

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

**Plant Abstract**

**Element Code:** PDCAC0J0K0

**Data Sensitivity:** YES

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Sclerocactus papyracanthus*

**COMMON NAME:** paper-spined cactus, paperspined cactus, grama grass cactus, paper-spine fish-hook cactus, paperspine fishhook cactus, Biznaga-bola de espinas de papel [Spanish]

**SYNONYMS:** *Sclerocactus papyracanthus* (Engelm.) N.P. Taylor, *Toumeyia papyracanthus* Britton and Rose, *Echinocactus papyracanthus* Engelm., *Mammillaria papyracanthus* Engelm.

**FAMILY:** Cactaceae

**AUTHOR, PLACE OF PUBLICATION:** *Pediocactus papyracanthus* (Engelm.) L.D. Benson, Cact. and Succ. Jour. 34(2): 61. 1962. *Mammillaria papyracantha* Engelm., Mem. Amer. Acad. Arts, n.s. 4: 49. 1849.

**TYPE LOCALITY:** USA: New Mexico: between the lower hills near Santa Fe in loose sandy red soil.

**TYPE SPECIMEN:** HT: MO. Fendler, 15 May 1847.

**TAXONOMIC UNIQUENESS:** Formerly in Arizona, the species *papyracanthus* was tracked under the genus *Pediocactus*. However, chloroplast DNA analyses by J.M. Porter et al. (2000) unambiguously placed this species within *Sclerocactus*, a position originally suggested based on morphologic evidence (K. D. Heil et al. 1981; C. Glass and R.A. Foster 1984).

**DESCRIPTION:** Ribbed, solitary or slowly branching, dark green cylindrical stem, 2.5-20.0 cm (1.0-8.0 in.) tall. Spines are dense, mostly obscuring the stem. Radial spines 6-8 per cluster, ashy-white, 3.0 mm long. Tubercles up to 5 mm long. Central spines usually 1-2 (occasionally 3-4), flexible, grooved, flattened, twisted, papery in texture, 1.8-3.8 cm (0.7-1.5 in.) long. Whitish bell-shaped flowers with a brownish central stripe, 1.8-2.5 cm (0.7-1.0 in.) long and 1.8-2.6 cm (0.7-1.0 in.) wide. The green fruits are spherical, 1.2-2.0 cm long, turning tan and splitting when mature. Seeds are black, covered with minute bumps, irregularly oval in shape, slightly flattened, and 2.5 mm long.

**AIDS TO IDENTIFICATION:**

**ILLUSTRATIONS:** Line drawing and photo (Benson, 1969: p. 187 (photo), p. 188 (line drawing)).  
Line drawing (A Handbook of Rare and Endemic Plants of New Mexico, 1984: p. 121).  
Line drawing (Reichenbacher, 1991: Fig. 809)  
Color photos (In USDA PLANTS, <http://plants.usda.gov>)  
Color photos (In [http://page.freett.com/xoxoa/images/sclerocactus\\_papyracanthus.htm](http://page.freett.com/xoxoa/images/sclerocactus_papyracanthus.htm))  
Color photos (In <http://www.tribecacteairst.com/toumeya.html>)

**TOTAL RANGE:** Colorado Desert from Texas to north of Santa Fe, New Mexico, to eastern Arizona, south into Mexico.

**RANGE WITHIN ARIZONA:** Found in southern Navajo County on the middle LCR (Little Colorado River) drainage and the Mogollon Plateau; possibly in Apache County.

### **SPECIES BIOLOGY AND POPULATION TRENDS**

**GROWTH FORM:** Perennial succulent.

**PHENOLOGY:** Flowers April/May – June.

**BIOLOGY:** Plants usually found in or near tufts or fairy rings of blue grama grass (*Bouteloua gracilis*). Papery spines resemble dried grass leaves. Stems shrink during dry seasons, leaving only the papery spines visible above ground.

**HABITAT:** Grows in open flats in grasslands and pinyon-juniper woodlands, associated with grama grass, where it is seldom seen thanks to its excellent camouflage (its spines resemble dried blue grama leaves).

**ELEVATION:** 5,000 - 7,300 ft. (1525 - 2227 m). In Arizona, based on HDMS unpublished records (AGFD, accessed 2003), elevation ranges from 5,060-6,520 ft (1542-1987 m).

**EXPOSURE:** Open

**SUBSTRATE:** Restricted to fine, sandy clay loams and red sandy soils; rarely gypseous.

**PLANT COMMUNITY:** Pinyon-juniper woodland, Great Plains grassland, and Chihuahuan Desert grassland. Dominant associated species include: *Aristida fendleri* (Fendler's three-awn), *Bouteloua eriopoda* (black grama), *Bouteloua gracilis* (blue grama), *Chrysothamnus nauseosus* (rubber rabbitbrush), *Hilaria jamesii* (galleta), *Oryzopsis hymneoides* (Indian ricegrass), *Senecio douglasii* var. *longilobus* (thread leaf groundsel), *Sporobolus airoides*

(alkali sacaton), *S. cryptandrus* (sand dropseed), and *Stipa neomexicana* (New Mexico feathergrass). Other species that it may be associated with include: *Artemisia bigelovii*, *Atriplex canescens*, *Ceratoides lanata*, *Gutierrezia sarothrae*, *Muhlenbergia* sp., *Opuntia polyacantha*, and *Yucca* sp.

**POPULATION TRENDS:** Assumed to have been quite abundant (at least in parts of range), but now sharply reduced due to degradation of rangeland, collection and development. In 1994, Matthews reported “only 6-20 occurrences globally, and is imperiled and vulnerable to extinction throughout its range.” Its highly inconspicuous nature makes it a difficult species to locate and study.

### **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 1983]  
 [C1 USDI, FWS 1980]  
 [PTN-T USDI, FWS 1975]

**STATE LIST STATUS:**

Salvage Restricted (ARS, ANPL 1999)  
 [Salvage Restricted (ARS, ANPL 1993)]

**OTHER STATUS:**

New Mexico: Endangered  
 Forest Service Sensitive (USDA FS Region 3 1999)  
 [Forest Service Sensitive (USDA FS Region 3 1990)]  
 Category 4 (Navajo Endangered Species List, 1994)  
 Vulnerable (IUCN, 1998)  
 Appendix I (CITIES, 1983)  
 [Appendix II (CITIES, 1975)]

**MANAGEMENT FACTORS:** Threats: Cactus and succulent trade. Degradation of habitat due to overgrazing and trampling by livestock; off-road vehicle traffic; urbanization.

**CONSERVATION MEASURES TAKEN:**

**SUGGESTED PROJECTS:** Status surveys needed, along with reproductive biology and ecology studies.

**LAND MANAGEMENT/OWNERSHIP:** Arizona: BLM – Safford Field Office; USFS - Apache-Sitgreaves National Forest; Arizona State Land Department; Private. New Mexico: BLM; DOD; USFS; State of New Mexico; Private.

## **SOURCES OF FURTHER INFORMATION**

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**ADDITIONAL INFORMATION:**

Phillips et al. 1982: Recommended for federal Threatened status.

**Revised:** 1989-11-28 (SST)  
1991-04-21 (BKP)  
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