



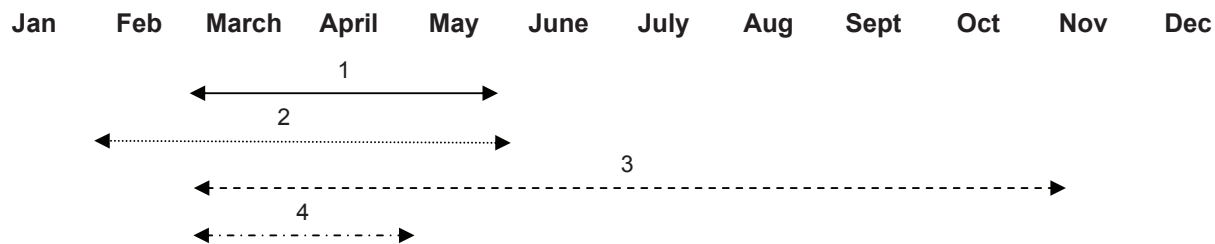
Leaves



Male flowers



Female flowers



Management Techniques

- (March-May) Hand Pull. Make sure the entire root system is removed and bagged or this will be ineffective. Due to its perennial nature, entire plants must be killed in order to prevent re-growth from rootstock. In small areas this is your most effective choice. *This will need to be repeated multiple times and for multiple years, and should be used in conjunction with all the following techniques.*
- (Feb- May) Cut or Mow. Repeated mowing or cutting close to the ground can reduce infestations within three or four years. Cutting should be done at least 3 times per year. Note: Mowing after the plant flowers will only spread seed; clean mower if used in areas with plants in seed. *This should be followed with technique 3 after the plant has had a chance to regain most of its foliage, and with technique 4 after enough fuel is collected.*
- (March-Early November) Foliar Spray. Using a sprayer, apply herbicide to actively growing thistles that have not bloomed yet. This technique will have a deeper root-kill if used in the fall, but can be used to top kill the plant in the spring and summer. *This technique should be followed with technique 1 on any missed plants. Choose ONE of the following herbicides:*
 - 7 ounces per acre Aminopyralid solution
 - 2% Clopyralid solution (if temp. is between 35°F and 80°F).
- (Early Spring) Prescribed burn. This may discourage growth of current stems, however, it may encourage germination. After burning, areas should be monitored for re-growth. *This should be followed with technique 2 if the area is large, or technique 1 if the area is small.*

DUE TO THE LONGEVITY OF THE SEEDBANK, AREAS NEED TO BE MONITORED FOR AT LEAST 20YEARS AFTER STARTING TREATMENT.

For More Information Visit:

<http://www.HawkeyeCWMA.org>

ALWAYS READ AND FOLLOW PESTICIDE LABELS.

Proper training for prescribed fires is highly recommended.

Basic training can be found online at
<http://training.nwccg.gov/courses/s130.html>
 and
<http://training.nwccg.gov/courses/s190.html>

Related Websites:

<http://www.iowadnr.com/forestry/invasive.html>
<http://plants.usda.gov>
www.invasivespecies.gov
www.nps.gov/plants/alien

Credits:

Photographs: Missouri Botanical Garden; Peggy Greb, USDA Agricultural Research Service; Richard Old, XID Services INC; Michael Shephard, USDA Forest Service; Steve Dewey, Utah State University; Leslie J. Mehrhoff, University of Connecticut; www.bugwood.org; www.mobot.org.

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The Hawkeye Cooperative Weed Management Area (HCWMA) is a collective group of county, state, and federal agencies, nonprofit organizations and community associations who have come together to **combat the invasive species problem in Eastern Iowa**. The HCWMA serves Benton, Cedar, Iowa, Johnson, Jones, Linn, and Louisa Counties and is open to all interested parties. The Term CWMA, or Cooperative Weed Management Area, refers to a local organization that integrates invasive species management resources across jurisdictional boundaries in order to benefit entire regions.

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All Hawkeye CWMA members (agencies, organizations, and individuals) are equal opportunity providers and employers.

Canada Thistle

Cirsium arvense



A SERIOUS THREAT
 To
 Iowa's Prairies/Grasslands

What is Canada Thistle?

- Perennial flowering plant.
- Native to Europe and Asia.
- Introduced, probably by accident, in the late 1600s.
- Is an invasive plant that has been designated a noxious weed in almost every state.



Line Drawing of Canada Thistle

What is the threat to Iowa?

- Livestock cannot eat it, giving it an advantage to spread.
- Can reproduce from a root fragment less than an inch long.
- Forms dense stands that can shade out native vegetation, which reduces plant and animal diversity.
- Can grow under many conditions.
- Seeds may be dispersed through wind, though most seeds are not viable.
- It's main form of reproduction is through spreading roots.

What does Canada Thistle Look Like?

Identifying traits: Grows 1½ to 4 feet tall. Leaves have spiny toothed margins. Seeds are feathery. The flowers can be purple or white. The flowers can look different if the plant is male or female. Root stocks will spread up to 10 feet in 1 season, and send up new shoots every 6 inches.



Young plants:

The leaves of the young plant are dark green and form a rosette for the first few months of life.

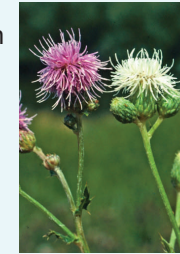
Leaves:

The leaves are dark green lance-shaped, irregularly lobed with spiny, toothed margins, and arranged alternately along the stem.



Flowers:

Flowers are usually purple, but can be white, and measure up to ½ inch diameter. They are generally in umbel shaped clusters. The flowers usually appear in June through October. Female flowers have a fragrance, males do not.



Seeds:



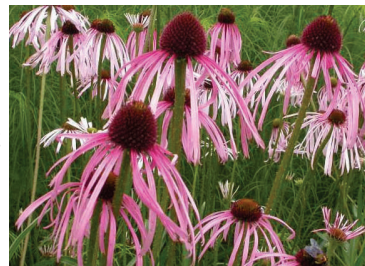
Seeds appear from August to October and are 1-1 ½ inches long with a feathery appearance. A majority of the seeds will germinate in a year, but they can be stored in the seed bank for up to 20 years.



Native Alternatives:

Pale Purple Coneflower (*Echinacea pallida*)-

A native herbaceous perennial that grows up to 3 feet tall. It blooms from June to July with fragrant, purple flowers. The flowers attract many different pollinator species, and the seeds attract birds in the winter. This is an easy to grow plant that is tolerant of drought, heat, humidity, and poor soils.



Rattlesnake Master (*Eryngium yuccifolium*)-

This yucca-like plant grows up to 5 feet tall. It is an herbaceous perennial that can be found in the native prairies of Iowa. The greenish-white flowers bloom from June to September. It prefers dry and sunny sites. The leaves and flowers have sharp spikes, giving it the fitting common name of rattlesnake master.



Differences between Canada Thistle and Field Thistle:

Canada Thistle (*Cirsium arvense*):

Canada Thistle is registered as a noxious weed in almost every state, including Iowa. It has basal rosettes that stay around for only 2 to 3 months. It typically grows between 1½ to 4 feet tall and has a very extensive creeping root system. When the plant is young it can be grazed on by sheep and goats, but after maturity, livestock tend to stay away from it.

Field Thistles (*Cirsium discolor*):

Field thistle is native to Iowa, though it is declared a noxious weed. Field thistle is a biennial, so the basal rosette appears for an entire year. The plant grows between 2 and 8 feet tall and has a tap root. Another identifying characteristic of Field thistle is that the bottom of the leaves are white and the tops are hairless.



Possible Biological Control Method:

PST (*Pseudomonas syringae* pv. *tagetis*) is a bacterium that is being researched as a possible control method for Canada Thistle. PST prevents the plant from producing enough chlorophyll to sustain life, turning plants a yellow, washed-out color. Plants infested with the bacteria can be transplanted into other Canada Thistle stands, so that the bacteria can spread. Keep a look out for more information on PST as a future control method for this invasive plant.