

ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract

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CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Astragalus geyeri* var. *triquetrus* (Gray) Jones

COMMON NAME: Beaver Dam milk-vetch, Sand milk-vetch, Threecorner milkvetch, Geyer's milkvetch; Geyer milkvetch

SYNONYMS: *Astragalus triquetrus* Gray; *Phaca triquetra* (Gray) Rydberg

FAMILY: Fabaceae

AUTHOR, PLACE OF PUBLICATION: *Astragalus triquetrus* A. Gray, Proc. Amer. Acad. Arts and Sci. 13: 367. 1878. *Astragalus geyeri* var. *triquetrus* (A. Gray) M.E. Jones, Contributions to Western Botany 8: 7. 1898.

TYPE LOCALITY: United States of America, southeastern borders of Nevada: [at the confluences of] Muddy River [with the Virgin], St. Thomas.

TYPE SPECIMEN: HT: GH-58996. E. Palmer, 1877.

TAXONOMIC UNIQUENESS: *Astragalus* is a species-rich genus, with more than 2000 species in the genus currently known worldwide. *Astragalus geyeri* is 1 of 350 species in the genus *Astragalus* in North America, while variety *triquetrus* is 1 of 2 in the species *geyeri*.

DESCRIPTION: Slender, spreading, fast maturing annual herb, with flexuous stems 10-20 cm (4-8 in) long. Leaves and stems covered by a fine ashy pubescence; leaves 3-5 cm (1.2-2 in) long, bearing about 9 elliptical, retuse leaflets 4-15 mm long. Racemes loosely 2-8 flowered; calyx 2-4 mm long, white or partly fuscous-strigulose, tube 1.5-2.5 mm long. Petals of flower are whitish with faint pink veining, which dries violet. Banner moderately recurved, 5-7.5 mm long; keel 3.8-5 mm long. Ovary is strigulose; ovules number 7-11. Pods are oblong, curved, and triangular in cross section with a prominent groove on the lower side, 1 cm long.

AIDS TO IDENTIFICATION: Per Barneby (1990, in Knight 1990) "*Astragalus geyeri* var. *triquetrus* ... coincides with the range of the annual *A. sabulonum*, however, *A. sabulonum* differs in a less oblique, thick-textured, villosulous pod and loosely hairy foliage. From typical *A. geyeri*, this variety differs in its pod which is definitely triangular and leaflets which are broadly oblanceolate. Additionally, typical *A. geyeri* of the central Great Basin frequently has populations with pinkish-lilac or bright purple flowers."

ILLUSTRATIONS:

Line drawing (Mozingo and Williams, 1980: p. 100)

Line drawing (Kurzius, in Niles et al. 1995: fig. 2)

Line drawing of species (Cronquist et al., 1989: p. 157)

Color photo (Marrs-Smith in http://www.brrc.unr.edu/implement/milkvetch_3corner.html).

TOTAL RANGE: Northwestern Arizona and southeastern Nevada.

RANGE WITHIN ARIZONA: Sand Hollow Wash, Horsethief Canyon, and Beaver Dam Wash, Mohave County. The 1940 Beaver Dam type-station collection, is now inundated.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Annual/biennial forb/herb.

PHENOLOGY: Flowers in April and May, although it does not bloom every year. Fruit sets in 4 to 6 weeks.

BIOLOGY: This species is an ephemeral annual that is not seen for years at a time. It prefers average to above-average rainfall years to germinate. Most rainfall is from winter cyclonic storms.

HABITAT: Limited to washes and small pockets of wind-deposited sand, of the creosote bush scrub series, with sandy soils formed from sedimentary formations (Jurassic age sandstone), adjacent to Lake Mead and its tributary valleys.

ELEVATION: 1,100 – 2,400 ft. (336-732 m) for the range. Based on Heritage Data Management System unpublished records (AGFD, accessed 2002), elevation in Arizona ranges from 2,000 - 2,395 ft (610-730 m).

EXPOSURE: Prefers low-lying, open flat surfaces, with generally southeast aspects.

SUBSTRATE: Commonly found in areas of stabilized sand, and frequently with a sparse gravel covering.

PLANT COMMUNITY: Mojave Desert scrub. Creosote bush scrub series dominated by *Larrea tridentata* and *Ambrosia dumosa*. This species is commonly associated with *Allonia incarnata* (windmills), *Camissonia brevipes* ssp. *brevipes* (golden suncup), *Hymenoclea salsola* (white burrow-bush), and *Oryzopsis* (= *Achnatherum*) *hymenoides* (Indian Mountain-ricegrass). Other associated species include: *Amphipappus fremontii* (Fremont's chaffbush), *Astragalus nyensis* (Nye milk-vetch), *A. nuttallianus* var. *imperfectus* (turkey peas), *A. sabulonum* (gravel milkvetch), *Acacia greggii* (catclaw acacia), *Bromus rubens* (red brome), *Chilopsis linearis* (desert-willow), *Eriogonum viscidulum* (sticky buckwheat), *Krameria parvifolia* (= *K. erecta*,

littleleaf ratany), *Muhlenbergia porteri* (Porter's muhly), *Opuntia echinocarpa* (straw-top cholla), *Prosopis juliflora* (mesquite), *Psilostrophe cooperi* (white-stem paper-flower), and *Yucca brevifolia* (Joshua tree).

POPULATION HISTORY AND TRENDS: Not well known. *A. geyeri* var. *triquetrus* occurs in very low numbers and does not appear every year. It is known from fewer than 25 occurrences in a restricted range near a large population center. None of the known occurrences are protected.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None (USDI, FWS 1996)
 [C2 *A. geyeri* var. *triquetrus* USDI, FWS 1990, 1993]
 [C2 USDI, FWS 1983, 1985]
 [C1 USDI, FWS 1980]
 [PTN-T *A. geyeri* var. *triquetrus* USDI, FWS 1975]

STATE STATUS: None

OTHER STATUS: Bureau of Land Management Sensitive (USDI, BLM AZ 2005, 2008, 2010)

MANAGEMENT FACTORS: It is threatened by mining activities (sand and gravel) and off-road vehicle use. (NatureServe 2002). Other potential impacts include residential development, and utility development and corridors (NNHP, 2001).

PROTECTIVE MEASURES TAKEN:

SUGGESTED PROJECTS: Distribution studies should include a more thorough search of the Beaver Dam slope area.

LAND MANAGEMENT/OWNERSHIP: In Arizona: BLM - Arizona Strip Field Office; NPS – Lake Mead National Recreation Area. For its range in both Nevada and Arizona: Bureau of Land Management (BLM), Bureau of Reclamation, National Park Service, State of Nevada, Private.

SOURCES OF FURTHER INFORMATION

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MAJOR KNOWLEDGEABLE INDIVIDUALS:**ADDITIONAL INFORMATION:**

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