

**ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM**

Plant Abstract

Element Code: PDASTDY0C0

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Tetraneris verdiensis*
COMMON NAME: Verde Four-nerve Daisy
SYNONYMS: none
FAMILY: Asteraceae

AUTHOR, PLACE OF PUBLICATION: R.A. Denham & B.L. Turner, *Phytologia* 81(1): 5-9, f. 1. 1996.

TYPE LOCALITY: Arizona: Yavapai County: 5 miles east of Camp Verde, 3300 feet.

TYPE SPECIMEN: HT: TEX 803. R.A. Denham, Forbes & Searle #1840, 14 May 1995.

TAXONOMIC UNIQUENESS: There are 11 species of *Tetraneris* in the United States and an additional 11 varieties. *T. verdiensis* is one of five species that occur in Arizona. Although formally recognized as a species at this time, there is an alternative opinion that this plant may actually be just another (discoïd) form of *T. acaulis* var. *arizonica* (see Additional Information, below).

DESCRIPTION: Dwarf scapose perennial 4-7 cm (1.6-2.8 in) high, the stems arising from a branched woody caudex. Leaves relatively thick, all basal, 1.5-2.5 cm long, 3.5 mm wide; blades ovate to narrowly ovate, moderately but deeply glandular-punctate, entire, markedly white-pilose throughout with hairs 3-6 mm long, the apices acute to obtuse. Scapes 4-6 cm (1.6-2.4 in) long, ebracteate, pilose with upwardly appressed and widely spreading hairs 1-4 mm long. Heads single, hemispheric. Involucres 5-6 mm high, 3-4 mm across. Ray florets absent. Disk florets ca. 40 (est.); corollas yellow, ca. 3.5 mm long, the tube ca. 0.5 mm long, the lobes 5, densely pubescent. Anthers yellow with ovate appendages. Style branches truncate, apically hispidulous. Achenes (immature) ca. 3 mm long, densely pubescent; pappus of ca. 8 lanceolate scales 2-3 mm long. (Denham and Turner, 1996).

AIDS TO IDENTIFICATION: According to Denham and Turner (1996), *Tetraneris verdiensis* can be distinguished from the closely sympatric *T. scaposa* (*Hymenoxys acaulis* var. *arizonica*) by its dwarf habit, relatively short broad leaves, long pilose vestiture, and rayless heads. *Hymenoxys acaulis* var. *arizonica* is now *Tetraneris acaulis* var. *arizonica*.

ILLUSTRATIONS:

Line Drawing (Denham & Turner, 1996).

Photos: Plants and habitat (Murray, 2008).

TOTAL RANGE: *Tetraneuris verdiensis* is a localized edaphic endemic of central Arizona.

RANGE WITHIN ARIZONA: See “Total Range.”

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Small, perennial herb.

PHENOLOGY: Although some literature reports that May is the peak flowering season, Murray (2008) observed during repeat visits to the type population in 2007 and 2008 that there were some flowers at the end of March, the peak season was through the month of April, the first signs of fruit set were observed in late May, and seeds were found in June.

BIOLOGY: An insect pollinator, the bee fly (family Bombyllidae), was noted by Godec 2001.

HABITAT: Low chalky flat-topped hills composed of marl with gypsum crystals at the surface.

ELEVATION: 3,300 – 3560 feet (1006-1085 m).

EXPOSURE: On the three permanent monitoring transects that were established by Murray (2008), a total of 65 plants were mapped. All aspects were either E or W. The preference of 41 of the individual plants (63%) was an eastern exposure. *T. verdiensis* is found on the top of hills or the gently sloping edges, but conspicuously absent on the steeper sides (Murray 2008 and Godec 2001).

SUBSTRATE: Type locality occurs on lacustrine marl in the Verde Formation, with gypsum crystals at the surface.

PLANT COMMUNITY: Dwarf sub-shrub community dominated by *Eriogonum ericifolium* var. *ericifolium* (Heath Wild Buckwheat), and *Salvia dorrii* ssp. *mearnsii* (Mearn or Purple Sage).

POPULATION HISTORY AND TRENDS: Godec (2001) conducted surveys in 1999 and 2000 of all suitable habitats within a 3-mile radius of the type locality. Eighteen low hills and mesas were included but only 10 had the suitable mix of gypsum, marl and gravel substrates, and *T. verdiensis* was only found on the tops of four low hills, including the type locality and three adjacent hills. Distributions were patchy and were divided into seven distinct populations. The total population size was estimated at 3289 plants. The total area of suitable habitat occupied was 10,790 square meters. A similar 3-mile radius survey was again conducted by Murray in 2007 and 2008. She states results were similar and no *T. verdiensis* was found outside of the previously documents areas. She established three permanent monitoring transects and published the initial plant counts, but did not extrapolate to a total population size. Revisits to these

transects in the future will be able to provide both population data and trend. She did note that OHV use in the area was damaging the populations and should be prevented.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None
STATE STATUS: None
OTHER STATUS: None

MANAGEMENT FACTORS: In 2001, Godec wrote that there was a risk of OHV damage, “although not yet observed.” In 2008, Murray noted “much OHV use in the area” and wondered whether plants would still be found in the vehicle tracks in the future. She said the environmental damage from OHV is severe and includes soil erosion, uprooting of individuals, and compaction of the soil. She suggested that the Forest Service prevent the OHVs from accessing the top of the hills where *T. verdiensis* occurs.

She also observed signs of browsing, and noted scat from rabbit, deer and javalina.

PROTECTIVE MEASURES TAKEN: None.

SUGGESTED PROJECTS: Fence off the four hill tops where *T. verdiensis* is found to protect the populations from OHV damage. There are gypsum mines on private lands surrounding the known populations and some of these lands look as though they have suitable habitat and perhaps additional populations. The next surveys should attempt to obtain permission to include these lands.

LAND MANAGEMENT/OWNERSHIP: All four of the known populations are on USDA Forest Service land. Surrounding areas also include private land holdings.

SOURCES OF FURTHER INFORMATION

REFERENCES:

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MAJOR KNOWLEDGEABLE INDIVIDUALS:

ADDITIONAL INFORMATION: *Tetraneuris verdiensis* has been described based on “discoid heads...dwarf habitat, relatively short broad leaves, and long pilose vestiture” (Denham and Turner 1996). The subpopulations described as *T. verdiensis* occur on four small gypsum hills only 10 km to the east of the nearest known population of *T. acaulis* var. *arizonica*. A more detailed morphological comparison of these two *Tetraneuris* populations showed that the discoid head is the only consistent morphological difference between them (Godec 2001). Individual discoid plants of *T. acaulis* are known elsewhere within its range, but are considered to be conspecific (Bierner and Turner 2003). Although the populations of *T. verdiensis* are entirely discoid, this is a minor morphological difference. *Tetraneuris verdiensis* and *T. acaulis* var. *arizonica* share similar edaphic habitats, associated species such as the other disjuncts, *Eriogonum ericifolium* var. *ericifolium* and *Salvia dorrii* ssp. *mearnsii*, and close proximity to one another (Godec 2001). Based on these factors, it seems more accurate to consider *T. verdiensis* as a discoid form of *T. acaulis* var. *arizonica*, not as a distinct species (Bierner and Turner 2006).

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