

Category A—High

Musk thistle (*Carduus nutans*)

Identification and Impacts



Photo credit: Bureau of Indian Affairs



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Key ID Tips

- Leaf edges deeply lobed and spiny
- Single flowers at the end of each stem about 3 inches wide.
- Flowers are nodding and hemispherical.

Navajo Name

Azee'okani'whooshi

Azee'okani'deniní

Origin

Native to Europe and the Mediterranean region.

Description

Musk thistle is a winter annual or biennial with prickly leaves and wings along the stem. Individual plants can grow up to 5 feet tall. They have deep taproots and start as a rosette before bolting in the spring. Flowers are pink to purple with a single flower at the end of each stem. Flowers are round and hemispherical and are nodding on long stalks. Flowers also have distinct triangular bracts with a spine at the end that can be green, straw-colored, or purple .

Biology

Musk thistle germinates in the winter to early spring and start as a rosette before bolting in the summer when flower development starts. They only spread by seed, which can fall near the parent plant or disperse by the wind to greater distances. Seeds can persist for a few years in the soil. Musk thistle prefers disturbed sites and can tolerate a wide range of soils.

Locations

Found throughout the Navajo Nation along roadsides, farm fields, and rangelands.

Ecological Threat and Management Concerns

A single plant can produce 100,000 seeds, which can invade an area within a few years. While short lived, their prolific seeding can create dense clusters that crowd out native vegetation. Their prominent spines also discourage animals from grazing or entering invaded areas.



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Management Recommendations

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Additional safety measures and limitations may apply to each method. Refer to the [Navajo Nation Integrated Weed Management Plan](#) for more information.

Mechanical/Manual Removal

Manual removal is feasible for small populations. When cutting thistles, the top of the root crown should be removed, while grubbing should cut plants 2 to 4 inches below the soil surface to prevent resprouting. Mowing can reduce seed production and must be repeated every 1 to 2 months when blooming as plants bloom at different times. Mowing is most effective when plants are about to flower. Cutting the first flowers can also reduce seed production.

Biological

No biological control organisms are available for use on the Navajo Nation.

Cultural Control

While animals will avoid musk thistle, horses, cattle, goats may eat the flowerheads and sheep will eat the rosettes. Flaming can be used to kill individual plants but broadcast burning may not be hot enough to kill the root crown and reduce resprouting. Maintaining native plant cover is effective at reducing establishment of musk thistle.

Chemical

Use of herbicides can be effective. Refer to the product labels for application rates, timing, and approved application methods.

Recommended herbicides include:

- 2,4-D
- Aminopyralid
- Clopyralid
- Dichlobenil
- Imazapic
- Indaziflam
- Picloram*

*Restricted Use by U.S. EPA

References

DiTomaso, J.M., G.B. Kyser et al. 2013. *Weed Control in Natural Areas in the Western United States*. Weed Research and Information Center. University of California. 544 pp.

USDA, NRCS. 2023. PLANTS Database. Available at <https://plants.sc.egov.usda.gov/>. National Plant Data Team, Greensboro, NC 27401-4901 USA



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