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Tippecanoe Invasive Cooperative Taskforce
Newsletter

June 2023

Thistles! The Good, the Bad, and the Beautiful

by Mark Peterson, with photos by Dan Childs

These prickly invaders can often elicit a passionate response, including sickles and sprayers. However, not all thistles are created equal and many fill an important ecological niche. It's important to discern the difference between the non-native, invasive species and the natives before you break out the herbicides and mowers.

The common name "thistle" is often applied to eleven genera within the Asteraceae family. Two genera, *Carduus* and *Cirsium*, represent the bulk of the species in North America. Members of the genus *Carduus* are not native to North America, and musk thistle (*Carduus nutans*) is the most common in Indiana. It is a biennial, meaning that it forms a low-growing rosette the first year and puts up a flowering stalk the second. It has spiny wings on the stems and alternate, coarsely toothed leaves. Flowerheads (up to 2 inches across) are a collection of fine disk flowers that are purple or lavender in color. Spiny-tipped bracts surround the head (5). Plumeless thistle (*Carduus acanthoides*) is similar to musk thistle but is more often found in areas west and north of Indiana (5). These two species are regulated under the Indiana Terrestrial Plant Rule as invasive plants (1).



Flower head of musk thistle (photo by D. Childs)

Biennial thistles can be controlled by close mowing or physical removal if you are persistent. Mowing should be done just after emergence of flower heads but before seeds mature. Consistent mowing over 3-4 years can effectively control a population (4). Several herbicides are highly effective for biennial thistle control. Efficacious and cost-effective, 2,4-D amine is a good option when applied at 1-2 quarts of product per acre. Clopyralid (tradenames Transline, Clopyralid 3) and aminopyralid (tradename Milestone) are more expensive but are highly effective and have some soil residual that helps control seedlings that sprout after application. One strategy is to use 2,4-D in the spring or early summer to stop seed production and then follow up with clopyralid or aminopyralid in the fall to clean up rosettes.

Members of the genus *Cirsium* are referred to as the “true thistles”. Canada thistle (*Cirsium arvense*) is the most notorious invasive species within this taxon. Despite the common name, this thistle did not originate in Canada but was introduced to Quebec and Ontario in the 17th century and somewhat later into New England by contaminated crop seed brought by European settlers. Unlike most other thistles, it is a perennial that reproduces by both seed and rhizomes (creeping roots). An extremely aggressive plant, it can create large, dense patches within a few years after initial infestation. Mature seeds are easily carried by the wind to start fresh infestations at some distance. Leaves usually have crinkled edges, spiny margins, and are somewhat lobed. The plants are typically 2-5 feet tall, with slightly hairy stems that are branched at the top. In mid-summer these branches carry small (3/4

inch or less), lavender flower heads (5). In Indiana it is listed as a “Prohibited Noxious Weed”, and landowners can be legally required to control infestations on their property (1).



Canada thistle patch (photo by M. Peterson)



Canada thistle flower heads (photo by D. Childs)

Controlling Canada thistle can be challenging. Because of its reproduction by rhizomes, mowing and pulling are mostly ineffective. Efforts to establish biological control agents have failed to significantly affect Canada thistle infestations in North America. Also, insects introduced to control Canada thistle can sometimes attack native *Cirsium* species (2). Chemical control is the most effective means of reducing infestations of this species. Applications of 2,4-D will give a very satisfying burn down of Canada thistle foliage, but it does not do a good enough job of killing off the below-ground structures. Glyphosate (tradenames Roundup/various) works well at controlling the above and below ground portions of the plant, but it is non-selective and will kill most other plants in the sprayed area. As with musk thistle, clopyralid and aminopyralid are highly effective herbicides for Canada thistle control. Clopyralid is especially useful for controlling thistles around desirable trees and shrubs since most are tolerant. The exceptions are leguminous trees such as locust and redbud. Early to mid-fall applications of glyphosate, aminopyralid, or clopyralid are often the most effective, though spring timing will work if sufficient top growth (>6 inches) is present and weather is warm.

The genus *Cirsium* also contains a few non-native biennial thistles such as bull thistle (*Cirsium vulgare*) and European marsh thistle (*Cirsium palustre*). Bull thistle can commonly be found in Indiana and is regulated under the Indiana Terrestrial Plant

Rule (1). Control measures for these species are the same as mentioned above for musk thistle.



Pasture thistle.
(photo by D. Childs)

However, not all thistles are such bad actors. Many members of the genus *Cirsium* are native to North America and are important to pollinators, birds, and native insect herbivores. Over 200 species of bees, butterflies and other pollinators have been documented visiting native thistles in North America (2). Larvae and adults of many native insect species feed on the stems and flowers of native thistles. Hummingbirds often feed on the nectar of thistles and many other birds forage on the seeds. Field or pasture thistle (*Cirsium discolor*) and Tall thistle (*Cirsium altissimum*) are native species found in many parts of central Indiana (3).

Unfortunately, populations of some native thistles are in decline. In northern Indiana, Pitcher's thistle (*Cirsium pitcheri*) is considered threatened, mainly due to encroachment by invasive plants such as oriental bittersweet (*Celastrus orbiculatus*). Hill's thistle (*Cirsium pumilum* var. *hillii*) is an endangered species officially found only in Jasper, Newton, White, and Tippecanoe counties (3). Most native thistles are biennials or very short-lived perennials that only reproduce by seed.

So before you pull the trigger on a thistle in your yard or wildlife area, be sure to identify it as friend or foe first. Many native thistles have thick, white hairs on the underside of the leaves, while non-native species are usually grey or green underneath. Swamp thistle (*Cirsium muticum*) is an exception. It is a native species with leaves that are green and nearly hairless on the underside.



*Underside of bull thistle leaf on left and pasture thistle on right
(photos by M. Peterson and D. Childs)*

Much of the information presented in this article can be found in “Native Thistles, A Conservation Practitioner’s Guide” published by the Xerces Society (2). It is a useful resource that will help you identify native thistles and manage invasive ones. Before using any of the herbicides mentioned above, please read all label directions and wear appropriate protective clothing.

References:

(1) A Guide to the Regulated Terrestrial Invasive Plant Species of Indiana.

https://www.entm.purdue.edu/iisc/pdf/IN_Regulated_Terrestrial_Invasive_Plant_Species_Guide_small.pdf

(2) Eckberg, J., Lee-Mäder, E., Hopwood, J., Jordan, S.F. and Borders, B., 2017. Native Thistles: A Conservation Practitioner’s Guide .Plant Ecology, Seed Production Methods, and Habitat Restoration Opportunities. 92 pp. Portland, OR: The Xerces Society for the Conservation of Invertebrates. <https://xerces.org/publications/guidelines/native-thistles-conservation-practitioners-guide>

(3) Indiana Plant Atlas <https://indiana.plantatlas.usf.edu/Default.aspx>

(4) Panke, B., Dobbratz, M., and Renz, M. 2013. Management of invasive plants in Wisconsin: Biennial thistles (A3924-16). University of Wisconsin-Extension <https://cdn.shopify.com/s/files/1/0145/8808/4272/files/A3924-16.pdf>

(5) Wax, L.M., 1999. Weeds of the North Central States. North Central Regional Research Publication No. 281. University of Illinois at Urbana-Champaign Extension.

Volunteer Opportunities

Wabash Riverfest is coming up on **Saturday, July 8** — Volunteer for this annual festival celebrating the mighty Wabash River and get a free rain barrel, native tree or shrub, or a river-friendly book!



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[Events Recap](#)



MindBOGgling

Families attended the event at the Celery Bog to enjoy live animal talks, hikes, crafts, and other displays to showcase what the nature center has to offer and what other environmental organizations offer as well. Thanks to our friends at West Lafayette Parks Department for a wonderful event!

Native Plant Fest

Community members bought native plants, went on tree ID hikes, pulled garlic mustard, and attended other great workshops! Thanks to our friends at Tippecanoe County Soil & Water Conservation District for organizing another great NPF!



TICT Booth in the Community



Stop by our booth, say hi, and grab some great stickers! We will be at the following community events this summer:

- Pollinatorpalooza at Prophetstown State Park on June 24
- Wabash Riverfest on July 8
- Lafayette Farmers Market on July 29
- Lafayette Farmers Market on August 12
- Mosey Down Main Street on September 2
- West Lafayette Farmers Market on September 6

WREC's Tool Library

tool library



<http://www.wabashriver.net/tool-library/>

Did you know Wabash River Enhancement Corporation (WREC) has a free tool library? You can borrow some tools to help remove your invasive plants! Check out their cool, new website by clicking the button below.

[WREC's Tool Library](#)

Volunteer Groups



TICT is looking for businesses, organizations, clubs, and other groups to volunteer for invasive removal projects in our community! No experience necessary—all tools provided! It's a great opportunity for team-building. Contact **TICT** at TICTaboutinvasives@gmail.com to learn more.

Upcoming Events



Pollinatorpalooza

Saturday, June 24 at Prophetstown State Park



July 8 · 9a - 4p



Tapawingo Park

Wabash Riverfest

Saturday, July 8 at Tapawingo Park

9 am - 4 pm

[Learn more](#)



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