

ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract

Element Code: PDPLM0E0G1

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Polemonium pauciflorum* S. Wats. ssp. *hinckleyi* (Standl.) Wherry
COMMON NAME: Davis Mountain Jacob's Ladder; Hinckley's polemonium
SYNONYMS: *Polemonium hinckleyi* Standl.; *Polemonium pauciflorum* S. Wats.
FAMILY: Polemoniaceae

AUTHOR, PLACE OF PUBLICATION: Standley, P.C. 1937. The American Midland Naturalist 18:684.

TYPE LOCALITY: Madera Canyon, Mt. Livermore, Davis Mountains, Jeff Davis County, Texas.

TYPE SPECIMEN: Herb. Field Mus. L. C. Hinckley #283. August 6, 1936.

TAXONOMIC UNIQUENESS: The genus *Polemonium* contains approximately 20 species and is distributed in the Americas and temperate Eurasia (Smith 1977). There are about 22 species of *Polemonium* in the United States. *Polemonium pauciflorum* has 4 subspecies: ssp. *hinckleyi*, ssp. *pauciflorum*, ssp. *typicum*, and ssp. *stenocalyx* (Malusa et al. 1992).

DESCRIPTION: Perennial herb, stems 15 - 50 cm tall, 1 to several, erect and branching, leafy, arising from a branching caudex or occasionally slender, creeping rootstocks; herbage sparsely to densely glandular, at least above; leaves 9 - 20 cm long, alternately scattered along stems, viscid, divided pinnately into 11 - 25 paired, lanceolate, leaflets, acute at the apex, 9 - 26 mm long, 2 - 5 mm wide, the terminal 3 leaflets confluent; flowers solitary or 2 - 3 in a cluster, on slender pedicels 15 - 40 mm long; calyx narrowly campanulate to funnelform, 8 - 10 mm long, with narrowly attenuate to linear lobes 8 - 18 mm long; corolla narrowly funnelform to almost tubular, 2.5 - 4.0 cm long, about 1 cm wide at the orifice, yellow, tinged or streaked with red, the lobes ovate to round, about 1/4 as long as the tube; stamen attached to the tube less than 1/4 the tube length from the base, with a ring of glandular hairs in the corolla at the point where the stamen are attached; style sub-equal to the corolla, commonly slightly shorter, usually exceeding the stamen; capsule 8 - 15 mm long; seeds 11 - 20 per locule, becoming mucilaginous when wet (Standley 1937, Wherry 1942).

AIDS TO IDENTIFICATION: *P. pauciflorum* ssp. *hinckleyi* is the only *Polemonium* in Arizona that has yellow funnelform flowers, and it is the only subspecies of *P. pauciflorum* in Arizona. In other areas, the range of ssp. *hinckleyi* overlaps the range of ssp. *pauciflorum* and

ssp. *stenocalyx*. These three similar subspecies can be most reliably distinguished by calyx characteristics. The calyx of ssp. *hinckleyi* is sparsely pubescent, while the calyx of ssp. *pauciflorum* is densely pilose. The calyx of ssp. *hinckleyi* is united for one-fourth to one-third of its length, while the calyx of ssp. *stenocalyx* is united for one-half to one-third of its length (Malusa et al. 1992).

ILLUSTRATIONS: Line drawing (USFWS).

TOTAL RANGE: *P. pauciflorum*: Southern Arizona, western Texas south to northern Chihuahua and Nuevo Leon, Mexico; *P. pauciflorum* ssp. *hinckleyi*: Davis Mts. of Texas, mountains of northern Mexico (Nuevo Leon, Coahuila, Queretaro, Chihuahua, and Sonora), and Chiricahua Mountains of Arizona.

RANGE WITHIN ARIZONA: Cochise County: Chiricahua Mountains.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Herbaceous perennial.

PHENOLOGY: June - September (occasionally to October).

BIOLOGY: There are conflicting opinions on the reproduction of this species. Grant and Grant state that this species is mostly self-pollinating, but it is probably occasionally visited by hummingbirds. During their study of one population in the Chiricahua Mountains, the flowers were not naturally visited by hummingbirds or other agents. Instead, the flowers set seeds autogamously. When flowering branches were cut and placed in an area frequented by hummingbirds, they were quickly discovered and visited by several species of hummingbirds (Grant and Grant 1965). Another study on *P. pauciflorum* by Davidson (1950) suggests that this species is self-incompatible, not self-fertile. Davidson's study also revealed that *P. pauciflorum* does not cross with *P. foliosissimum*.

HABITAT: This species occurs in a variety of habitats in the Chiricahua Mountains. Most commonly it is found in areas where there is some sort of intermediate natural disturbance. It has been found on very steep slopes, in talus below cliffs, in rubble at the edge of a dirt road in open shade, in open shade in a recently burned area, and along a canyon bottom near a creek. The vegetation in areas with known populations consists of madrean montane conifer forest or the upper margins of madrean evergreen woodland, as defined by Brown (1994).

ELEVATION: 6,800 - 9,500 ft. (2074-2898 m) in Arizona. Up to about 11,500 ft. (3508 m) in Mexico.

EXPOSURE: All, but most often north-facing.

SUBSTRATE: Various.

PLANT COMMUNITY: This species occurs in madrean montane conifer forest and the upper margins of madrean evergreen woodland communities, as defined by Brown (1994). In other words, this species occurs in Ponderosa pine and oak forests up to subalpine forests of Douglas fir and white fir. Associated species vary depending on elevation and habitat type.

POPULATION TRENDS: Overall, long-term population trends are not known. Two of the historical populations had not been relocated as of 1992 (Malusa et al. 1993).

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None (USDI, FWS 1996)
[C2, USDI, FWS 1993]
[C2, USDI, FWS 1990]
[C2, USDI, FWS 1985]
[C2, USDI, FWS 1980]

STATE STATUS:

OTHER STATUS:

Forest Service Sensitive (USDA, FS Region
3 1999)
[Forest Service Sensitive USDA, FS Region
3 1990]

MANAGEMENT FACTORS: There are a small number (approximately 5-6) of populations of this species currently known from the Chiricahua Mountains. Although this species seems to prefer disturbed sites, it is not ubiquitous in disturbed areas. This indicates that some other factor is limiting dispersal and colonization. Monitoring of known populations is likely to cause intensified local disturbance in the form of loosened soil and rocks. Since this could have negative effects on the populations, monitoring protocols should be different at each population in order to evaluate the disturbance effects of the actual monitoring activities (Falk and Warren 1994).

CONSERVATION MEASURES TAKEN: Populations of this species were monitored by The Nature Conservancy personnel in 1991 and 1992. This species has been listed as "Forest Service Sensitive" since 1990.

SUGGESTED PROJECTS: Known populations should be monitored to some extent. Areas of potential habitat in the Chiricahua Mountains should be searched for new populations.

LAND MANAGEMENT/OWNERSHIP: USFS Coronado National Forest (Douglas Ranger District).

SOURCES OF FURTHER INFORMATION**LITERATURE CITATIONS:**

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AGFD Plant Abstract

-5-

Polemonium pauciflorum ssp. *hinckleyi*

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ADDITIONAL INFORMATION:

The genus *Polemonium* is still relatively in a state of confusion. A new treatment of *Polemoniaceae* in Arizona (in prep.) by D. Wilken and J. Porter may fail to recognize the subspecies *hinckleyi*, instead treating the plants at the full species level.

Revised: 1991-10-19 (ANHP)
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1999-12-27 (DJG)

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