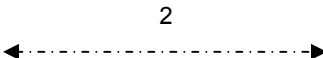
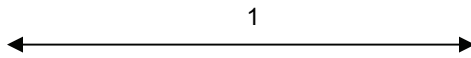




Jan Feb March April May June July Aug Sept Oct Nov Dec



**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.nwcg.gov/courses/s130.html> and <http://training.nwcg.gov/courses/s190.html>

**Related Websites:**

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

**Credits:**

**Photographs:** Dave Powell, USDA Forest Service; Derek Anderson, University of Wisconsin-Stevens Point; Loke T. Kok, Virginia Polytechnic Institute and State University; Norman E Rees, USDA Agricultural Research Service; Ricky Layson, Ricky Layson Photography; Steve Dewey, Utah State University; Bugwood.org. Derek Anderson; Merel R. Black; Steve C. Garske; wisplants.uwsp.edu.

**Brochure Created By:** Karen Clauson

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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.

Funding for this brochure provided by the US Forest Service through a Healthy Forest Initiative Grant.

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

**Plumeless and Musk Thistle**  
*Carduus acanthoides*  
*Carduus nutans*



**A SERIOUS THREAT To Iowa's Prairies/Grasslands**

**Management Techniques**

1. (Late Spring-Summer) Mow or cut second year plants twice per growing season just before flowering. Mowing after flowers have bloomed may spread viable seeds. Plants may also be cut with a shovel 2 inches below the ground before flowering.
2. (Fall) Apply herbicides, such as 2,4-D, to first year rosettes once native vegetation has gone dormant. Herbicides, such as glyphosate, may also be applied to the stems of second year plants, after flower heads have been cut and bagged. (\*\*Important Note: Glyphosate is non-selective, avoid contacting non-target plants).

## What are Plumeless and Musk Thistles?

- Biennial flowering plants.
- Not native to the United State.
- Classified as noxious weeds in Iowa.
- Found mostly in disturbed areas, old fields, and roadsides.



An infestation of Musk Thistle

## What is the threat to Iowa?

- Each plant can produce up to 10,000 seeds which have a 95% germination success rate.
- Spreads rapidly into new areas.
- Out competes native vegetation for food, water, and nutrients.
- Threatens plant biodiversity.

## What do Plumeless and Musk Thistles Look Like?

**Identifying traits:** The first year plant emerges as a rosette in the early spring. In the second year it grows up to 7 feet tall, with thorny and branching stems. Reddish purple flowers bloom from May through August.

### Rosette:

Rosettes emerge from early spring through late fall.



## Native Alternatives:

### Field Thistle (*Cirsium discolor*)-

This native biennial thistle can grow up to 8 feet tall. It blooms with a light pink/purple flower in late summer or fall, providing color at a time when many flowers are done blooming. Flowers attract a plethora of pollinator species. Although short lived, it easily re-seeds itself.



### Leaves:

**Plumeless Thistle-** Simple, alternate, deeply divided alternate lobes, yellow-white spines, more hairy on the underside than top.

### Musk Thistle-

Simple, alternate, very spiny, smooth on both sides, wavy.

### Stems:

**Plumeless Thistle-** Emerges in May of second year as an erect stem with branches.

**Musk Thistle-** also emerges in May of second year but appears winged and has hairs and thorns.



### Flowers:

Red or purple flowers bloom from May to August. Contain spines at the base of each flower.



## Know Your Thistles...



Tall Thistle



Bull Thistle



Field Thistle

When controlling for thistles, it is important to know which thistle you are dealing with. Most thistles look nearly identical, especially when comparing the flowerheads. However, each thistle has a few small defining characteristics. Knowing your thistles is important because the control techniques may vary greatly for different species. It is also important because there are many thistle species that are native to Iowa. These native thistles play an important role in Iowa's ecosystems. So before you spray or cut down a thistle, make sure you have the proper identification.

### Native:

Field Thistle (*Cirsium discolor*)  
 Tall Thistle (*Cirsium altissimum*)  
 Flodmans Thistle (*Cirsium flodmani*)  
 Wavyleaf Thistle (*Cirsium undulatum*)  
 American Star Thistle (*Centraurea americana*)  
 Prairie Thistle (*Cirsium canescens*)  
 Hill's Thistle (*Cirsium hillii*)  
 Swamp Thistle (*Cirsium muticum*)

### Non-Native:

Plumeless Thistle (*Carduus acanthoides*)  
 Musk Thistle (*Carduus nutans*)  
 Bull Thistle (*Cirsium vulgare*)  
 Canada Thistle (*Cirsium arvense*)  
 Yellow Star Thistle (*Centraurea solstitialis*)  
 Red Star Thistle (*Centraurea calcitrapa*)



### Wavyleaf Thistle (*Cirsium undulatum*)-

Wavyleaf Thistle is native to Iowa, and grows up to 3 feet tall. It prefers full sun and dry conditions. Pale pink flowers bloom throughout the summer and fall. It attracts a variety of wildlife and would add a unique color to any garden.