

# The Weed Watch



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

SPRING 2016

## It's Part of my Plan... A Landowner's Perspective of Invasive Weed Management

By Shelley Steffl, Wildlife Biologist,  
Nebraska Game & Parks Commission

My first conversation with Jim Elder was to chat about some fencing ideas he had for property they had just purchased in southern Dawes County. While looking at the site, I noticed that a portion in the center of the property had been burned. Curiosity got the better of me, and I began to ask some questions.

*"So...trying to burn off some old piles?"  
To which Jim replied: "Actually, the  
place had a bad patch of Scotch thistle,  
so I had it burned." "Really?" I asked, a  
little surprised. "Yes." Jim replied without  
hesitation. "It's the first part of my plan..."*

Jim's plan is multi-faceted and long-term. And from the way he sees it, that's what it needs to be in order to not only set back the Scotch thistle, but to make sure it doesn't come back. First, Jim chose to use a prescribed fire. Why fire? Well, Jim has spent years watching fire (both prescribed and wildfire) and the beneficial effects it can have on plants; in particular, weeds. In using prescribed burning, Jim understood that it would not get rid of the thistle problem completely. Instead, he hoped the fire would help to remove existing cover. This makes it easier to treat at ground level, kill at least some of the seed lying on the ground, and help kill or stress rosettes waiting below. The site was burned in the fall of 2014 by the Hemingford Volunteer Fire Department. The fire met its objectives, and has made it easier to conduct current management techniques.

With the fire completed, Jim began to implement the rest of his management plan, which includes herbicide, haying, and grazing.

In the spring Jim spot treats the area of infestation with herbicides. Jim first contacted the agronomist at his local co-op to discuss herbicides and determine which would work best for Jim on his property. In spring and summer 2015, he used Brash®, a mix of dicamba and 2,4-D,

which didn't seem to be as effective as he would have liked in killing rosettes. Jim then used another broadleaf herbicide called WideMatch®, which is a combination of fluroxypyr and clopyralid. This herbicide has been very effective in controlling rosettes. In 2016, Jim plans to use the WideMatch® once more, and then switch to a different herbicide in 2017. Some may wonder why he would change if he's seeing good results, but Jim feels that if he switches up his chemicals, he runs less of a risk of the Scotch thistle building resistance to the herbicides he chooses.

During the summer and fall, Jim uses haying and cattle as his methods of control. After the area had been burned in 2014, a good stand of predominantly cool season grasses reemerged. Jim hays the pasture in the summer and uses the hay to feed his cattle in the winter. The hay is used both on site and at Jim's home place, where he also monitors to ensure the Scotch thistle doesn't become established. When the cattle come in to the pasture in the fall, they prefer to graze in those areas that have been hayed, and Jim has noticed the cattle focus much of their time on the thistle rosettes that remain.



Jim Elder and the Hemingford Volunteer Fire Department conducting a prescribed burn on his Scotch thistle patch, fall 2014. (Photo courtesy of Jim Elder)

at this point, Jim is pleased with the early success. Jim understands that the level of infestation he had on the place didn't happen overnight, but if he keeps on top of them, the thistle will remain manageable and numbers will continue to decline.

The key to remember when treating Scotch thistle, musk thistle, or any other problematic species is to use multiple management techniques. Prescribed fire is not recommended as a stand-alone management technique for any noxious weed species. Over time, continued use of fire can possibly create an environment in which an

invasive or noxious species can thrive. However, using fire as Jim did, as an initial treatment to remove the dense stand of thistle and allow for other management practices to take place, can be very beneficial. Also, prescribed burning at critical times in the year can help weaken the plants you are trying to promote.



A combination of prescribed burning, herbicide, grazing and haying result in effective Scotch thistle control. (Photo courtesy Shelley Steffl, Nebraska Game and Parks Commission)

When planning the herbicide application part of your plan, work with your local county weed superintendent, Coop or contract sprayer to determine which herbicides will work best for you. Planning ahead will help to determine your best course of action:

- Will herbicide work best in the spring, fall, or both?
- Will a certain herbicide work better in the spring and another in the fall?
- Identify where your infestations are; if they are located in wetlands or near streams or rivers, make sure you use herbicides that do not impact fish, invertebrates or other organisms that call these habitats home.
- Where possible, try spot treating rather than blanket spraying; the herbicides you use to treat problem species will also kill the good species.
- Grazing and haying can help to keep grass and other plants down, making it easier to find the invasives and treat them, or in the case of Jim's cattle, help by eating your problem plant.

Setting up a long-term management plan can help lead to better grassland production and reduce your time and costs fighting invasive species. Ultimately, each landowner needs to figure out the best course of action that will work with their operation.

# Work Continues for High Plains Weed Management Area

**By Clinton Riesen, HPWMA Coordinator**

High Plains Weed Management Association (HPWMA) is actively working to inform and educate landowners about Russian olive, saltcedar and phragmites and the program that is offered to remove these species. HPWMA will cost share with the landowner for removal and treatment of re-growth. HPWMA will cover 75% of the cost for removal, 50% of the cost for second year treatment and 40% of the cost for third year treatment, if needed. We want to thank the Nebraska Environmental Trust (NET) for their generous support that funds HPWMA.

This winter has been a time to review previous projects and work with landowners on possible future removal and spraying projects. HPWMA is nearing its ten year anniversary of working with landowners to remove invasive species. The work began in 2007 with work in the Nine Mile Watershed and along Hope Creek clearing of Russian olive to help restore stream function. The goal was to get Nine Mile Creek back to one of the premier trout streams of Nebraska. Today with the help of diligent landowners and the financial assistance provided by the NET, Nine Mile Creek is once again a primary destination for anglers. Since 2007, HPWMA has successfully provided cost-share for the removal and treatment of thousands of acres of Russian olive, saltcedar and phragmites along waterways in eight counties in the Panhandle of Nebraska. This continued effort has helped improve wildlife habitat, control flooding hazards and most importantly save water resources in our delicate region. These are benefits that generations to come will enjoy and thank us for keeping the future in mind.



**Phragmites**



**Saltcedar**



**Russian olive**



As we look back on the progress that has been made we should continue to look at the opportunities that exist along the North Platte River and its tributaries to enhance these areas and keep them as native as possible. Many of these completed projects would benefit from retreatment and HPWMA will cost-share with landowners who would like to participate.

In the past few years we have received normal precipitation and are seeing higher water levels in streams. Many landowners and contractors have expressed concern with the increased spread of the Russian olive seeds that the high water levels have created. Clinton Riesen, from HPWMA, has been working with area landowners to inform them of the programs available and asking that they watch for any new infestations of these species. Both land owners and HPWMA recognize a proactive approach is the best way to control the invasive flora.

Our goals for 2016 are as follows: meet with landowners, check for re-growth on their properties, and develop new agreements where treatment is needed. We also plan to work with new landowners within the HPWMA counties that have not used the program and offer cost-share assistance for initial removal projects.

If you are interested or have questions about the program, please check out the web site at [www.HPWMA.com](http://www.HPWMA.com) or contact Clinton Riesen at (308)633-1264.

# South Central Nebraska Sees Influx in Phragmites

**By Merle Illian, Project Coordinator TVWMA**

The Republican River Valley in south central Nebraska has seen a substantial increase in the noxious weed phragmites this past year. This was despite concentrated control efforts of aerial and ground spraying in the past several years by Twin Valley Weed Management Area (TVWMA). In some sections of the river, we thought the plant was completely eradicated.

However, this past fall during the spray application period, there were numerous new outcroppings of single new plants within the river channel, along with regrowth from existing stands of phragmites according to Webster County Weed Superintendent, Dennis VanWey. VanWey says "It is very important that follow-up monitoring, and if necessary spraying



*Pictured above are County Weed Superintendents Dennis VanWey, Webster County, and Mark Goebel, Franklin County, examining the seed head of a phragmites plant.*

be performed each year to keep this invader in check." Invasive phragmites was designated as a Nebraska noxious weed in 2008, and has been the target of many projects since then, with thousands of acres being treated annually along Nebraska's river systems. This plant often displaces native vegetation and has few forage or wildlife benefits.

Webster County Extension Agent, Dewey Lienemann feels that the dry weather conditions in the last couple of years is the main reason for this increase. Many of the competitive species such as reed canary grass and cattail are reduced substantially by dry weather, which allows the phragmites to get a foothold and re-propagate. In addition many of the tributaries, farm ponds, and low lying wetlands within the drainage contain phragmites which is spread when flushed into the main river channel. "This is where landowners within the TVWMA can really help us out," says Lienemann. "If landowners find phragmites on their property it is important that they contact their local TVWMA weed superintendent. These superintendents are able to work with landowners to properly identify phragmites and provide treatment in the fall free of charge." Proper identification of phragmites is very important, as often times it is mistaken as pampas grass or shatter cane. Weed superintendents along the Republican River to contact are:

- |                         |              |                    |
|-------------------------|--------------|--------------------|
| Furnas • Todd Weverka   | 308-268-2824 | cell 308-962-4654  |
| Harlan • Tim Burgeson   | 308-928-9800 | cell 308-920-0397  |
| Franklin • Mark Goebel  | 308-425-3716 | cell: 308-470-0589 |
| Webster • Dennis VanWey | 402-746-2890 | cell: 402-746-0093 |
| Nuckolls • Nick Elledge | 402-897-1900 |                    |

## HIGH PLAINS WEED MANAGEMENT AREA

<b>Coordinator</b> Clint Riesen 308-633-1264	<b>Banner County</b> Cris Burks 308-874-2433	<b>Cheyenne County</b> Brian Hiatt 308-254-3459	<b>Deuel County</b> Cris Burks 308-874-2433	<b>Garden County</b> Terry Raymer 308-772-4311
<b>Kimball County</b> Rick Wagner 308-235-2681	<b>Morrill County</b> Cody Renkoski 308-262-0372	<b>Scotts Bluff County</b> Jeff Schledewitz 308-436-6709	<b>Sioux County</b> Nick Sanderson 308-668-9453	

## TWIN VALLEY WEED MANAGEMENT AREA

<b>Coordinator</b> Merle Illian 402-746-3560	<b>Adams County</b> Eric Walston 402-461-7173	<b>Clay County</b> Bruce Rumsey 402-762-3652	<b>Fillmore County</b> Mark Goebel 402-425-3716	<b>Furnas County</b> Todd Weverka 308-268-2824	<b>Gosper County</b> Marty Craig 308-324-3771	<b>Harlan County</b> Tim Burgeson 308-928-9800	<b>Kearney County</b> Joseph Anderson 308-832-2854	<b>Nuckolls County</b> Nick Elledge 402-879-1900	<b>Thayer County</b> Brian Schardt 402-365-4366	<b>Webster County</b> Dennis VenWay 402-746-2890
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# Switch It, Change It, Re-arrange It!

## Manage to Prevent Herbicide Resistance

By Kristi Paul, Sheridan County Weed Superintendent

Herbicide resistance can be defined as the acquired ability of a weed population to survive an herbicide application that previously was known to control that same weed population. Herbicide tolerance is the inherent ability of a plant species to survive and reproduce after herbicide treatment.

If, as a homeowner, landowner, farmer, or rancher you have taken the time to fill the sprayer, spray the doggone weeds, and feel like you have done your share to help control the weeds around the place, it's very frustrating to see some weed species act as if they are laughing at you and keep right on growing. Unless you really miscalculated your herbicide mixture or have repeatedly used the same herbicide, it is possible you have herbicide resistance.

When it comes to weed control with herbicides, the terms "mode of action" and "site of action" are used. Without sounding too scientific, herbicides kill plants by binding to a specific protein inside the plant, and inhibit that protein's function. This protein is referred to as the herbicides "site of action". Terms such as pigment inhibitors, cell membrane disrupters, growth regulators, and many other similar terms refer to the herbicides "mode of action". Luckily, we have professionals that understand how herbicides work. We'll let them do the research and give us the recommendations!

In the world of farming, producers are using "Roundup Ready" corn seed, bean seed, etc. Once the crop is up, and the small weeds start to invade, Roundup can be applied to the entire field and control the weeds, but not injure the crop. In this instance, resistance is good. However, when kochia and marestail are growing and becoming herbicide resistant in the same field, the Roundup will not work to control these weeds. The weeds then steal soil moisture and nutrients and impact the quality of the crop at harvest.

What it all boils down to is that using the same herbicide at the same time of year every year will eventually have an impact on what weeds and plants grow on your property. For example, using 2, 4-D (herbicide for broadleaf weed control) season after season may control the broadleaf weeds, but the grassy weeds will thrive. The theory of

switch it, change it, re-arrange it will result in better diversity on your property.

What are Nebraska's herbicide resistant weeds? Common ragweed, giant ragweed, kochia, palmer amaranth, and marestail are some of the common Nebraska weeds displaying glyphosate (Roundup) resistance. Normally, when we apply glyphosate for weed control, we expect it to kill whatever plants to which it is applied. As these weeds become resistant, the herbicide will kill other vegetation, but the herbicide resistant weeds continue to grow, bloom and set seed. Practices land managers can implement to minimize herbicide resistance:

- Rotate crops to keep any one weed species from dominating. Rotations that include row crops, small grains, and perennial forages are most effective.
- Do not use the same herbicide at the same time every year.
- Herbicides with

different sites of action, can be used in different years or within the same year. Herbicides with different modes of action can be used within the same year.

- Using multiple products (tank-mixes) can help to prevent resistance.
- Herbicides with a short-term soil residual are less likely to develop herbicide resistance.
- Focus on preventing weed seed production to reduce the number of seeds in the soil seed-bank.
- Plant certified weed free crop seed.
- Scout fields routinely for noxious weeds and herbicide resistant weeds.
- Apply the labeled herbicide rate at recommended weed sizes.
- Prevent field to field or within-field movement of weed seed or vegetative plant parts.
- Manage field borders with spot-treatment to prevent weeds from invading the field.

For more information about site of action products please visit Iowa State Extension and Outreach <http://www.weeds.iastate.edu/mgmt/2013/sites.pdf>

An example of mode of action can be seen on the chart by visiting [https://ag.purdue.edu/btny/weedscience/Documents/Herbicide\\_MOA\\_CornSoy\\_12\\_2012%5B1%5D.pdf](https://ag.purdue.edu/btny/weedscience/Documents/Herbicide_MOA_CornSoy_12_2012%5B1%5D.pdf)



Common ragweed



Kochia



Palmer amaranth

### PLATTE VALLEY WEED MANAGEMENT AREA

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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

## Platte Valley Weed Management Area Improves Water Flow on the Platte River

By PVWMA Members Rich Walters, Rob Schultz and Marty Craig

Platte Valley Weed Management Area has completed many projects of invasive phragmites control over the past several years. Mechanical control, ground rigs and aerial spraying have been methods used by PVWMA. Now that main channel infestations of phragmites have been reduced, we are focusing on long term sustainable maintenance. Funding has been provided by Platte River Recovery and Implementation Program, Nebraska Environmental Trust, State of Nebraska, Ducks Unlimited and Central Platte Natural Resource District. Below are several "before and after" photos of different areas that have been worked on.



Phragmites west of Lexington 2007

West of Lexington 2009



Phragmites near Locust Street Bridge, south of Grand Island. October 2008



Locust Street Bridge, south of Grand Island. March 2011



Above: Mature phragmites on Willow Island (between Cozad and Gothenburg) 2006.



Left: Willow Island 2010

# FOCUS on FOUR: Plants to watch for in Nebraska's Ecoregions

By Sarlyn McCormick, Rangeland Management Specialist, Nebraska National Forests and Grasslands



## Shortgrass Prairie Ecoregion: Black Henbane

**Impacts** - Black henbane contains hyoscyamine and other alkaloids which have been known to cause occasional livestock poisoning and is also considered poisonous to humans.

**Lifecycle** - Annual or biennial plant that grows thick stems up to 3 feet tall; the lobed leaves are sticky and hairy with a foul odor. Flowers are greenish to brownish-yellow with a purple center and veins that bloom May to August.

**Where found in NE** - Black henbane is found growing on disturbed open sites, pastures, fence rows, roadsides, abandoned gardens and waste areas. It grows best in sandy or well drained loam soils with moderate fertility.

**Control Method** - Hand-pulling or digging can be effective on small infestations and if the taproot is removed entirely. Wearing protective clothing and gloves while handling is recommended to prevent rashes. Plants with mature fruit can be burned to kill the seed and reduce the spread. For large infestations, a systemic herbicide, such as glyphosate, can be applied. Monitor after application and reapply to regrowth and escapes.

**Prevention** - Learn to identify plants and beware of fill dirt, hay and contaminated crop seed from outside your area. Maintaining good vegetative cover considerably reduces the chance of infestation.



## Mixedgrass Prairie Ecoregion: Amur Maple

**Impacts** - Amur maple displaces native shrubs and understory trees in open woods, and shades out native grasses and herbaceous plants in savannah habitats. It is a prolific seed producer and re-sprouts easily from cut stumps.

**Lifecycle** - Amur maple is a small tree up to 20' high with a broad crown and has smooth twigs that are light in color. Leaves are longer than wide and have three shallow lobes with toothed edges and turn a brilliant red in the fall.

**Where found in NE** - Often found in early successional forests, forest edges, open disturbed areas, roadsides, and as planted ornamentals in yards and gardens. It tolerates a wide range of soils and pH values.

**Control Method** - Prescribed burning will set the plant back but not eliminate it completely. Grubbing out small infestations can be effective. Chemical control can be used on cut-stumps using glyphosate. Cut-stump or basal bark spray treatment around the stem with triclopyr can also be used.

**Prevention** - Education is the best prevention for Amur maple. Learn to identify the species and remove when found to prevent seed dispersal. When purchasing trees for plantings avoid using Amur maple.



## Sandhills Ecoregion: Eurasian Watermilfoil

**Impacts** - Eurasian watermilfoil crowds out native species by forming large infestations that can become so large and dense they will halt boat traffic on rivers and can fill a lake's surface from shore to shore.

**Lifecycle** - Eurasian watermilfoil is a submersed, rooted, perennial most often found in water 0.5 to 3.5 meters deep. It tolerates a wide range of water conditions and is winter-hardy. Leaves are olive-green, less than 2 in. long, soft, deeply divided, and feather-like. Leaves are arranged on reddish-brown to whitish-pink stems in whorls of 3 to 6 leaves.

**Where found in NE** - Due to its wide range of water tolerance, Eurasian watermilfoil could be found in any persistent waterbody in Nebraska. It was first collected in Hall and Lancaster counties in 1980, has since spread to Merrick, Fillmore, Dakota, Greeley, Holt, Wheeler and likely others.

**Control Method** - Numerous control methods have been deployed and researched across the United States and Canada by Universities, state and federal agencies. Mechanical harvesters and chopping machines can be used on large infestations, but should be considered carefully as this method can lead to further infestation downstream and generally require multiple treatments in the same growing season. Manipulation of water level has been effectively used in reservoirs. Biocontrol efforts have been proven to be successful using insects and fish to keep populations under control. Registered aquatic herbicides can provide temporary control, but not likely eradicate the infestation. Herbicides that have been used to manage this species include endothall, diquat, copper, 2,4-D, and fluridone.

**Prevention** - Eurasian watermilfoil has the ability to reproduce through stem fragmentation. Spread from lake to lake can occur when fragments become entangled in boat propellers and cling to boat trailers and hulls. Prevention of lake to lake spread requires that boaters thoroughly inspect and clean boats and trailers.



## Tallgrass Prairie Ecoregion: St. Johnswort

**Impacts** - St. Johnswort tends to form dense colonies that crowd out native species and forage plants on pasture lands and is toxic to livestock. It is a well-investigated medicinal herb for a wide array of ailments.

**Lifecycle** - Perennial plant 1 to 2.5 feet tall with an almost woody base and numerous bright yellow flowers on each stem. The most notable characteristic of the plant is the transparent dots on the lance shaped leaves that are 1 to 2 inches long.

**Where found in NE** - Most commonly found in grasslands, pastures, meadows, and rangelands in temperate areas. It can also occur in forested areas in natural clearings, openings, or areas that have been disturbed by fire, logging or road construction. It grows well in well drained, coarse-textured soils.

**Control Method** - Repeated mowing has been found to destroy populations, but should only be used if seed formation has not occurred. Biological control methods have been used to control populations but is limited by the control agent's tolerance to climate. St. Johnswort can be difficult to eradicate with herbicides because of its extensive root system, but control of small populations can be accomplished. In pasture, rangeland and non-cropland sites, applications of 2,4-D will control the plant in seedling and pre-flowering stages. Spring applications of picloram is also effective.

**Prevention** - St. Johnswort does not exhibit invasive tendencies in undisturbed areas, but seeds can remain viable in the seed bank for 20+ years making areas of disturbance especially vulnerable to infestation even if aboveground vegetation is not present at the time of disturbance. In pasturelands sound grazing management strategies that reduce the amount of disturbance areas is the best prevention.

# Stomping Out Yellow Flag Iris at Agate Fossil Beds National Monument

By Melissa McRae, Colorado State University and Jordan Spaak, Graduate Student Colorado State University

Colorado State University graduate student Jordan Spaak and his advisor Dr. Paul Meiman began studying Yellow flag iris (*Iris pseudacorus*) in the spring of 2013. 2-m x 2-m research plots were established at Agate Fossil Beds National Monument to study different combinations of cutting, herbicides and planting native species to reduce iris abundance. Spaak and Meiman also gathered iris seed for a greenhouse experiment to investigate the effects of temperature and light (full sun vs partial shade) on seedling emergence and growth. Interestingly, when they returned to their field plots to check their progress, they began to notice a loss of iris in their footpaths, and a new idea formed to manage the species – trampling. This made perfect sense, because upstream and downstream of the monument are working cattle ranches. Iris is much less abundant on these ranches, compared to inside the monument where there have been no domestic livestock for over 40 years.

Spaak and Meiman became very interested in the idea of large ungulates for reducing iris abundance. Herding wild ungulates is somewhere between illegal and extremely difficult, and acquiring permits to bring domestic livestock onto the national monument would have been too difficult and time consuming. So, to test their hypothesis the pair decided to get the public involved and a volunteer-driven citizen science experiment was created. For this experiment, members of the Sioux County High School Future Farmers of America volunteered to help, and students were led to study plots to stomp on the iris plants for 5 minutes. Results were almost immediate, with a 70-75% reduction in iris density in the first growing season while the native plant species remained intact.

With the success of the citizen science trampling study, Spaak and Meiman are now working with the NPS and the surrounding community to determine the best course of action to further study trampling but with large ungulates instead of high school students. Ultimately, if trampling continues to show promise, Meiman and Spaak hope that the implementation moves from study plots to large-scale iris reduction.

One day in the future, hopefully a large ungulate will be on the monument and can help with invasive plant management. Currently no decisions have been made, and further research will be needed to determine the best way to manage the trampling. One management proposal could be the use of temporary electric fence to force cattle to water along a small portion of the stream. This would allow trampling to occur while livestock were accessing water, however, livestock would be allowed to graze the uplands and not be forced to graze the toxic yellow flag iris. In the end, the final result will be based on what is best for the community and ecosystem as a whole. The National Park Service, Colorado State University, and the local community will continue to work together to identify the best option.

The research team would like to extend a large amount of gratitude to; Nick Sanderson, all of the FFA students involved, James Hill and his staff at Agate Fossil Beds National Monument, and the PRIDE WMA group. The partnerships and collaborative efforts have allowed this project to happen.



Sioux County High School Future Farmers of America (FFA) students (front row from the left): Grace Skavdahl, Becky Watson, Morgan Edmund, Malinda Osienger, Angela Johnson, Devyn Sanderson, Trey Thayer, Noel Santistevan-Sioux County Weed Control, Charlie Stump- Colorado State University, Dept. of Forest and Rangeland Stewardship, Kendra Cruz, Colorado State University, Dept. of Fish Wildlife and Conservation Biology. (Back row, from the left): Jordan Spaak-Colorado State University, Dept. of Forest and Rangeland Stewardship/NPS, Dr. Paul Meiman- Colorado State University, Dept. of Forest and Rangeland Stewardship, Nic Medley- National Park Service (NPS), Nick Sanderson- Sioux County Weed Superintendent and FFA advisor.



Above: Trampling in progress by FFA students; Angela Johnson, Grace Skavdahl, and Morgan Edmund.



Dr. Paul Meiman standing next to a trampled plot three months, post trampling. Note the iris density in the background and the reduction in iris density next to Dr. Meiman. The area with the reduced iris density was trampled.



Right: FFA students leaving a trampled plot. All of the surrounding vegetation is yellow flag iris. Half of the plot was trampled (1 m x 2 m) and the other half was left un-trampled, as a control.

## PHOTO CREDITS

PAGE 2  
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PAGE 5  
C5 Photos Courtesy Jordan Spaak  
PAGE 6  
Wilfredo Robles, MSU, Bugwood.org - common water hyacinth  
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Scott Robinson, GDNr, Bugwood.org - giant salvinia  
Steve Dewey, USU, Bugwood.org  
black herbaine/Russian

knapweed/perennial peppercornweed - Catherine Herms, TOSU, Bugwood.org - goat's rue  
Troy Evans, GSMNP, Bugwood.org - brittleleaf  
Robert Vid&#233;k, Doronicum Kft., Bugwood.org - hydrilla  
Bonnie Million, National Park Service, Bugwood.org - halogeton  
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Nebraska Game & Parks, Ecoregion map  
PAGE 7  
Cindy Roche, Bugwood.org - meadow knapweed

Chris Evans, IWAP, Bugwood.org - garlic mustard  
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PAGE 8  
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PAGE 9  
Photos provided by Lora O'Rourke  
PAGE 11  
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Howard F. Schwartz, CSU, Bugwood.org - field bindweed

Howard F. Schwartz, CSU, Bugwood.org - woollyleaf bursera  
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  
Jill Swearingen, USDI NPS, Bugwood.org - purple loosestrife  
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Bonsak Hammeras, 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

## PRIDE WEED MANAGEMENT AREA

Box Butte County  
Cody Renkoski  
308-203-1454

Sheridan County  
Kristi Paul  
308-327-5629

Dawes County  
Dan Wordekemper  
308-432-3056

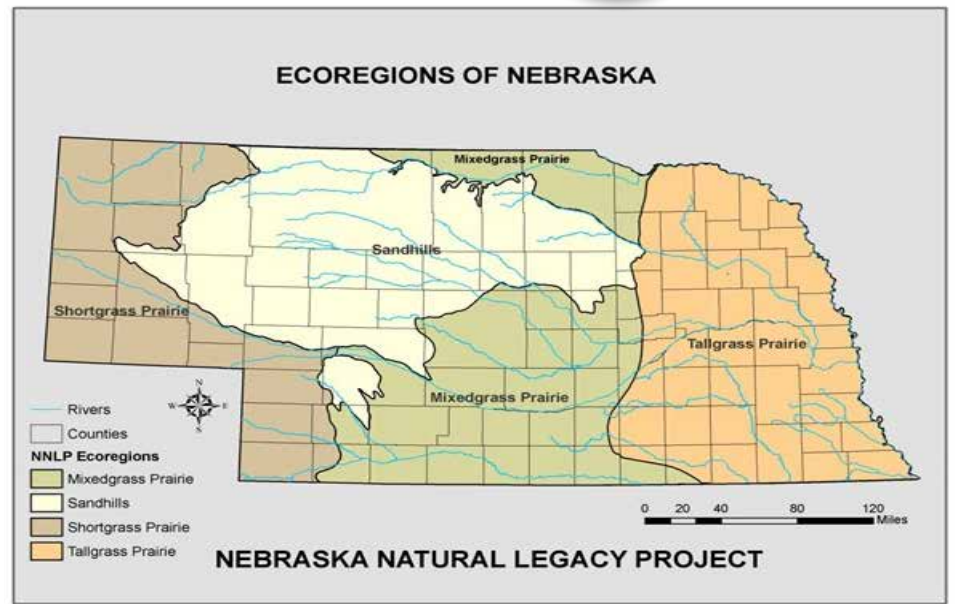
Sioux County  
Nick Sanderson  
308-668-9453

# Invasive Plants Watch List: 2016



**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>.



## 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



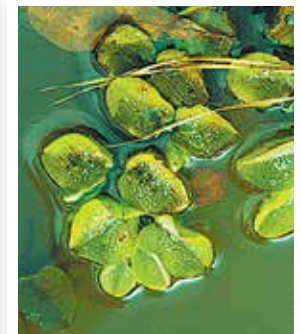
Water Hyacinth



Brittle Naiad



Hydrilla



Giant Salvinia

## CATEGORY 2: Shortgrass Prairie Ecoregion



Russian Knapweed



Goat's-rue



Black Henbane



Houndstongue

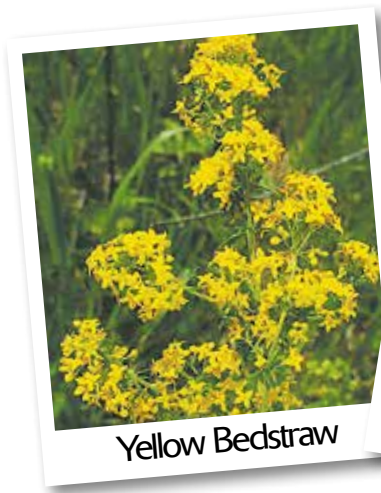


Saltlover



Perennial Pepperweed

## CATEGORY 2: Sandhills Ecoregion



Yellow Bedstraw



Meadow Knapweed



Sulfur Cinquefoil



Eurasian Watermilfoil

BLACK KNAPWEED  
 HOUNDSTONGUE  
 YELLOW BEDSTRAW  
 BROADLEAF PEPPERWORT/  
 PERENNIAL 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. JOHN SWORT  
 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>

# Ten Commonly Asked Questions about Turfgrass Weed Control

By Dan Wordekemper, Dawes County Weed Superintendent and Cody Renkoski, Box Butte, Grant and Morrill County Weed Superintendent

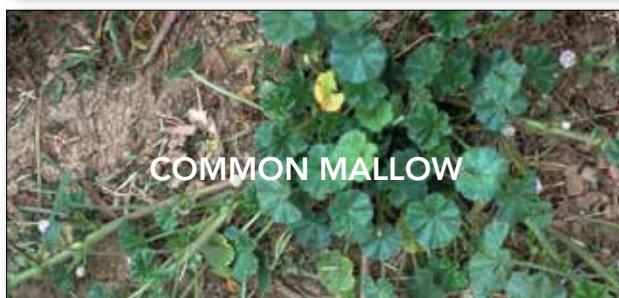
As Weed Superintendents, our main focus is on invasive and noxious weeds occurring throughout Nebraska. We also receive many questions regarding weed issues in lawn and turf grass areas and how to manage them.

Weeds are usually the most visible of turfgrass pests and are a major problem for homeowners. Weeds are a concern mainly because they compete with desirable plants for space, light, water and nutrients. In addition, weeds detract from the appearance and function of lawns. Any plant can be considered a weed if it is growing where it is not wanted. Management and control measures will vary depending on which weeds are present. Proper identification of the weed problem is the first step in developing a management strategy. The best defense against weeds is a thick, well-managed lawn. A vigorous turf will successfully compete with weeds for light, nutrients, and water in a well-managed lawn. Weeds establish themselves most readily in a thin and weak lawn.

Herbicides are available to control most turf weeds. Care should be taken when applying any pesticide, always read and follow label directions. Improper use can result in poor weed control, turf injury, or injury to sensitive ornamental or garden plants. Pre-emergence herbicides should be applied to the turf before weeds germinate, while post-emergence herbicides are applied to the foliage of actively growing weeds.



DANDELION



COMMON MALLO



BLACK MEDIC

## 1. When is the best time to spray lawns for weeds?

Lawn care professionals recommend treating for weeds in both the spring and early fall. In the spring, treatments should take place after the weeds have emerged. Fall treatments should take place earlier in the season, after most of the weed seeds have germinated. This timing will result in the best control.

## 2. What conditions should be avoided when spraying weeds?

The lawn should be dry, avoid application when early morning dew is still present or when the lawn has been recently watered. The chance of pesticide drift increases during a temperature inversion or when it is foggy. Be aware that each pesticide product has its own requirements and all labels need to be read before any application.

## 3. What are the precautions that should be taken when applying a weed killer?

Temperature and wind are two conditions which should always be considered when applying a lawn weed killer. Never apply chemicals if the temperature is above 85 degrees, and if the wind is more than 5 miles per hour. Lawn chemicals can be very volatile, and can drift if the conditions are right, resulting in non-targeted plants being harmed.



Read and follow the directions on the label of each product you use. The label is the law.

## 4. When should I apply crabgrass killer?

Lawn care professionals usually don't recommend applying a crabgrass killer until between the 1st and 15th of May. Most recommendations are to use a fertilizer with a crabgrass killer. Crabgrass is a warm season grass that doesn't germinate until the soil temperature warms up. In late summer and early fall mechanical removal is effective, but herbicide application is not recommended.

## 5. How soon can a newly seeded lawn be sprayed for weeds?

According to the directions on chemical labels, you should wait until after the new lawn has been mowed 3 times which gives the roots of the grass time to establish.

## 6. How soon can my pets go out after my lawn has been sprayed?

Usually your pets can be out on the lawn after the chemical has dried. Always be sure to read the label front to back in case it says otherwise.

## 7. When can I mow my lawn after spraying?

Avoid mowing for several days before and after post-emergence herbicide application. Mowing before application reduces the amount of surface area available to intercept the chemical and causes stress, which reduces the herbicide uptake. Mowing after application may remove the treated portion of the plant and prevent translocation to the roots.

## 8. What is the difference between 2-4D and Roundup?

Turf products with 2-4D in them are designed as selective herbicides, with the target species being broadleaf weeds. These types of broadleaf herbicides do not harm most grasses. Roundup (glyphosate), or other non-selective herbicides containing glyphosate are nonselective herbicide that will kill all plants as well as weeds. Care must be taken when applying glyphosate since it will kill any actively growing plant.

## 9. How long after I treat my lawn can I water it?

Most products have a rainfast time on the label, which can vary from 2 hours to 24hours. Each product is different so label directions should be followed.

## 10. Can I mix different lawn herbicides to get better results?

This can get homeowners in trouble, as some products can be mixed together and others should never be mixed. The label will state if the herbicide is compatible with any other product. Always read the label of every product you are planning to use, from front to back. Most questions are answered on the label. Remember the LABEL IS THE LAW. If still in doubt contact your lawn care professional or the local County Extension Service.

Information provided by: University of Nebraska Weed, Disease, and Insect Management Guide, North Dakota State University, Cass County Extension and Dawes County Weed Control

### 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 • Doug Mulligan – 402-387-2287 \*

Cherry • Barbara Small – 402-322-1067 \*  
Custer • Ridge Horky – 308-872-2410  
Garfield • Jay D Tetschner – 308-346-5696  
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



# Healthy Rangelands Resist Noxious and Invasive Weeds

By Lora O'Rourke, PRIDE WMA President

What are rangelands? Rangeland is a type of land that supports different vegetation including, shrublands, grasslands, steppes, and woodlands occupying approximately 51 percent of the earth's land surface (World Resources Institute 1986). Rangelands make up 42% of the total land area of the United States.

## Did You Know?

Rangeland covers over 20 million of Nebraska's total 49.2 million acres.

In Nebraska, 47% of the land is classified as rangeland and includes vegetation types such as mixed grass prairie, short-grass prairie, tallgrass prairie, and sandhills with each having their own specific management challenges. Rangelands are valuable because they provide many benefits, including forage for livestock, recreation opportunities, wildlife habitat, water resources, and aesthetics (Society for Range Management - <http://www.rangelands.org>). However, without proper management rangelands can be susceptible to invasive plants.

Invasive plant species have found their way to rangelands through many ways. Once established, these plants can displace valuable native plants. Invasive species are not desired on rangelands for many reasons:

- Most invasive plants are not palatable to livestock or wildlife and therefore can easily compete with desirable native species. Overall carrying capacity (number of animals that a specific rangeland can support) is reduced.

- Invasive species typically have deep root systems which utilize the already limited soil moisture, resulting in less moisture available for native plant survival.

- Increased bare ground found with monocultures of some invasive species, results in increased surface runoff and stream sediment.

- Invasive species will occupy any bare or disturbed soil and can quickly take over a pasture, reducing the amount of forage available for livestock.

- Some invasive species are poisonous to livestock.
- While less obvious, invasive species also affect wildlife habitat in the same manner as they do livestock. For example, in grouse habitat, native forbs critical for hatchlings can be replaced with hounds tongue, a non-valuable wildlife plant.

- Once weeds become established on a large scale, the control cost becomes prohibitive and can reduce property values.

Typically healthy rangelands can outcompete or prevent noxious weed invasion. However, natural events such as flooding, wildfire, and long-term drought can have a negative impact on rangeland and allow invasive species to become established.

Keeping rangelands healthy starts with identifying noxious and invasive species that are present on your land. This helps to better determine which management plan is best for its control. Understand how the plant reproduces, grows, spreads, and its longevity. Canada thistle (*Cirsium arvense*) is a cool season perennial broadleaved weed that spreads by seed and vegetatively by creeping roots.



Canada thistle rosette  
April 13, 2016

These roots can extend up to 17 feet horizontally and 20 feet deep. Canada thistle normally initiates growth in spring, reaches the flower-bud stage the first week in June, and full flower about the third week of June. Seed production is usually completed in early July. Undisturbed plants tend to become inactive during

hot weather (July and August). Then new shoots emerge during September and survive into November. The growth on Canada thistle in late September and October helps restore underground food reserves.

After the 2012 wildfire, Canada thistle has become a problem on our small ranch south of Chadron. The wildfire occurred in July/August and burned through our ponderosa pine stands which had an understory of western wheatgrass, Kentucky bluegrass and Canada wildrye. The fire was not as intense as it could have been since we had the timber thinned in previous years. In places where pine duff had been dominant but cleared by fire, Canada thistle, wild lettuce and annual forbs grew the following spring. The majority of the fire had occurred in the 106 acre "Timber Pasture." We did not graze the pasture in 2013, and in 2014 we grazed 20 head of cattle

for 30 days in mid-summer. In 2015 the cattle made good use of the Canada thistle, wild lettuce, mare's tail and other weedy species. We now feel that the desirable grass and forb species in the pasture have rebounded from the fire so this grazing season we plan to place 35 head of cattle in the pasture from May 15 to June 5 and will return in the fall with 45 head from September 15 to October 1. We usually never graze a pasture twice in the same growing season, but since we are targeting Canada thistle, we are going to try it this year with close monitoring of the desirable plants, making sure they are not overgrazed.

We chose the spring for grazing for our program because Canada thistle is in the rosette stage in the spring and is most palatable to livestock. During the cool temperatures of late fall, Canada thistle will make growth before it goes into winter dormancy and will again be more palatable to livestock. While cattle are in the Timber Pasture, we will monitor the grazing level on the desirable grass species and once the overall grazing use is at 50 to 60% we will move cattle to the next pasture in the rotation system. This will allow the "Timber Pasture" grasses to recover and provide competition for the Canada thistle during the mid-summer months. The Canada thistle will need to be monitored for control, and likely need continued early and late grazing for many more seasons. In addition to grazing, we plan to spot treat small patches of Canada thistle with recommended herbicide applications. We



Canada thistle, which became established after the 2012 wildfire, is being targeted with planned grazing management on the O'Rourke ranch south of Chadron.



Cattle will graze this pasture for a short duration starting mid-May and again in the fall.

did consider the use of biological control with insects, but none of our patches of Canada thistle are large enough to support an insect population.

Livestock can be managed to increase desirable perennial plants that compete with noxious and invasive

Continued on page 10.

Continued from page 9.

species. Identifying your grass species and knowing if they are cool or warm season grasses will help when developing a management plan. On our rangeland, native cool season species such as western wheatgrass, Sandberg bluegrass, and threadleaf sedge start growth in April and set seed by mid-June. Once temperatures cool down in the fall, cool season grasses will make growth again, building root reserves before winter. Warm season grasses such as prairie sandreed, big bluestem, blue grama, little bluestem, and sideoats grama start growth in June and set seed by August. When developing a grazing plan make sure both cool and warm season species are able to complete their growth cycles at least every years

four years with the use of deferred grazing.

Deferred grazing can be better achieved with a multi-pasture grazing plan that allows cattle to be moved throughout the growing season. Rotating the grazing use of pastures, or grazing pastures at different times each year, will allow grasses to complete growth cycles, set seed and be competitive against invasive species invasion.

Another important grazing strategy includes turning cattle into a pasture after the key grass species have reached the 4 or 5 leaf stage. Or in other words, the stem of an individual grass plant has 4-5 leaves. At this stage of growth, the grass plant is putting more carbohydrates into the root system than it is expending in growth. This

will result in a more robust, healthy range plant that can compete with or outcompete invasive weeds. In addition, once those key grass species are grazed at 50% of their height by weight, livestock should be moved to the next pasture in the grazing rotation plan. Invasive species take advantage of disturbed areas so it is imperative to not overgraze pastures and minimize activities that result in bare soil. Pastures should only be grazed once per growing season in rangeland areas that receive 15 inches of annual precipitation or less.

Managing for healthy rangelands will result in increased plant diversity, improved wildlife habitat and livestock forage, and provide fewer opportunities for noxious and invasive weeds to encroach upon rangelands.

something for

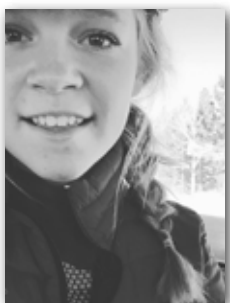
# KIDS OF ALL AGES

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

- |                 |                       |                  |
|-----------------|-----------------------|------------------|
| Range           | Control               | St johnswort     |
| Arid            | Pride                 | Life cycle       |
| Habitat         | Twin valley           | Watershed        |
| Herbicide       | Map                   | Glyphosate       |
| Resistant       | High plains           | Law              |
| Kudzu           | Platte valley         | Lawn             |
| Noxious         | Plan                  | Turf             |
| Invasive        | Production            | Ungulates        |
| Weeds           | Poisonous             | Area             |
| Sandhills       | Label                 | Rangeland        |
| Mnwag           | Ecoregion             | Yellow flag iris |
| Infestation     | Rainfast              | Musk thistle     |
| Prescribed fire | River channel         | Canada thistle   |
| Grazing         | Tributary             | Leafy spurge     |
| Tromping        | Projects              | Knotweed         |
| Landowner       | Flooding              | Knapweed         |
| Management      | Treatment             | Phragmites       |
| Pasture         | Flora                 | Saltcedar        |
| Kochia          | Black henbane         |                  |
| Marestail       | Eurasian watermilfoil |                  |
| Prevention      | Amur maple            |                  |



**Guest Editor**

Ashley Beguin created the Word Find for us! She is 14, attends 8th grade at Gordon Rushville Middle School. She loves to create puzzles (which include a few tricks!), plays softball and volleyball. Ashley is also in 4-H, and is a Jr. C.A.R.E. (local Cancer Assistance group) member.

# COUNTY-ADDED NOXIOUS WEEDS



**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 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
- Cheyenne
- Dawes
- Morrill
- Kimball
- Scotts Bluff
- Sheridan
- Sioux

*1 to 10 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.*

**BULL THISTLE**

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

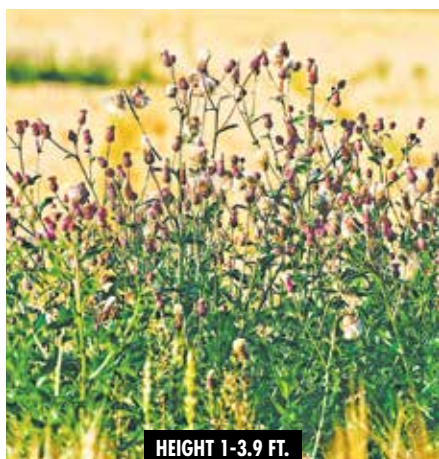


# NEBRASKA'S NOXIOUS WEEDS

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

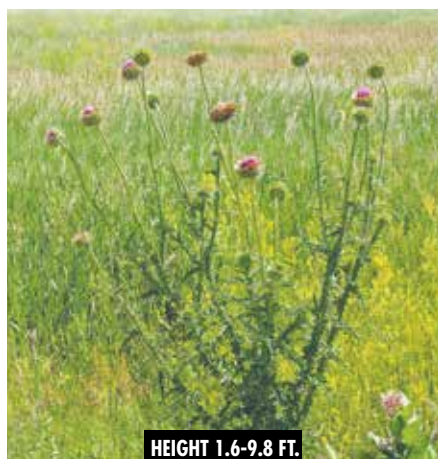
**Noxious weed is a legal term used to denote a destructive or harmful weed for the purpose of regulation.**

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.



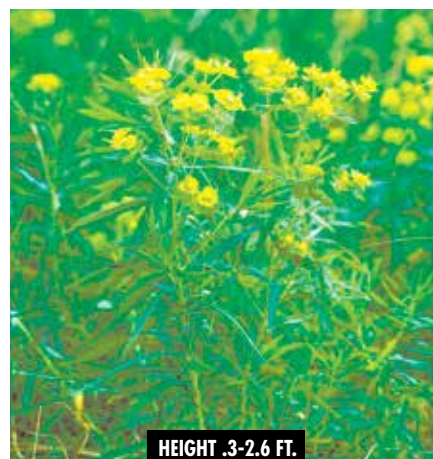
HEIGHT 1-3.9 FT.

Canada Thistle



HEIGHT 1.6-9.8 FT.

Musk Thistle



HEIGHT .3-2.6 FT.

Leafy Spurge



HEIGHT 1-3.9 FT.

Spotted Knapweed



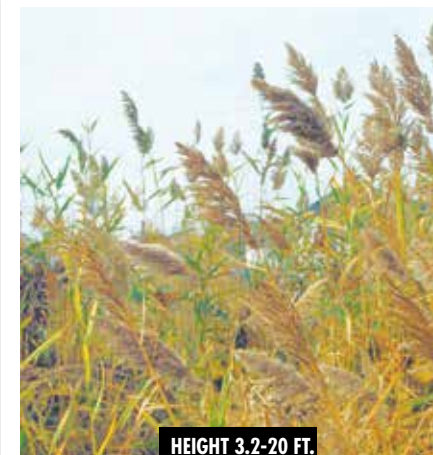
HEIGHT 1-4.9 FT.

Plumeless Thistle



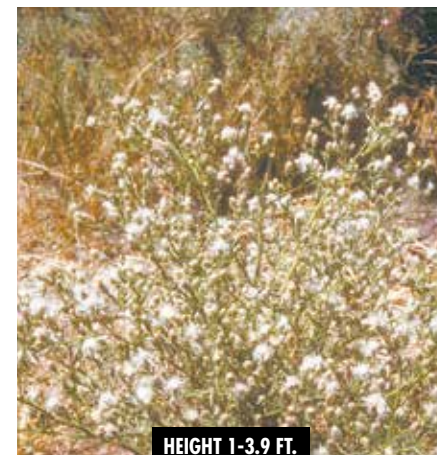
HEIGHT 3.3-20 FT.

Saltcedar



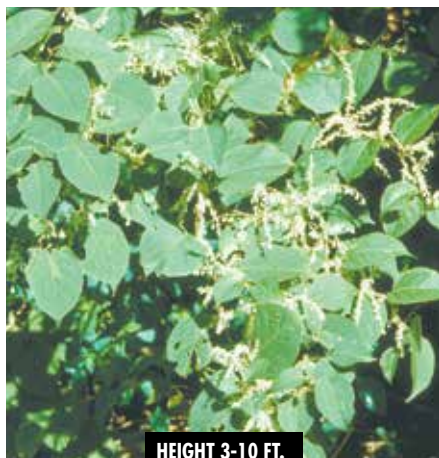
HEIGHT 3.2-20 FT.

Phragmites



HEIGHT 1-3.9 FT.

Diffuse Knapweed



HEIGHT 3-10 FT.

Japanese Knotweed



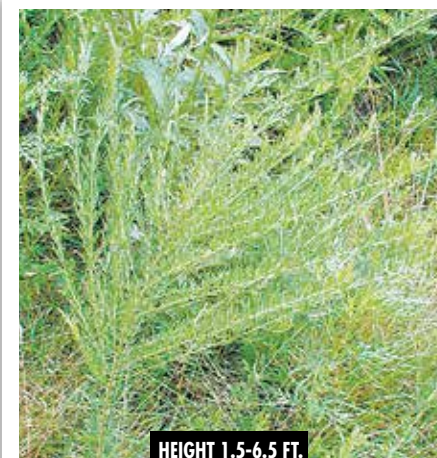
HEIGHT 8-13 FT.

Giant Knotweed



HEIGHT 1.3-8 FT.

Purple Loosestrife



HEIGHT 1.5-6.5 FT.

Sericea Lespedeza