

# THISTLES

THE GOOD AND THE BAD

1

## THE GOOD

- ▶ There are both good and bad thistles. Which make talking about them complicated.
- ▶ The good is the native thistles, that butterflies and bees love, making them something good to add to your flower garden. The two most common in Morgan County are Field Thistle, *Cirsium discolor* and Tall Thistle, *Cirsium altissimum*.
- ▶ The other species native to Indiana are rare, threatened or endangered and unlikely to be seen in Morgan County. They are Swamp Thistle, *Cirsium muticum* mostly found in the northern ½ of the state. Carolina Thistle, *Cirsium carolinanum* found along the Ohio river. Hill's Thistle, *Cirsium hillii* found in the northwestern 1/3 of the state. Dune Thistle, *Cirsium pitcheri* only found along Lake Michigan.

2

## FIELD THISTLE, *CIRSIUM DISCOLOR*

- ▶ This one looks a lot like and flowers at the same time as Bull Thistle and is killed a lot by people thinking that is what it is.
- ▶ To ID this biannual/short lived perennial as the native. The flower head has white spots, instead of spines. The stem is smooth and does not have wings. The underside of the leaf will be white. Some times the flowers will be white. This one likes Full sun and can handle dry sites.



3



4

## TALL THISTLE, *CIRSIUM ALTISSIMUM*

- ▶ This is another tall pink flowered thistle that can be confused for Bull Thistle as it blooms at about the same time.
- ▶ To ID this biennial/short lived perennial, look for the large leaves that are entire or nearly so in second year growth. It also has white spots on the floral head and white under sides to the leaves. The stems are hairy. The first-year rosette will be more dissected. This one will grow in wetter and shadier areas.



5



6

## THE BAD

- ▶ In Indiana we have both invasive species list and noxious weed list. Some plants are on both lists. The one I will cover in this program is Canada Thistle, *Cirsium arvense*. Being on the noxious weed list you can be ordered to control it or the county can do it for you and charge you for doing it.
- ▶ Also listed as invasive species are Bull Thistle, *Cirsium vulgare* Nodding/Musk Thistle, *Carduus nutans*. Both can be found in Morgan County.
- ▶ Spiny Plumeless Thistle, *Carduus acanthoides* is also on the list but has only been found once in the state and never collected. I have not seen it and so will not cover it.

7

## CANADA THISTLE, CIRSIUM ARVENSE



8

## DESCRIPTION

- ▶ This herbaceous perennial with erect stems 1 ½-4 feet tall, prickly leaves and an extensive creeping rootstock. Stems are branched, slightly hairy, and ridged.
- ▶ The leaves are lance-shaped, irregularly lobed with spiny, tooth margins and are borne singly and alternately along the stem.
- ▶ They have rose-purple, lavender, or sometimes white flower heads appear from June through October, generally, and occur in rounded, umbrella-shaped clusters.
- ▶ They have small, dry, single-seeded fruits, called achenes, 1-1 ½ inches long including a feathery structure that assist with seed dispersal. These seeds can be viable in the soil for twenty years or more.

9

## ECOLOGICAL THREAT

- ▶ Natural communities that are threatened include non-forested plant communities such as prairies, barrens, savannas, glades, sand dunes, fields and meadows that have been impacted by disturbance.
- ▶ It crowds out and replaces native plants, changes the structure and species composition of natural plant communities and reduces plant and animal diversity.
- ▶ This highly invasive thistle prevents the coexistence of other plant species through shading, competition for soil resources and possibly through the release of chemical toxins poisonous to other plants.
- ▶ This is declared a “noxious weed” throughout the U.S. and has long been recognized as a major agricultural pest, costing tens of millions of dollars in direct crop losses annually and additional millions in costs for control.
- ▶ Only recently have the harmful impacts of Canada Thistle to native species and natural ecosystems received notable attention.

10

## HABITAT and BACKGROUND

- ▶ Canada Thistle does best in disturbed upland areas but also invades wet areas with fluctuating water levels such as streambank sedge meadows and wet prairies.
- ▶ It was introduced to the United States, probably by accident, in the early 1600s and by 1954 had been declared a noxious weed in forty three states.
- ▶ In Canada and the U.S., it is considered one of the most tenacious and economically important agricultural weeds.

11

## BIOLOGY & SPREAD

- ▶ Canada Thistle produces an abundance of bristly-plumed seeds, like Dandelion, which are easily dispersed by the wind.
- ▶ Vegetative reproduction in Canada Thistle is aided by a fibrous taproot capable of sending out lateral roots as deep as 3 (6-15) feet below ground, and from which shoots sprout up at frequent intervals.
- ▶ It also readily regenerates from root fragments less than an inch in length.
- ▶ Because of this tillage is not usually a good option for control. If tried it must be repeated every 3 weeks through out the year and may need to be repeated for more then one year.

12

## CONTROL

- ▶ The key principle to Canada Thistle control is to stress the plant and force it to use stored root nutrients. Canada Thistle can recover from almost any stress, including control attempts, because of root nutrient stores. Therefore, returning infested land to a productive state occurs only over time. Success requires a sound management plan implemented over several years.

13

## MANAGEMENT OPTIONS

- ▶ Canada Thistle can be controlled manually through hand-cutting, individual plants or mowing, larger infestations. This should be done before seed set and must be repeated until the starch reserves in the roots are exhausted.
- ▶ Because early season burning of Canada Thistle can stimulate its growth and flowering, controlled burns should be carried out late in the growing season for best effect.
- ▶ In natural areas where Canada Thistle is interspersed with desirable native plants, targeted application of a systemic herbicide such as glyphosate, which carries plant toxins to the roots, may be effective.
- ▶ For extensive infestations in disturbed areas with little desirable vegetation, broad application of this type herbicide may be the most effective method.
- ▶ Repeated applications are usually necessary due to the long life of seeds stored in the soil.

14

## BULL THISTLE



15

## ID

- ▶ Bull Thistle is the only thistle that has spines on the surface of the leaf, that are long, sharp and deeply lobed.
- ▶ The flower heads are purple and 1 ½ - 2 inches in diameter. The bases are covered in spine-tipped bracts.
- ▶ The leaf blades extend down the petiole (leaf stem) and along stem, forming long, prickly wings



16

Stem



17

MUSK/NODDING THISTLE



18

## ID

- ▶ This is an aggressive, biennial with showy red-purple flowers and spiny stems and leaves. Mature plants can be 1 ½ to 6 feet tall, and have multi-branched stems.
- ▶ The leaves are dark green, coarsely lobed, with a smooth waxy surface and a yellowish to white spine at the tip.



19

## BIOLOGY & SPREAD

- ▶ Both of these thistle are biennial, they take two years to complete there life cycle, the first year is a rosette of leaves and the second it bolts and flowers.
- ▶ They spread by seed, which each plant can produce 1,200 to 120,000, that can be wind blown for miles and last in the soil for ten years or more.

20

## Control

- ▶ **MECHANICAL & MANUAL:** Being a biennial hand pulling or digging for small areas is effective. This can be done with the first year rosette or on the second years growth before they go to seed. They can be mowed to prevent flowering.
- ▶ **CHEMICAL:** Foliar spraying is effective on both species using either glyphosate or triclopyr with a non-ionic surfactant.