

Category A—High

African rue (*Peganum harmala*)



Photo credit: NPS



Photo credit: J.M. DiTomaso



Photo Credit: P. Alexander

Origin

Native to North Africa and the Mediterranean, from the eastern Iranian region of India to North Africa.



Photo credit: NPS

Description

African rue is a succulent perennial forb with dense branching stems that are smooth and fleshy. The leaves are bright green and divided, with thin linear leaflets. The plant can grow to up to two feet tall. Flowers have five white ovate to lanceolate petals with a yellow center and occur at leaf axils along the stem. Seeds develop in small round capsules that start green and turn brown as they age. They have a deep taproot with shorter, creeping roots.

African rue can reproduce vegetatively and by seed. A single plant can produce as many as 1,000 fruits, that each contain 40—50 seeds. (University of Nevada Cooperative Extension, 2010)

Biology

African rue is extremely drought tolerant and can grow in alkaline and saline soils. Its deep taproot can grow to depths of 20 ft and can quickly spread in disturbed areas, such as roadsides and heavily grazed rangelands. Any remaining plant parts can produce new plants. Its lateral roots allow them to spread to neighboring areas. The plants produce alkaloids that can have toxic effects on people and animals.

Locations

Populations have been found at Navajo Bridge and at business site leases in Western Navajo.

Ecological Threat and Management Concerns

All parts of the African rue are poisonous to livestock and humans. It contains four alkaloids that can cause loss of appetite, trembling, and loss of coordination (USFS 2005). African rue can dominate sites quickly after disturbance. Vehicles, heavy machinery, livestock, and humans can spread the plant to remote sites or locations.

It is adapted to dry climates and a wide range of soil conditions, allowing it to grow quickly and displace valuable native vegetation.

Key ID Tips

- Bright green, smooth, and fleshy stems and leaves.
- Small, five-petaled white flowers, growing along the leaf axils on the stem
- Acrid taste and unpleasant odor when crushed.

African rue (*Peganum harmala*)

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

Grubbing, digging, and hand pulling are the only effective removal methods and must be repeated to address resprouting plants. Tilling, cutting, and mowing are not recommended as underground plant structures will resprout and can cause the plants to spread.

Biological

No biological control organisms are available.

Cultural Control

Grazing is not effective or recommended for African rue, as the plant is toxic to cattle, sheep, and horses. Burning is also not recommended as underground plant structures can resprout.

Replanting and cultivating native plants is recommended to prevent plant establishment and expansion.

Chemical

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

Recommended herbicides include:

- Imazapyr
- Metsulfuron methyl
- Glyphosate (usually combined with 2,4-D)

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.

University of Nevada Cooperative Extension. 2010. Nevada Noxious Weed Field Guide. SP-10-01. 120 pp.

U.S. Forest Service. 2005. Final Environmental Impact Statement for Integrated Treatment of Noxious or Invasive Weeds. U.S. Forest Service Southwestern Region. 601 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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