

Category A—High

Spotted knapweed (*Centurea maculosa*)

Identification and Impacts



Photo credit: Bureau of Indian Affairs



Photo credit: P. Alexander



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Key ID Tips

- Deep, woody taproots
- Phyllaries are darker and combed at the tips, making the flowers appear spotted.
- Leaves have resin ducts and short gray hairs.

Navajo Name

Ch'it bilat'a dootłizhigí

Origin

Native to Europe and Asia
minor

Description

Spotted knapweed is a bushy biennial to short-live perennial that can grow to 3 feet tall

with a long, sturdy taproot. Plants form a basal rosette in the winter and early spring, which can persist for years, before developing erect branching flowering stems in the late spring and summer. Leaves are alternate, pinnately lobed and dotted with resin ducts on the underside. They may also have short interwoven gray hairs. Flowers are in clusters and appear white, pink, or purple, with phyllaries that are combed at the tips and dark colored, giving the flowers a “spotted” appearance. When flowerheads mature, they dry out and pop, ejecting the seeds near the parent plant. Seeds have a short bristly pappus on top.

Biology

Spotted knapweed reproduces by seeds and lateral root growth. Seeds can remain dormant for 8 years and vary in germination frequency based on light exposure. It can also hybridize with diffuse knapweed. It prefers disturbed and exposed sites, with limited growth in shaded areas.

Locations

Common along roads and near the Shonto Boarding School.

Ecological Threat and Management Concerns

Spotted knapweed can form dense stands that reduce native plant growth and cover. Its long-lived seeds with varying light exposure needs for germination can make it difficult to eradicate without long-term monitoring and repeated treatments.



Photo credit: National Park Service

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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 and scattered populations and should be repeated over the growing season for a few years. Manual removal should remove as at least 2 to 4 inches of the taproot below the soil surface, if not the entire taproot. Manual removal should occur before seed production.

Biological

Five biological control organisms are available for use on the Navajo Nation. There are four different seedhead feeding weevils and a root feeding weevil that can weaken plant growth and reduce seed production.

Cultural Control

Sheep, goats, and horses can reduce thistles for small populations and when young. Sheep prefer the small rosettes, while goats will eat the flowerheads and prevent seed production. Grazing with cattle is not recommended. Overgrazing can promote growth. Fire is not effective as it can stimulate regrowth. Maintaining and restoring perennial native plant cover can prevent establishment.

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
- Fluroxypyr
- 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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