

Category C—Low

Puncturevine (*Tribulus terrestris*)

Identification and Impacts



Photo credit: S. Hurst, NRCS



Photo credit: H.F. Schwartz, CSU



Photo Credit: S. Dewey, USU

Key ID Tips

- Seed pods have two hard large spines.
- Prostrate branches with opposite, pinnate compound leaves
- Small, solitary, simple yellow flowers

Navajo Name

Ch'il ilhoshiq

Naakaibihosh

Origin

Native to southern Europe and Mediterranean region.

Description

Puncturevine, sometimes called goathead, is prostrate annual forb that grows radially from a central stem and taproot. It has evenly pinnate compound leaves with 3 to 7 pairs of leaflets. The leaflets are ovate with round tips. They produce small, solitary yellow flowers with five petals. These become the seed burs with two distinct hard spines that point away from each other at about a 45° angle.

Biology

Puncturevine grows in cultivated areas, along roadsides and at disturbed sites. They prefer dry, sandy sites and tolerate most soil types. They can be killed by freezing temperatures. Seeds can remain viable for 3 to 6 years, with germination occurring in the early spring through the summer. Plants begin flowering within 3 weeks of germination and begin developing the burred seed pods within 6 weeks.

Locations

Found throughout the Navajo Nation along roadsides, in fields, disturbed sites, and near watering holes and windmills.

Ecological Threat and Management Concerns

The hard seed pods can stick to tires, shoes, and passing animals, allowing them to spread to areas far from the parent plants. They are prolific seeders with some accounts of seeds persisting for up to 20 years. Their taproots can make them hard to control as they can resprout from cut plants. Puncturevine produces saponin compounds that are toxic to livestock, especially sheep.



Photo credit: J.M. DiTomaso

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

Mechanical/Manual Removal

Hand pulling is effective when populations are small and soils are moist. Plants should be pulled before seeds develop. Mowing is not effective due to their prostrate form and ability to resprout. Hoeing and shallow cultivation is effective and is recommended before flower and seed production. Tilling should be to at least 1 inch below the surface and deep tillage can be effective but can increase seed longevity when buried.

Biological

One biological control organism is available on the Navajo Nation. A seed feeding weevil is approved through USDA APHIS.

Cultural Control

Grazing and burning are not recommended or effective. Since plants can be toxic to livestock, grazing is not recommended. The low-growing habit of the plant makes burning infeasible. Planting does prevent infestations and can reduce germination.

Chemical

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

Recommended herbicides include:

- 2,4-D
- Indaziflam
- Pendimethalin

References

DiTomaso, J.M., G.B. Keyser 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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