused by the Pd fungus. Sometimes Pd looks like a white fuzz on bats' faces, which is how the disease got its name. The fungus grows in cold, dark and damp places and affects bats while they're hibernating. Bats with Pd become more active than usual and burn up the fat they need to survive the winter.

White-nose syndrome has killed millions of bats in North America. At some sites, 90 to 100 percent of bats have died. Several species are affected, with the hardest-hit being the northern long-eared bat, little brown bat, and tricolored bat. The northern long-eared bat was listed as federally threatened in 2015 in large part because of population loss due to white-nose syndrome.

WHERE IS IT?

Bats with white-nose syndrome were first documented in 2006-07 in caves in New York. Today, bats with the disease symptoms of WNS have been found in 33 US states (including Nebraska) and 7 Canadian provinces. In addition, the fungus that causes WNS has been found in three more US states and continues to spread. Two recent detections occurred in Wyoming and South Dakota. In May 2018 researchers working at Fort Laramie National Historic Site in Wyoming detected Pd for the first time in Wyoming. The fungus was also confirmed at Badlands National Park in South Dakota and WNS was confirmed on a long-legged bat (*Myotis volans*) in Black Hills National Forest, just south of the boundary of Jewel Cave National Monument.



BATS ARE IMPORTANT

Bats eat a lot of insects. In fact, bats contribute billions of dollars' worth of insect control for farmers in the US each year! Other bats pollinate many valuable plants. Fruit-eating bats disperse seeds. Even bat droppings (called guano) are valuable as a rich fertilizer. Also, bats are cool! Bats are the only mammals that fly, they are masters of echolocation, and they are incredibly diverse. There are more than 1,300 bat species worldwide that live in widely varied habitats. For more cool bat facts see: <http://www.batcon.org/why-bats/bats-are/bats-are-cool>.

WHAT YOU CAN DO

Humans cannot get WNS, but people entering caves or mines can spread the fungus to healthy bat populations. To prevent this from happening, stay out of sites where bats are hibernating and decontaminate caving gear and clothes after visiting sites where bats hibernate. You can also help by learning more about WNS and teaching others. In particular, you can contact your state or federal legislators to request their support for funding critical research. Finally, manage your own property in a bat-friendly way.

Remember: bats, like all wildlife, can also have diseases that affect people. For your safety, please do not touch bats. If you do come into contact with a bat, notify your local public health department.

Bat and White Nose Syndrome information from: <https://www.whitenosesyndrome.org/> and <http://www.batcon.org/>

BAT-FRIENDLY MANAGEMENT

- Provide homes for bats. Visit batcon.org and batmanagement.com for more info about bat houses.
- Reduce disturbance to natural bat habitats around your home. For example, reduce outdoor lighting, minimize tree clearing, and protect streams and wetlands.
- If bats are in your home and you don't want them there, work to exclude or remove them without hurting them after the end of the maternity season. The best time to exclude bats is when they aren't in your home.
- Plant a pollinator garden.
- Utilize land management techniques that promote healthy native plant communities.

High Plains Weed Management Area Work Continues

By Clint Riesen, HPWMA Project Coordinator

High Plains Weed Management Area (HPWMA) is continuing the removal of invasive plant species along the HPWMA river area. This includes lakes, ponds, streams, tributaries, creeks and any wetland that has a direct impact on the North Platte River. The counties covered include Scotts Bluff, Banner, Kimball, Morrill, Cheyenne, Garden, Deuel and southern Sioux. Russian olive, saltcedar and phragmites are the invasive species that the program works to remove from our local water ways and wetlands.

Clint Riesen is the field coordinator for the HPWMA program and has been meeting with many landowners this summer to discuss the program, answer questions and address concerns. The concern that is often discussed is the possibility of thistle and other invasive weeds filling the gap where Russian olive trees once stood. This appears to be a problem in some areas, but with proper land management and time the grass fills back into the areas. Many landowners have commented that

livestock and wildlife have more grazing area and can be seen more easily. The landowners also appreciate having access to the waterways for recreation and hunting.

Landowners cost share the projects with HPWMA. HPWMA's portion of project costs is funded by a grant from the Nebraska Environmental Trust. Many miles of river have been improved with the removal of invasive vegetation, thanks to these funds.

High Plains Weed Management is a collaborative group that relies on landowners for project ideas to successfully remove invasive species from our waterways and wetlands.

Landowners have suggested spraying for phragmites and saltcedar with aerial spraying. This is a goal for summer 2019. Currently HPWMA has active removal projects and will be doing bids for fall removal, as well as the spraying of regrowth.

To discuss the aerial spraying program, the benefits to the land and the landowner, please contact Clint Riesen at (308) 633-1264 or visit www.hpwma.org.



Following Russian olive removal in 2014, access to control noxious and invasive weeds is much easier. Desirable vegetation and native grasses are filling back into the area.



HIGH PLAINS WEED MANAGEMENT AREA

Coordinator
Joyce Mick
308-633-1264

Project Coordinator
Clint Reisen
308-225-0146

Banner County, Cheyenne
County, Deuel County,
Garden County
Cris Burks – 308-760-1111

Kimball County
Rick Wangler
308-235-2681

Morrill County
Cody Renkoski
308-203-1454

Scotts Bluff County
Jeff Schledewitz
308-436-6709

Sioux County
Nick Sanderson
308-668-9453

Twin Valley Weed Management Area Hosts Tour and Conference

By Merle Illian, TVWMA Project Coordinator

Alma, Nebraska was the site of The Annual Leafy Spurge Working Task Force tour and conference hosted by the Twin Valley Weed Management Area (TVWMA) on August 1-2, 2018. The tour took place on the Republican River located in Franklin and Harlan counties with 50 people in attendance.

The group saw the benefits of island and sandbar spraying and the removal of vegetation which aids in the continued flow of the water moving down the river. It was emphasized time and again that water delivery to Kansas was very critical in order to adhere to the Kansas-Nebraska water compact and to avoid future lawsuits.

Mitch Coffin with the Nebraska Department of Agriculture Noxious Weed Program spoke on the history of the phragmites problem in the Republican River. When the group reached the Franklin Bridge, they could see the benefits of the work done by TVWMA to remove phragmites, woody vegetation and sediment, which resulted in increased water flow.

The group then viewed Turkey Creek near Naponee. The creek channel was cleared of fallen trees, and springs that had been silted over were opened up to allow free flowing water again. Selected woody vegetation along the perimeter of the creek was also removed. Department of Natural Resources has been keeping record of water flow on this creek for years. Once the cleanout was performed, it was calculated that the water flow had increased by 850 gallons per minute.

At our next stop, Ron Hawley, who farms one mile below Harlan County Dam, explained the tree thinning project performed on his 85 acres adjoining

the Republican River. This area had been utilized only by wildlife, not suitable for production. After thinning the acreage, he is now grazing this terrestrial area of his property with 25 cow/calf pairs. Funding was cost shared through the Cooperative Conservation Partnership Initiative (CCPI) and Nebraska Environmental Trust grant funds.

The group then toured Harlan County Lake, viewing areas that had been re-vegetated with fruit trees and pollinator plantings. The plantings were done following several years of treatment of noxious and invasive vegetation. Tom Zikmund with the U.S. Army Corps of Engineers (USACE) explained the herbicide spraying efforts that have been performed by aerial and terrestrial application. The partnership between TVWMA and USACE has resulted in tremendous success of noxious weed control. That evening attendees were treated to a steak dinner, followed by a boat tour on the lake.

The Leafy Spurge Task Force conference was held the following day. Todd Siel, Manager of the Lower Republican NRD, discussed the various water issues and activities they are involved with. TVWMA personnel gave an overview of the history of their weed management area.

Mark Brohman, Executive Director of the Nebraska Environmental Trust, spoke of the funding and grant process involved with his agency. Tom Zikmund, Natural Resource Management Specialist with the Corps of Engineers, presented a video about the Harlan Dam construction and lake management.

TVWMA personnel want to thank the Leafy Spurge Task Force members and others for coming down to the Republican River area and viewing issues that we are involved with, and the progress being made.



Merle Illian TVWMA Project Coordinator showing the project area during the conference.



Mitch Coffin, Nebraska Department of Agriculture explains how to differentiate native and invasive phragmites during LSTF tour.



TWIN VALLEY WEED MANAGEMENT AREA • TWINVALLEYWMA.COM

Coordinator	Adams County	Clay County	Fillmore County	Franklin County	Furnas County	Gosper County	Harlan County	Kearney County	Nuckolls County	Thayer County	Webster County
Merle Illian	Eric Walston	Bruce Rumsey	Todd Boller	Mark Goebel	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	308-425-3716	308-268-2824	308-324-3771	308-928-9800	308-832-2854	402-879-1900	402-365-4366	402-746-2890

The Plan Continues

By **Shelley Steffl, Nebraska Game and Parks Commission**

Two years ago, I was chatting with a gentleman named Jim Elder regarding some Scotch thistle on his property. His method for treating the thistle began in 2014, when the thistle patch covered about 60 acres of the former cropland turned pasture and part of the home area. Jim worked with the Hemingford Fire Department, who conducted a prescribed burn on the acres to remove the standing thistles and any thatch. This allowed Jim the ability to be more thorough with his follow-up herbicide treatments. Jim had the plan set; spray, hay, then graze. In the spring, Jim sprays the rosettes with herbicide. In late spring/summer, he will hay the site and use the hay to feed his livestock in the winter. After allowing the grass to regrow in the summer and fall, Jim then turns cattle in to graze. This knocks down the grasses and makes for easier treating in the spring. Jim would change up which herbicide he used as well; he was concerned about the thistle building up resistance to any chemical over several years which would leave him less of a choice when it came to herbicides he could use. He still had thistle throughout the site, but they had become



considerably less with his plan of action.

This year, I met Jim on a back road in Dawes County. We chatted, and I asked again what progress was being made with his thistle. "After four years, are they almost gone?" I asked. "No," Jim said, "it's not gone. But I have been able to really set it back." Jim continues his spraying/haying/grazing rotation, and had changed up his herbicide in 2017. He has been using 2,4-D to treat the thistles in 2017 and 2018. He plans to go back to Wide Match®, or perhaps another herbicide in 2019.

What started out as 60 acres of partially to completely infested land is now a grass dominated site with some thistle present. Some places still have more thistles than others, but overall, it was a change for the better. Jim knows management is continuous and in this case was going to be long term. But after setting a plan of action, Jim has been able to make a change for the better on his land.

Scotch thistle spreads only by seed. Each flower head produces 100-200 seeds, which can remain viable in the soil for more than 7 years. Persistence is the key to controlling biennial thistles.

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 • Bobby Hamilton – 308-995-8485
 Polk County • Jim Carlson – 402-747-2921
 Sherman County • Mitch Dzingle – 308-745-1513 Ext 111

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



Using Surfactants to Improve Herbicide Performance

By **Dan Wordekemper, Dawes County Weed Superintendent**

If you have ever sprayed a patch of weeds, expecting to come back in a few days and find the weeds all dead, but they weren't, you will need to investigate why. Improper amount of herbicide, weather conditions such as rainfall, or lack of a surfactant can affect herbicide performance. Nearly all herbicides are enhanced by the use of a good quality surfactant. Most, if not all commercial sprayers use surfactants to aid in herbicide up take. There are probably as many surfactants on the market as there are herbicides.

A surfactant is a substance that reduces the surface tension of a spray solution, to allow more contact between the spray solution (herbicide) and the leaf surface. Any substance that brings a herbicide into closer contact with the leaf surface helps to aid absorption. Surfactants can be classified as stickers, wetter-spreaders, penetrants, and water conditioners.

Most chemical labels will specify the type of surfactant recommended by the manufacture for the type of application being performed. For best results, follow the herbicide label recommendations.

Surfactants are classified as nonionic, anionic, or cationic.

- Nonionic surfactants have no electrical charge and are generally compatible with most herbicides. Nonionic surfactants are most commonly used because of their universal fit.
- An anionic surfactant possesses a negatively charged functional group and is most often used with acids or salts. Anionic surfactants are more specialized and sometimes used as dispersants or compatibility agents.



When applying herbicide, the use of a good surfactant is important. Either waxy surfaces, or very hairy surfaces such as this common mullein plant need surfactant to help the herbicide penetrate the leaves.

- Cationic surfactants are used less frequently, but one group (ethoxylated fatty amines) has been frequently used with the herbicide Roundup®.

For maximum effectiveness, a post-emergent herbicide must come in contact with plant leaves and remain on leaves long enough to be absorbed into the plant and reach the parts of the plant that will damage or disrupt a vital process in the plant. The waxy outer layer and cuticle of leaves are barriers to these chemicals. Since most herbicides are carried in water, this means it will bead up on waxy surfaces and the water can easily bounce or roll off the leaves. This bouncing and rolling will affect you in multiple ways: your weeds will not die, some of your desired plants or grasses might be damaged and you will spend more money on herbicides than you planned.

Surfactants work because they are able to break the surface tension of the herbicide and leaf surface. This allows the spray to evenly coat the leaf surface and be absorbed, increasing effectiveness of the herbicide, and reducing rainfall times. Rainfast is the length of time an herbicide

needs to be on a plant, before a rainfall will not affect the results.

The next time you are spraying weeds, check the label and add the surfactant recommended in the proper amounts. You will find the effectiveness of your herbicide will increase, saving you time and money. The old adage "you get what you pay for" is relevant to surfactants. Using the cheapest or improper surfactant increases the risk of poor performance; wasting herbicide, money and time.

Some information provided by PennState Extension, and Garden & Greenhouse

Just Because It's Purple Doesn't Mean It's Loosestrife

By Rod Stolpart, Rock County Weed Superintendent

Every year about this time you can see purple flowered plants in landscapes, road ditches, pastures...just about everywhere! Vervain, verbena, lavender, clematis, catmint, salvia and allium; the list could go on and on. One purple flowering plant you might want to learn more about is purple loosestrife (*Lythrum salicaria* L.)

Purple loosestrife was a popular ornamental landscape plant sold at nurseries for several years in Nebraska. Gardeners and naturalists had a real affection for the tall vigorous wildflower and its' gorgeous spikes of purple blooms, which they planted to enhance their gardens. These ornamental plants were the beginning of the purple loosestrife infestation that expanded across Nebraska, especially on the rivers. Purple loosestrife was spreading rapidly, crowding out native plants and altering wildlife habitat. Once monitoring of loosestrife began, nearly 13,000 acres were identified as being infested. This led to the addition of purple loosestrife to the Nebraska noxious weed list in 2001.

At that point, homeowners were encouraged to dig up plantings, and dispose of them. Aquatic weed control efforts started along many river systems in our state.

Purple loosestrife is an aggressive invader in the North American landscape. It has marched across forty-seven states and most of Canada. This plant is capable of growing up to ten feet tall, five feet wide and as many as fifty stems can sprout from a single perennial tap root. If the rootstock isn't vigorous enough, a single plant is capable of producing 2.5 million seeds in a season. According to Amy Stewart in her book, "Wicked Plants" the seeds can remain viable for twenty years before they sprout. An estimated sixteen million acres have been infested with Purple Loosestrife in the United States alone, and eradication campaigns cost about \$45 million per year.

Purple loosestrife is native to Europe. It likely came to America with European settlers as an ornamental. Because of natural enemies (insects), it is not as invasive or problematic in its native country. After several years of tests and research, Animal Plant Health Inspection Service allowed purple loosestrife insects into the United States, where they are released on purple loosestrife infestations with some promising results. We are hopeful that biological control will be a positive long-term solution.



Herbicides that show success in controlling purple loosestrife are Garlon® 3A, Habitat® and Escort®. Being in or near the water requires special herbicides, and each product has its own restrictions, so it is important to read and follow the label, as the label is the law.

Yes loosestrife is purple, like many plants. However, the square stem and leaves opposite from one another are two keys to help you identify the "real McCoy".

Be aware of the plants in your landscape. Several of Nebraska's noxious weeds began as beautiful ornamental plants, but have been allowed to escape. Mapping and monitoring your property can prevent noxious and invasive weeds from becoming established where they are not wanted.



Purple loosestrife along the rivers edge

Ornamentals that would be beautiful in your garden:

Dotted gayfeather

Downy phlox

Native yellow loosestrife




SANDHILLS WEED MANAGEMENT AREA - MIDDLE NIOBRARA WEED AWARENESS GROUP*

WMA Office – 308-346-3393
Blaine/Thomas • Carol Conard – 308-346-4047
Boone • Jack Nordeen – 402-608-0595
Brown • Scott Erthum – 402-760-0093*

Cherry • Barbara Small – 402-322-1067*
Custer • Ridge Horky – 308-872-2410
Garfield • Jimmy Petersen – 308-214-0301
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

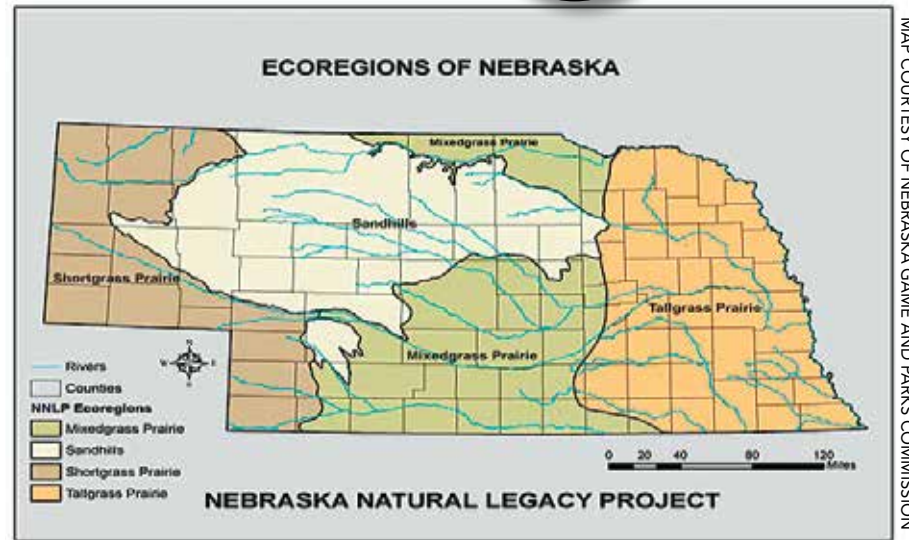
Nance • Chad Borowiak – 308-536-2443
Rock • Rod Stolpart – 402-822-0186*
Valley • Darrel Kaminski – 308-383-2701
Wheeler • Doug Reiter – 308-654-3397

Invasive Plants Watch List: 2018

**NEWS
FLASH!**

In 2018, absinth wormwood and yellow flag iris were added to Nebraska's Watch List in all ecoregions.

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>.



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



Absinth Wormwood



Black Henbane



Houndstongue

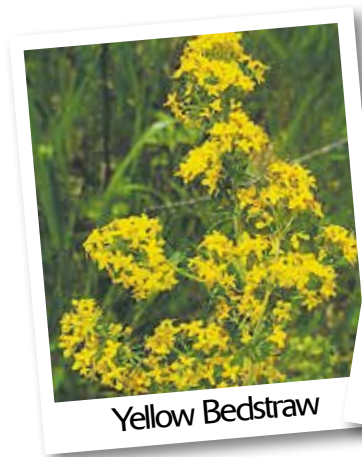


Russian Knapweed



Yellow Flag Iris

CATEGORY 2: Sandhills Ecoregion



Yellow Bedstraw



Absinth Wormwood



Sulfur Cinquefoil



Eurasian Watermilfoil

ABSINTH WORMWOOD
BLACK KNAPWEED
EURASIAN WATER-MILFOIL
HOUNDSTONGUE
SULFUR CINQUEFOIL
YELLOW FLAG IRIS
PERENNIAL YELLOW BEDSTRAW

CATEGORY 2: Mixed-grass Prairie Ecoregion

ABSINTH WORMWOOD
AMUR MAPLE
AUSTRALIAN BEARDGRASS
(CAUCASIAN BLUESTEM)
COMMON AND
CUTLEAF TEASEL
EURASIAN WATER-MILFOIL
GARLIC MUSTARD
JAPANESE HONEYSUCKLE
RUSSIAN KNAPWEED
SULFUR CINQUEFOIL
YELLOW FLAG IRIS



Amur Maple



Garlic Mustard



Caucasian Bluestem



Common Teasel

CATEGORY 2: Tallgrass Prairie Ecoregion



Cutleaf Teasel



Sickleweed



Japanese Honeysuckle

ABSINTH WORMWOOD
AMUR MAPLE
AUSTRALIAN BEARDGRASS
(CAUCASIAN BLUESTEM)
BLACK KNAPWEED
CALLERY PEAR (NON-URBAN)
COMMON AND
CUTLEAF TEASEL
CROWN VETCH
EURASIAN WATER-MILFOIL
GARLIC MUSTARD

GIANT REED
HOUNDSTONGUE
JAPANESE HONEYSUCKLE
ORIENTAL BITTERSWEET
PERENNIAL YELLOW
BEDSTRAW
RUSSIAN KNAPWEED
SICKLEWEED
YELLOW BLUESTEM
YELLOW FLAG IRIS

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>

SPOTLIGHT on Watch List Weeds

By Lora O'Rourke, PRIDE President, Dawes County Landowner

SULFUR CINQUEFOIL

IMPACTS – Sulfur cinquefoil (*Potentilla recta*) establishes in a variety of ecosystems, and is able to invade undisturbed grasslands, shrublands, and open forests. It also invades disturbed sites, such as roadsides, abandoned fields, and areas with heavy livestock grazing. Because of the high tannin content of its leaves and stems, livestock and wildlife tend to avoid eating it.

LIFECYCLE – Sulfur cinquefoil is a perennial herb whose stems are covered with shiny, erect hairs at right angles to the stem. Reaching 8 to 30 inches in height, sulfur cinquefoil has one to eight stems arising from a woody base. Below the woody base is a single taproot with several shallow, spreading lateral roots. The pale yellow flowers occur in a branched inflorescence that is almost flat-topped. Each inflorescence can have from one to 60 flowers. The flowers have five petals, each with a notch in the center of the tip. Sulfur cinquefoil flowers from early May to July.

The fruit is an achene (a dry fruit with a single seed and thin walls that does not open at maturity; for example, a sunflower "seed"). These achenes are shaped like commas and are dark brown with a netted pattern covering the surface. Long-distance seed dispersal can occur via animal fur, clothing, and vehicles (southwestlearning.org).

WHERE FOUND IN NE – Sulphur cinquefoil is widespread throughout Nebraska, but found particularly in the East, the Sandhills, and spreading into the northern Panhandle.

CONTROL METHODS – Mowing is not effective and can increase plant growth via new woody crown shoots. Single plant digging is effective for smaller populations and herbicides can be effective with the appropriate surfactant and repeat treatments.

PREVENTION – Prevention of sulfur cinquefoil establishment by maintaining native plant communities in an undisturbed condition is the most effective control strategy. Monitoring, early detection and eradication of newly established plants before seeds are produced and populations expand is more efficient and effective than laboring to control established infestations. Individual plants and small patches of sulfur cinquefoil can be eliminated by hand-pulling or digging, or by spot spraying of herbicides. The root crown (upper portion of the root system) must be removed or killed so that plants cannot resprout (<https://www.fs.fed.us/database/feis/plants>). Prevent spread by washing vehicles and boots that have been in an infestation.



COMMON TEASEL AND CUTLEAF TEASEL



Common teasel (*Dipsacus fullonum*) and cutleaf teasel (*Dipsacus laciniatus*) are both native to Europe.

IMPACTS – Teasels are aggressive exotic species that have the capacity to take over prairies, open woodlands and glades if allowed to become established. If left unchecked, teasel can quickly form large monocultures excluding all native vegetation. Cut-leaved teasel has been observed to more aggressively invade natural communities than common teasel.

LIFECYCLE – Teasels are biennial (produce seed only once in a lifetime). Teasel produces a deep taproot, up to 2 feet long and an inch wide at the crown. After flowering and producing seed, the plant will die, completing its normal life cycle. The rosette leaves are wrinkled with scalloped edges. Basal leaves generally die by the middle of the flowering season. Teasel plants typically flower after 2 or more years of growth. **Common teasel has a shorter spike on the flower head and has purple flowers. Cutleaf teasel has a longer spike and white to tan colored flowers.** Flowers tend to grow in bands or rings on large, egg-shaped, spiny heads. Inflorescences contain 250 to 1,500 flowers, which bloom for only 1 day. Teasel flowering dates are June through September. The cone-like flower heads can be up to 4 inches tall, occur singly on the tops of stems, and are persistent long after the seeds form (www.kingcounty.gov/services). Each teasel plant is capable of producing over 3,000 seeds, which remain viable for at least 2 years.

Under the flower heads are long, narrow, prickly bracts that curve upward and form a "cage" around the heads. The flowering stems can be from 1.5 to 6.5 feet tall, are ridged and become increasingly prickly upward. Stems can be pithy or hollow and have opposite branching. Grazing animals will not eat the leaves and stems (www.fs.fed.us/database/feis).

WHERE FOUND IN NEBRASKA – Common teasel has been found in 14 Nebraska counties, and cutleaf teasel has been found in 17 Nebraska counties. It can be found along irrigation ditches, waste places, abandoned fields, roadsides, pastures, and stream channels.

CONTROL METHODS – Hand-pulling and digging are management options for small infestations, but the large, fleshy taproots are difficult to remove. Flowers and seedheads will need to be bagged and disposed of.

Frequent mowing throughout the growing season that prevents flowering can deplete food reserves in the taproots and reduce stands over time. It is important to monitor the site and ensure that plants do not flower on shortened stalks. Also remove any stalks that were flattened, but not cut by the mower.

Herbicides recommended for common and cutleaf teasel include 2,4-D, Garlon® 3A or Overdrive®. Always read and follow label requirements. Infestation sites will need to be monitored and treated repeatedly until the seedbanks are depleted.

Prescribed burning alone is ineffective. Prescribed burning may kill some of the isolated small seedlings, but is ineffective against dense seedlings or large rosettes. No biological control is available.

PREVENTION – Do not plant common teasel or intentionally move soil, including soil adhered to recreational vehicles or lawn/garden equipment, which may contain seed of this species. Do not use seedheads in floral arrangements (www.mda.state.mn.us).

Working Together Works!

By Kristi Paul, Sheridan County Weed Superintendent

Working together works. I've used this phrase for many years. In most projects, the more partners and worker bees the bigger the chance of successful results.

This is definitely the case when it comes to Nebraska's Weed Management Area groups. Statewide there are 13 different Weed Management Areas (WMA's). WMA's in Nebraska were started between 1998 and 2005 for several reasons. First, weeds know no boundaries. Having several counties work together to share equipment, expertise and resources makes sense. Second, forming partnerships

with landowners, County, State and Federal partners brings many more players to the table. Finally, state and Federal grants are often geared towards non-profit groups. By forming a WMA and securing non-profit status, many weed superintendents across the state have been able to be a part of large successful grant funded weed control projects.

One big driving force of our state's invasive weed control has been water. Keeping the rivers flowing, and getting the water to Kansas as promised is a huge success story for the WMA groups along the Platte and Republican Rivers. Clearing debris from the river channel, scouring the islands which had been completely infested with purple loosestrife, saltcedar and phragmites, and working to control all of the invasive vegetation is a challenge to say the least. Improving water flow, protecting wildlife habitat, and providing migratory birds the areas they require for stopover roost sites makes the work worthwhile.

Not all work by WMA's has been done on water systems. Early Detection and Rapid Response (EDRR) of weeds that are new and invasive to our state has helped to prevent many of the Watch List weeds (pages 6-7) from becoming established in Nebraska. Weeds such as common and cutleaf teasel, absinth wormwood, and sulfur cinquefoil tend to invade grasslands, disturbed areas or roadsides. Through outreach and education, mapping and control, newly identified invasive weeds can be addressed at small infestation levels.

Our WMA's have been using many different methods to identify and control invasive vegetation. These include mapping on the ground, aerially in planes or helicopters, or using drones. Control methods include herbicide, biological control, deep disking, prescribed fire, and grazing with goats. Spraying has been accomplished using equipment such as ground rigs, helicopters, airplanes, airboats, and amphibious ATV's. Biological control insects have been released on leafy spurge, purple loosestrife, Canada thistle, spotted knapweed and common mullein.

Many projects also include heavy equipment and hand

equipment to control certain plants. This equipment has been used to clear fallen trees from the Republican River to improve water movement, and on the Niobrara River to remove an invasive species from a native woodland community. In cases where larger equipment cannot be used, projects resort to a more hands-on approach. For example, a project focused on an island in the Missouri River involved a group of people searching on foot to find 5 to 10 saltcedar plants and control them. Thousands of acres of noxious and invasive weeds have been controlled. Members of the Nebraska legislature have been educated about the

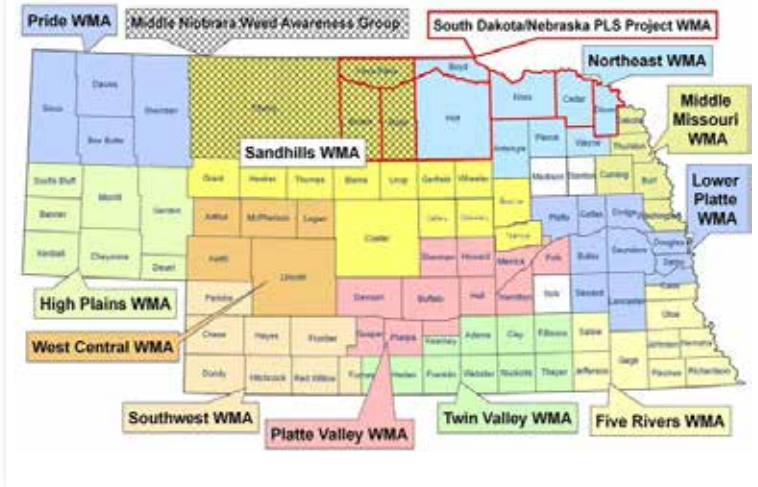
issues, and support funding the projects through the Governor's Riparian Task Force Funds. The Nebraska Environmental Trust, U.S. Fish and Wildlife Service, Public Power Districts, Ducks Unlimited, National Fish and Wildlife Foundation, and many Nebraska Natural Resource Districts have joined in as partners. These partners have provided assistance through funds, equipment, technology, office space, and hands-on noxious and invasive weed control.

To date, over \$32 million of work has been done by WMA's across the state. Of that total, \$18 million comes from different grants, and the remainder is cash donations or in-kind services by WMA members. These funds aren't used just for on-the-ground work. Funds help to provide education and awareness to Nebraskans through brochures and pamphlets,

as well as The Weed Watch. We hope that homeowners and landowners across the state have benefitted from 15 years of Weed Watch publications!

One thing I know for sure....noxious weed control is not a popular topic; however, it is a very important topic. Noxious weeds are detrimental to crop production, livestock, our wildlife, and native plants. Noxious weeds devalue land and reduce tax revenue. A small patch of noxious weeds can be controlled for a few dollars, whereas a few hundred acres infested by noxious weeds can cost several thousand dollars to control. Not only does it benefit your land, it is the law to control noxious weeds.

The Nebraska Weed Control Association and the WMA's across Nebraska work hard to protect "The Good Life" by working together.



PRIDE WEED MANAGEMENT AREA

Box Butte County
Cody Renkoski
308-203-1454

Dawes County
Dan Wordekemper
308-432-3056

Sheridan County
Kristi Paul
308-327-5629

Sioux County
Nick Sanderson
308-668-9453

PHOTO CREDITS

PAGE 1
Allison Zach NISC, Randy Westbrooks
Invasive Plant Control Inc., Kyle
Martens, NE Forest Service
PAGE 2
Pete Pattavina USF&W, Clint Riesen
PAGE 3
Rod Stolcpart, Rock County;
Mark Goebel, Franklin Co.; Dan
Wordekemper, Dawes Co.
PAGE 4
Steve Dewey, Utah State Univ.; Bruce
Ackley, The Ohio State Univ., Bugwood
PAGE 5
Rob Routledge, Sault College; Peter

Dziuk, Minn. Dept. Ag; Dave Powell
USDA Forest Serv. Kristi Paul, Sheridan
Co.
PAGE 6
Wilfredo Robles, MSU, Bugwood.org -
common water hyacinth
PAGE 7
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 naiaid
Robert Vidékj, 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, UWV, Bugwood.org -
European black alder
Rob Routledge, Sault College,
Bugwood.org - Amur maple
Mike Haddock, kswildflower.org -
Caucasian bluestem, St Johnswort
PAGE 8
Ohio State Weed Lab; Montana
Statewide Noxious Weed Prog.;
Theodore Webster, USDA Ag Research,

Bugwood; Chris Evans, Univ. Ill,
Bugwood; Ohio State Weed Lab;
PAGE 9
Phelps County
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 bur sage
Steve Dewey, USU, Bugwood.org -
Scotch thistle- houndstongue

John Cardina, TOSU, Bugwood.org -
bull thistle
Jan Samanek, SPA, Bugwood.org - field
bindweed
K. George Beck, James Sebastian, CSU,
Bugwood.org
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 Hammeeras, 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 lespezeza

something for

KIDS

OF
ALL
AGES

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

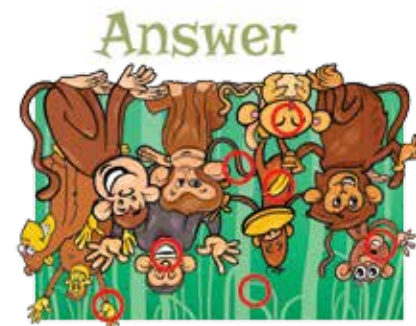
- | | | |
|-------------------|---------------------|------------------------|
| Absinth wormwood | Label | Saltcedar |
| Acre | Lawn | Sandhills |
| Annual | Leafy Spurge | Scotch thistle |
| Biennial | Local | Seeds |
| Bindweed | MNWAG | Sericea lespedeza |
| Bull thistle | Methalated Seed Oil | Spotted knapweed |
| Canada thistle | Methylated Seed Oil | Sulfur cinquefoil |
| Common mullein | Musk Thistle | surfactant |
| Common teasel | NEWMAC | Tall |
| Crops | Nonionic | Teasel |
| Cut | Noxious | Twin Valley |
| Cutleaf teasel | People | Watch list weeds |
| Diffuse knapweed | Perennial | Waste |
| Drift | Pest | Water |
| Drift control | Phragmites | Weather |
| Ecoregion | Plan | Weed |
| Emerald Ash Borer | Platte Valley | Weeds |
| Environment | Plumeless thistle | West Central |
| Fall | PRIDE | Wind |
| Giant Knotweed | Pull | WMA |
| High Plains | Purple loosestrife | Working Together Works |
| Houndstongue | Research | Yellow Flag Iris |
| Invasive species | Riparian | Zebra mussels |
| Japanese knotweed | Roots | |

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

If you have comments about this puzzle, send your name and address to:
 PRIDE WMA, PO Box 449, Rushville, NE 69360

Find 7 Differences

Kids Logic Game



COUNTY-ADDED NOXIOUS WEEDS



FIELD BINDWEED

Banner Garden
Box Butte Morrill
Cheyenne Scotts Bluff
Dawes Sheridan
Deuel



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.

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.

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



COMMON MULLEIN

Cheyenne
County

*1 to 7 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.*

HOUNDSTONGUE *1 to 4 feet tall.
Dawes Sheridan Biennial - spreads
only by seeds.*



BULL THISTLE

Rock

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



WOOLLYLEAF BURSAGE

Banner

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



PERENNIAL YELLOW BEDSTRAW

Cherry

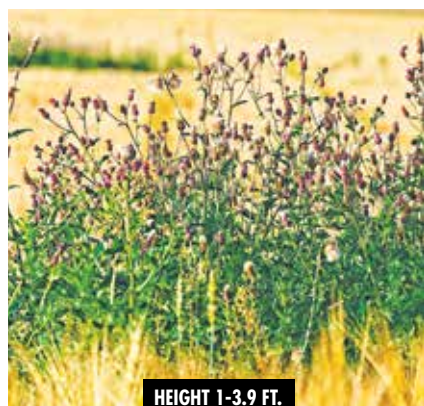
*2 to 4 feet tall.
Perennial - spreads by
seeds and rhizomes.*

NEBRASKA'S NOXIOUS WEEDS

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

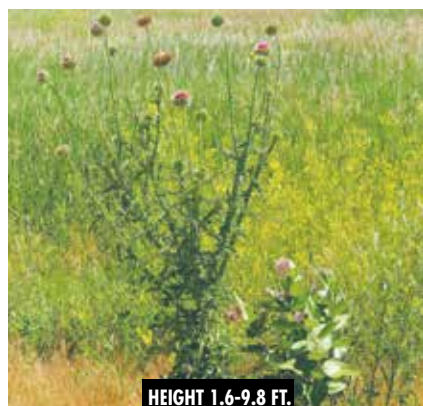
Noxious weed is a legal term used to denote a destructive or harmful weed for the purpose of regulation.

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.



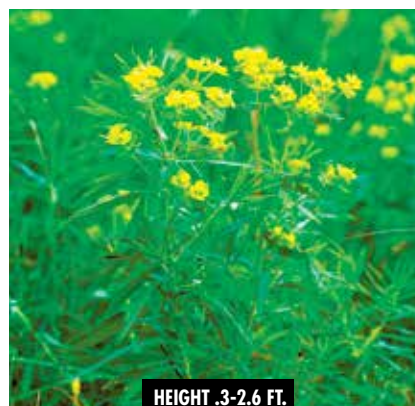
HEIGHT 1-3.9 FT.

Canada Thistle



HEIGHT 1.6-9.8 FT.

Musk Thistle



HEIGHT .3-2.6 FT.

Leafy Spurge



HEIGHT 1-3.9 FT.

Spotted Knapweed



HEIGHT 1-4.9 FT.

Plumeless Thistle



HEIGHT 3.3-20 FT.

Saltcedar



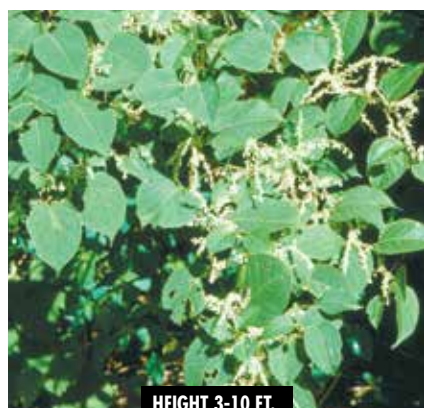
HEIGHT 3.2-20 FT.

Phragmites



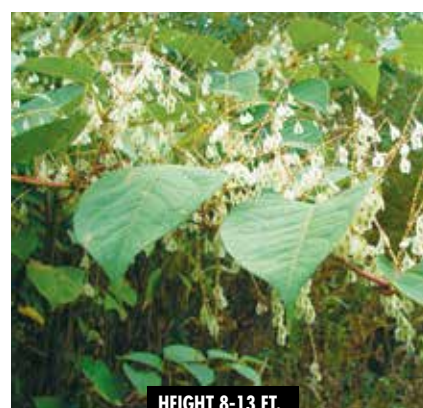
HEIGHT 1-3.9 FT.

Diffuse Knapweed



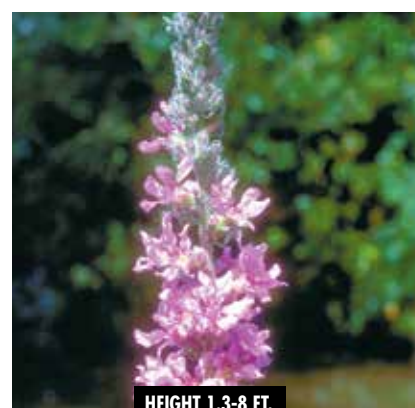
HEIGHT 3-10 FT.

Japanese Knotweed



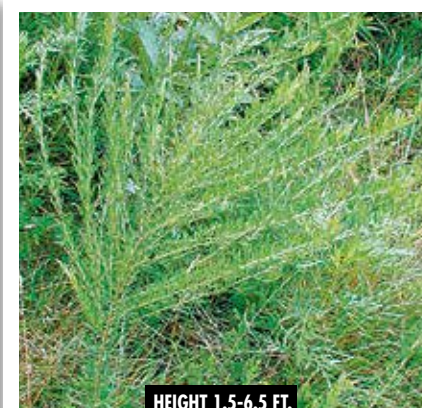
HEIGHT 8-13 FT.

Giant Knotweed



HEIGHT 1.3-8 FT.

Purple Loosestrife



HEIGHT 1.5-6.5 FT.

Sericea Lespedeza