

HOLMGREN MILKVETCH

Astragalus holmgreniorum
Barneby
Plant Symbol = ASHO5

Contributed by: USDA NRCS Idaho and Utah Plant Materials Program



Holmgren milkvetch (*Astragalus holmgreniorum*). Photo by R. Van Buren

Alternate Names
Paradox milkvetch

Uses
There are no known human uses of the species. The flowers are visited by numerous native solitary nesting bees (Tepedino, 2005).

Status
Holmgren milkvetch was listed as endangered in 2001 due to its rarity and declining populations (USDI-FWS, 2001). In 2006, approximately 6,289 acres were designated by the USDI Fish and Wildlife Service as critical habitat (USDI-FWS, 2006b).

Consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

Description
General: Legume family (Fabaceae). Holmgren milkvetch is a short-lived perennial forb. It grows to a height of 4 to 12 cm (1.6 to 4.7 in) arising from a

thickened taproot and root crown. It has pinnately compound leaves 4 to 22 cm (1.6 to 8.7 in) long with 5 to 23 broadly oval leaflets, 6 to 16 mm (0.24 to 0.63 in) long and 3.5 to 12 mm (0.14 to 0.47 in) wide. The inflorescence is a 4 to 16 flowered raceme. The pink-purple flowers are 18 to 24 mm (0.71 to 0.94 in) long, and produce claw-shaped elliptic pods, 2.5 to 5.5 cm (0.9 to 2.2 in) long and 6 to 9 mm (0.2 to 0.4 in) thick. In cross-section, the pods have a triangular outline. Each pod contains 30 to 34 seeds (Welsh et al., 2003).

Distribution:
There are six known populations of Holmgren milkvetch, all located within 16 km (10 mi) of St. George, Utah. Three are in Washington County, Utah and two straddle the border of Washington County, Utah and Mojave County, Arizona. Approximately one half of the Holmgren milkvetch habitat is managed by the State of Utah.

For current distribution, consult the Plant Profile page for this species on the PLANTS Web site.

Habitat:
Holmgren milkvetch occurs in the Mojave Desert ecoregion in creosotebush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*) and mixed desert scrub plant communities. Its native habitat is sparsely vegetated with less than 20 percent living cover (Van Buren and Harper, 2003). Other native plant species in association with Holmgren milkvetch include desert goldenhead (*Acamptopappus sphaerocephalus*), Nevada jointfir (*Ephedra nevadensis*), Torrey's jointfir (*E. torreyana*), threadleaf snakeweed (*Gutierrezia microcephala*), and big galleta (*Hilaria rigida*) (Van Buren and Harper, 2003).

Adaptation
Holmgren milkvetch is endemic to the badlands of the Santa Clara and Virgin River drainages from 756 to 914 m (2,480 to 3,000 ft) in elevation. The plants are restricted to the Virgin Limestone Member, Schnabkaib Member and Upper Red Member of the Moenkopi Formation, and sporadically on the Chinle Shale Formation (USDI-FWS, 2006a). Soils are very gravelly or very cobbly sandy loams with 3 to 40% slopes in an area receiving an average of 16.5 cm (6.5 in) of annual precipitation (WRCC, 2011).

Management

The greatest threat to Holmgren milkvetch is habitat loss due to urban expansion. Many of the known populations exist in areas targeted for development. Designation of critical habitat and BLM land trades can potentially ameliorate some of these threats; however development of new surface roads, power transmission lines, and water pipelines pose further challenges. Habitat fragmentation caused by these developments can additionally have a negative impact on pollination and genetic interchange (USDI-FWS, 2006a).

Habitat degradation caused by off road vehicle (ORV) use and cattle trampling continues to threaten Holmgren milkvetch. ORV use in Utah increased 437% in Washington County, Utah from 1998 to 2006 (USDI-FWS, 2006a). ORVs and cattle can damage plants and destroy soil properties necessary for Holmgren milkvetch habitat. All known Holmgren milkvetch populations are currently under threat from ORV use.

The explosive increase in invasive weeds could potentially have a drastic effect upon Holmgren milkvetch habitat. Invasive annual grasses such as cheatgrass (*Bromus tectorum*) and red brome (*B. rubens*) can grow in densities sufficient to carry fires throughout the limited habitat and can cause permanent changes in the plant community (USDI-FWS, 2006a).

Pests and Potential Problems

There are no known pests or potential problems associated with Holmgren milkvetch.

Environmental Concerns

There are no known environmental concerns associated with Holmgren milkvetch.

Seed and Plant Production

Holmgren milkvetch exhibits low survival in the first growing season with few plants surviving into their second year (Van Buren and Harper, 2003). Flowering occurs between March and April with fruit set by the end of April. Seed pods are visible through May before the plants senesce for the summer (Van Buren and Harper, 2003a). The flowers are pollinated primarily by native bee species including: *Anthophora poterae*, *Eucera quadricincta*, *Osmia titusi* and two *Dialictus* species (Tepedino, 2005). Pollinated fruit contain on average 25 seeds (Stubben, 1997).

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