



# LESSON SIX:

Nebraska's Noxious  
and Invasive Plants



# An Invasive Plant is:

- A plant that is non-native to the ecosystem being studied or evaluated *or*
- A native plant that is normally present in small amounts but that has the capacity to dominate the site.
- A plant that causes or is likely to cause economic or environmental harm or harm to human health.
- A plant that is very successful because it has one or more of the following characteristics:
  - Produces large quantities of seed
  - Thrives on disturbed soil
  - Is distributed long distances by birds, winds, mammals or humans
  - Has an aggressive root system that spreads large distances from a single plant
  - Has a dense root system that smothers root systems of adjacent vegetation
  - Produces chemicals which inhibit growth of other nearby plants

*Photo: Downy and Japanese (Field) Brome in the foreground. These grasses are annual, cool-season invasive grasses.*





# Invasive Plants:

- Impact threatened and endangered species negatively
  - According to the US Forest Service, invasive plants have contributed to the decline of 42% of US T&E species and are the main cause of decline for 18% of these species.
- Compete directly with native species for moisture, sunlight, nutrients, and space
- Decrease overall plant diversity
- Degrade wildlife habitat
- Reduce the quality of agricultural lands
- Diminish water quality
- Increase soil erosion
- Decrease recreational opportunities
- Reduce farm and ranch income

*Photo: Even though they are native to the site, eastern red cedar in the background are invasive on some Nebraska ecological sites. These trees were a small part of the native plant community, but they now dominate those sites.*

# A Noxious Weed:

- Has been recognized by the government as injurious to public health, agriculture, recreation, wildlife and/or property.
- Is regulated by a state or local agricultural authority.
- Is an invasive plant; but not all invasive plants are noxious weeds.
- Is considered to be harmful to the environment or animals.
- Grows aggressively, multiplies quickly and has no natural controls.
- Competes with pasture and crops to the extent that production decreases substantially.
- Impacts large areas of agricultural lands, forest lands rangelands and parklands.

# Nebraska's Noxious Weeds

The Nebraska Department of Agriculture designates state-wide noxious weeds. Thirteen plants are designated as Nebraska noxious weeds. These are:

Canada Thistle

Plumeless Thistle

Musk Thistle

Spotted Knapweed

Diffuse Knapweed

Leafy Spurge

Sericea lespedeza

Purple Loosestrife

Saltcedar

Phragmites

Japanese Knotweed

Bohemian Knotweed

Giant Knotweed

# Plumeless Thistle



- Is an biennial forb introduced from Eurasia as an ornamental plant.
- Is widespread across the state and common in northeast Nebraska.
- Grows to height of 4 feet. Its stems are spiny-winged. The leaves are dark green, deeply serrate and pubescent on the undersides. The peduncles (stalks bearing the inflorescence) are spiny-winged.
- Is a food source for butterflies and songbirds.
- Is an aggressive weed and rapidly colonizes disturbed and open areas.

For more information go to:

<https://neinvasives.com/species/plants/plumeless-thistle>

<http://www.neweed.org/NeWeeds/plumeless.pdf>

*Photo: Plumeless Thistle; Photo Source: Nebraska Weed Control Association*



# Musk Thistle

- Is an biennial forb introduced from Eurasia as an ornamental plant.
- Is widespread and common in Nebraska.
- Can grow up to 9' tall. It is very similar to plumeless thistle, but leaves do not have hairs and are not deeply serrate and the peduncles are not winged.
- Seeds are dispersed by wind, small mammals, birds and water.
- Is a food source for songbirds and pollinators.

For more information go to:

<http://www.newweed.org/NeWeeds/musk.pdf>

<http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=2708&context=extensionhist>

*Photo: Musk thistle*

# Canada Thistle

- Is an perennial introduced from Eurasia as a contaminant in crop seed.
- Is thought to be the most widespread thistle in the US and is common in Nebraska.
- Has small seed heads and leaves with variable margins that may be without hair to densely hairy.
- Is a food source for songbirds.
- Spreads by seeds and rhizomes. It develops large patches which expand rapidly even in tilled cropland. Roots from an individual plant may grow 9-18 feet laterally and 6-9 feet deep.
- Causes a direct loss of production in Nebraska estimated in excess of \$3 million annually.

For more information go to:

<http://www.neweed.org/NeWeeds/musk.pdf>

<https://neinvasives.com/species/plants/canada-thistle>

*Photo: Canada thistle*







# Spotted & Diffuse Knapweeds

- Are introduced, biennial or short-lived perennial forbs. The plants are native to Eurasia and were introduced to the US as contaminants in alfalfa.
- Are widespread across the state and common in the northern counties.
- Reproduce primarily from seed and are allelopathic which means that the plants produce a toxin that kills other plants in the root area.
- Have sparse, pale green leaves and woody stems and daisy-like flowers that are pink to purple with a black fringe (spotted knapweed) or white (diffuse knapweed).

For more information go to:

<http://www.neweed.org/NeWeeds/knapweed.pdf>

<https://neinvasives.com/species/plants/spotted-diffuse-knapweed>

*Photo: Spotted knapweed. Photo source: Nebraska Department of Agriculture*

# Leafy Spurge

- Is an perennial forb and introduced from Eurasia as a contaminate in crop seeds, especially wheat from the Ukraine and Russia.
- Is widespread, and found in most Nebraska counties.
- Has dark blue-green, alternate, linear leaves. The inflorescence is an umbel surrounded by yellow-green bracts. It contains a sticky, milky white latex.
- Reproduces by seed and by shoot buds located on the crowns and roots. The seeds can be thrown up to 15' when the seed capsule opens.
- Competes with native vegetation causing an estimated loss of forage value exceeding \$2 million annually in Nebraska.

For more information go to:

<http://www.neweed.org/NeWeeds/spurge.pdf>

<https://neinvasives.com/species/plants/leafy-spurge>

*Photos: Leafy Spurge. Photo Sources: Top Photo: Montana State University Bottom Photo: Sheridan County, NE Weed Department*



# Sericea lespedeza (Chinese Bush clover)



- Is an introduced, perennial, leguminous forb from eastern Asia. It was introduced for stream bank stabilization, livestock forage and hay, and food and cover for wildlife.
- Is found primarily in Southeast Nebraska.
- Is a legume with tri-foliate leaves, and numerous stems.
- Is very aggressive and can form dense monocultures due to its ability to sprout from crown roots and its ability to shade out native plants. Sericea lespedeza seeds are viable for decades.
- Becomes the dominant plant in 3-4 years when included in a seeding mixture.

For more information see:

[http://www.neweed.org/NeWeeds/Sericea\\_Lespedeza.pdf](http://www.neweed.org/NeWeeds/Sericea_Lespedeza.pdf)

<https://neinvasives.com/species/plants/sericea-lespedeza>

*Photo: Sericea lespedeza*

# Purple Loosestrife



- Is a perennial forb introduced from Europe as an ornamental plant and for erosion control.
- Grows in wetlands, marshes, river and creek banks, and wet meadows. It is able to withstand flooding up to 18" deep.
- Is found throughout Nebraska along river systems and wetlands.
- Has heart-shaped leaves and pink to purple flowers which bloom in July through September.
- Reproduces from seed and by shoots produced by its roots. Stem fragments may root and form new plants.
- Forms dense stands over large area which restricts water movement, traps sediment and reduces water quality.

For more information go to:

<https://neinvasives.com/species/plants/purple-loosestrife>

<http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=2709&context=extensionhist>

*Photo: Purple loosestrife*



# Saltcedar

- Is a small tree introduced from Eurasia for erosion control and use in windbreaks.
- Is found salt marshes and flood plains, and shore lines of lakes, ponds and rivers.
- In Nebraska, it is found primarily along the Platte and Republican River systems.
- Has leaves that are green scales and produces white to pink flowers in April through September
- Increases the salinity of the soil by pulling salts from the water and depositing it on the soil surface.

For more information go to:

<http://www.newweed.org/NeWeeds/saltcedar.pdf>

<https://neinvasives.com/species/plants/saltcedar>

*Photo: Saltcedar greening up in foreground*



# Phragmites (Common Reed)

- Is a perennial grass introduced from Europe for erosion control. There are also native biotypes of common reed which is not invasive.
- Is found in wetlands and along streams across Nebraska, especially along the Platte and Republican rivers.
- Leaves are yellow green and wide. The sheaths are loosely attached on the native variety and tightly against the stem on the non-native variety.
- Forms dense stands and grows up to 20 feet tall. The plants spread by extensive, rapidly growing rhizomes, seeds and rhizome fragmentation.
- Can restrict water movement, trap sediment and reduce water quality.

For more information go to:

<https://neinvasives.com/species/plants/phragmites-common-reed>

<http://www.neweed.org/NeWeeds/phrag.pdf>

Photo: Phragmites along Platte River



# Japanese, Giant and Bohemian Knotweeds

- Are shrubs introduced from Asia for use as ornamentals.
- Are found in disturbed areas, along rivers, streams, wetlands, and other moist areas in southeastern Nebraska.
- Can grow up to 10' tall. The stems are reddish-brown, stout, cane-like and hollow between the nodes (described as bamboo-like).
- Small segments of the plants can be transported and regenerate. The plants also produce viable seed and reproduce from rhizomes.
- Knotweed is listed as one of the 100 worst weeds in the world.

For more information go to:

<https://neinvasives.com/species/plants/japanese-giant-knotweed>

[http://www.nda.nebraska.gov/plant/noxious\\_weeds/pdf/bohemian\\_knotweed.pdf](http://www.nda.nebraska.gov/plant/noxious_weeds/pdf/bohemian_knotweed.pdf)

Photos: Japanese knotweed (upper), Giant knotweed(lower). Photo Source: Nebraska Invasive Species Program

# County Noxious Weeds

In addition to State noxious weeds, County Weed Authorities designate county-wide noxious weeds. Plants listed as noxious weeds in some Nebraska counties include:

Bindweed

Houndstongue

Scotch Thistle

Common Mullein



# Bindweed



- Is a vine-like perennial, introduced from Europe as a contaminant in crop seed. It has been used as an ornamental plant and ground cover.
- Is found across Nebraska in pastures, gardens, fields and roadsides on a variety of moderate to low moisture soils.
- Has arrowhead shaped leaves and funnel shaped white to pink flowers.
- Grows from a taproot that may extend 20' deep and that produces numerous long rhizomes.

For more information go to:

<https://www.johnson.k-state.edu/lawn-garden/agent-articles/weeds/bindweed.html>

<https://neinvasives.com/species/plants/field-bindweed>

*Photo: Field bindweed. Photo Source: USDA National Plants Database, Patrick Alexander*



# Houndstongue

- Is a biennial forb introduced from Europe as a medicinal herb.
- Is found in several Nebraska counties, but primarily in the Panhandle and Northwest part of the state. It grows in disturbed areas of rangeland, pastures, meadows and roadsides.
- Has tongue shaped leaves that are hairy and rough. The seed pods are covered with barbs that stick to hair and clothing resulting in it being called Velcro weed and facilitating its spread.
- It contains a poisonous alkaloid which impacts horses and cattle but not sheep.

For more information go to:

<https://neinvasives.com/species/plants/houndstongue/>

*Photo: Houndstongue*



# Scotch Thistle

- Is a biennial forb introduced from the Mediterranean region as an ornamental.
- Occurs across the state, but is most common in the Panhandle. It grows in disturbed areas and over grazed rangeland, pastures, meadows and roadsides.
- Grows up to 6' tall or taller and has numerous, branched stems. Plants produce numerous seed heads (up to 100).
- Can produce up to 14,000 seeds per plant and the seeds remain viable for up to 30 or more years.
- Is frequently visited by butterflies.

For more information go to:

<https://neinvasives.com/species/plants/scotch-thistle/>

*Photo: Scotch thistle. Photo Source: Pride Weed Management Area*

# Common Mullein



- Is a biennial forb introduced from Europe as an ornamental and medicinal herb and as a piscicide (chemical poisonous to fish).
- Occurs across the state, but is most common in western Nebraska. It grows on rangelands, woodlands and pastures.
- Grows up to 8' tall. The leaves are covered with dense hairs giving it a velvety feel. Its extensive root system allows it to access soil moisture better than native plants.
- Can produce up to 240,000 seeds per plant and the seeds remain viable for up to 30 or more years.
- Is frequently visited by pollinators.

For more information go to:

<https://neinvasives.com/species/plants/commo-n-mullein/>

*Photo: Common mullein*

# Invasive Plants Watch List

Invasive plants on the watch list are known to occur in the area or are known to occur in adjacent states.

These plants are divided into three categories:

1. Not known to occur in the area, but if introduced pose a significant risk for invasion
2. Top priority for eradication of new and existing populations
3. Plant populations are established and preventing spread into new areas is a priority

If spread of these plants is not contained, they may be added to either the county or state noxious weed list(s).

<http://www.neweed.org/documents/watchlist.pdf>

*Photo: St. Johnswort a category 2 plant in the Tallgrass Prairie Ecoregion.*



# Common Non-noxious Invasive Plants in Nebraska

- *Annual brome grasses*
- *Sulphur cinquefoil*
- *Absinthe wormwood*
- *Yellow flag iris*
- *St. John's wort*
- *Garlic mustard*

Photo: *Sulphur cinquefoil*





# Activities

- Read about Nebraska's Noxious Weeds and learn how to identify them.
- Review the Invasive Plant Watch List and become familiar with:
  - *Plants in your area that are on the list*
  - *Plants in the area of the State Contest that are on the list*



*Top Photo: Yellow Flag Iris. Photo Source: Bad Plants Website Bottom Photo: Garlic Mustard. Photo Source: USDA National Plants Database by G.A. Cooper*

# References

- <https://www.fs.fed.us/wildflowers/invasives/index.shtml>
- [http://www.nda.nebraska.gov/plant/noxious\\_weeds/index.html](http://www.nda.nebraska.gov/plant/noxious_weeds/index.html)
- <https://neinvasives.com/>
- <http://www.neweed.org/documents/watchlist.pdf>





Absinthe Wormwood



Common Mullein



Japanese or Field Brome

END OF LESSON SIX