

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

**Plant Abstract**

**Element Code:** PDCAC0A060

**Data Sensitivity:** Yes

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Mammillaria mainiae* K. Brandeg.

**COMMON NAME:** Counter clockwise fishhook cactus, Counterclockwise nipple cactus, Main's Nipple-cactus, Maine pincushion cactus, Biznaga de Nogales [Spanish]

**SYNONYMS:** *Neomammillaria mainae* (K. Brandege) Britton & Rose, *Chilita mainiae*, *Ebnerella mainiae*,

**FAMILY:** Cactaceae

**AUTHOR, PLACE OF PUBLICATION:** M.K. Brandege, Zoë 5(2): 31. 1900.

**TYPE LOCALITY:** South of Nogales, Sonora, Mexico.

**TYPE SPECIMEN:** M.F. Main

**TAXONOMIC UNIQUENESS:** The genus *Mammillaria* contains approximately 150 species worldwide (Hickman 1993); 16 species in North America (USDA, PLANTS 2004). Eleven species of *Mammillaria* are recognized by Lehr (1978) as occurring in Arizona.

**DESCRIPTION:** Small gray-green or blue-green cactus, with 0-several branches, not numerous, and seldom rooting; roots are diffuse, the upper portion not enlarged. Stems are nearly spheric, firm, measuring 2.5-12 x 3.5-8 cm; conic-cylindrical tubercles measure 8-10.5 x 3-9 mm, and are arranged in 8 and 13 spirals, protruding 12-15 mm. The axil appears naked, and the cortex and pith is not mucilaginous (slimy); latex is absent. Spines are rather dense, partly obscuring the stem, and are about 9-16 per areole, yellowish, pale pinkish tan, or brown (smaller spines paler), tipped dark chestnut brown to blackish, glabrous, sometimes pubescent when young. Areoles are 1.5 mm in diameter, and typically 10 mm apart. Radial spines are bristle-like, yellowish or white except the brownish tips, 10 to 15 per areole, stiff, spreading parallel to the stem surface. Central spines usually stout, 1-2(-3) per areole, porrect (extended outward or horizontally), hooked, 11-20 x 0.2-0.4 mm, yellowish with dark tips. The hooked central spines are turned counterclockwise in the areoles around the stem. Flowers are 2-3 x 1.2-2 cm, with a broad open throat. The outermost tepal margins are densely fringed; inner tepals pinkish white with sharply defined magenta midstripes; filaments are pink, 3 mm long; anthers are purplish-tinged, oblong; style is pink, 10 mm long; stigmas 5, pinkish-purple, 4.5 mm long. Fruit is red to bright orange-red, spheric to obovoid, 5-7(-12) x 3-4.5(-6) mm, level with or beneath the spines, juicy only in fruit walls; the floral remnant

weakly persistent. Seeds are black, 1-1.2 x 0.8-1 mm, with surface strongly reticulate-pitted. (Benson, 1982; Flora of North America Editorial Committee, eds. 1993+).

**AIDS TO IDENTIFICATION:** “The yellow, ball-like spine masses are dominated by the large, hooked central spines, which form a counterclockwise whorl” (Benson 1982).

**ILLUSTRATIONS:** Black and white photo (A.A. Nichol, *in* Benson 1969: Fig. 4.3, P. 152)  
Black and white photos (Benson 1982: Fig. 921-922, P. 888)  
Line drawing of plant and parts (Benson 1982: Fig. 923, P. 889)  
Color photo (*In*  
[http://page.freett.com/xoxoa/tri-2001/mammillaria\\_mainiae.htm](http://page.freett.com/xoxoa/tri-2001/mammillaria_mainiae.htm))  
Color photo (Chris Trask 2004)  
Color photo of plant in flower (*In*  
[http://www.desert-tropicals.com/Plants/Cactaceae/Mammillaria\\_mainiae.html](http://www.desert-tropicals.com/Plants/Cactaceae/Mammillaria_mainiae.html))

**TOTAL RANGE:** Southern Arizona and Northern Mexico (Sonora and Sinaloa).

**RANGE WITHIN ARIZONA:** Baboquivari Mountains in Pima County; also reported in Benson (1982) near Nogales in Santa Cruz County. The Nogales location reported in Benson (1982), along with a Pinal County location are probably misidentified (See “**Additional Comments**”).

## **SPECIES BIOLOGY AND POPULATION TRENDS**

**GROWTH FORM:** Succulent perennial.

**PHENOLOGY:** Flowers in July and August.

### **BIOLOGY:**

**HABITAT:** Sonoran desert, grasslands, bajadas, valleys, washes, and alluvial fans, from [200-]600-1200m. In Mexico, it occurs from 200-300 m (656-984 ft), on sand dunes, alluvial flats, adjacent rocky slopes, and foothills (Martin et al. 1998).

**ELEVATION:** 2,000 - 4,000 feet (610-1,220 m).

### **EXPOSURE:**

**SUBSTRATE:** Gravelly or coarse sandy soils.

**PLANT COMMUNITY:** Found in Arizona Desert, Desert Grassland, and Southwestern Oak Woodlands communities. Flora of North America Editorial Committee (1993+), reports that

they inhabit the Sonoran Desert and grasslands of the subtropical woodlands, and tropical deciduous forest communities. Often found on plains with Ironwood and Mesquite.

**POPULATION TRENDS:** Unknown. Known from a few occurrences in Arizona. The number of occurrences in Sonora is unknown, but it is apparently uncommon there. (NatureServe 2004). Martin et al. (1998), reports that this plant is rare in Mexico (Sonora).

## **SPECIES PROTECTION AND CONSERVATION**

**ENDANGERED SPECIES ACT STATUS:** None  
**STATE STATUS:** Salvage Restricted (ADA, ANPL 1999)  
[Salvage Restricted (ADA, ANPL 1993)]  
**OTHER STATUS:** Forest Service Sensitive (USDA, FS Region  
3 1999)  
[Forest Service Sensitive USDA, FS Region  
3 1990]

**MANAGEMENT FACTORS:** As with most cacti, it is subject to horticultural collecting.

**PROTECTIVE MEASURES TAKEN:**

**SUGGESTED PROJECTS:**

**LAND MANAGEMENT/OWNERSHIP:** BIA – Tohono O’Odham Nation; USFS - Coronado National Forest.

## **SOURCES OF FURTHER INFORMATION**

### **REFERENCES:**

- Arizona Revised Statutes, Chapter 7. 1993. Arizona Native Plant Law. Appendix A.  
Arizona Revised Statutes, Chapter 7. 1999. Arizona Native Plant Law. Appendix A.  
Benson, L. 1969. The Cacti of Arizona. Third edition. The University of Arizona Press.  
Tucson, Arizona. p. 152-153.  
Benson, L. 1982. The Cacti of the United States and Canada. Stanford University Press.  
Stanford, California. p. 887-890.  
Britton, N.L., and J.N. Rose. 1937. The Cactaceae. Descriptions and illustrations of plants of the Cactus Family. In Four Volumes bound as Two (1963 republication). Dover Publications Inc. New York. p. 154.  
Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico. 7+ vols. New York and Oxford.

- Hickman, J.C. ed. 1993. The Jepson manual, higher plants of California. University of California Press. Berkeley, California. p. 452.
- Integrated Taxonomic Information System (ITIS). Retrieved 7/13/2004 from ITIS, <http://www.itis.usda.gov>.
- Kearney, T.H., R.H. Peebles, and collaborators. 1951. Arizona Flora. Second Edition with supplement by J.T. Howell, E. McClintock, and collaborators. 1960. University of California Press. Berkeley, California. p. 577.
- Lehr, J.H. 1978. A catalogue of the flora of Arizona. Desert Botanical Gardens. Phoenix, Arizona. p. 102.
- Martin, P.S., D. Yetman, M. Fishbein, P. Jenkins, T.R. Van Devender, and R.K. Wilson. 1998. Gentry's Río Mayo Plants, the tropical deciduous forest & environs of Northwest Mexico. The Southwestern Center Series, The University of Arizona Press. Tucson, Arizona. P. 277.
- Missouri Botanical Garden – TROPICOS, Nomenclatural Data Base. *Mammillaria mainiae* K. Brandegee. [http://mobot.mobot.org/cgi-bin/search\\_vast](http://mobot.mobot.org/cgi-bin/search_vast). Accessed: 13 July 2004.
- NatureServe. 2004. NatureServe Explorer: An online encyclopedia of life [web application]. Version 3.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: July 13, 2004).
- Shreve, F., and I.L. Wiggins. 1964. Vegetation and Flora of the Sonoran Desert. Volume 2. Stanford University Press. Stanford, California. p. 1028.
- USDA, Forest Service Region 3. 1990. Regional Forester's Sensitive Species List.
- USDA, Forest Service Region 3. 1999. Regional Forester's Sensitive Species List.
- USDA, NRCS. 2004. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

**MAJOR KNOWLEDGEABLE INDIVIDUALS:****ADDITIONAL INFORMATION:**

“It has been offered in the trade under the name *Mammillaria galeottii*, to which, according to Mrs. K. Brandegee, it is not at all related” (Britton et al. 1937).

According to the Flora of North America Editorial Committee, eds. (1993+), “This uncommon and poorly known species is restricted in the flora area to the relatively mesic eastern edge of the Sonoran Desert, in western bajadas of the Baboquivari Mountains, Arizona. *Mammillaria mainiae* is not known from Nogales, Arizona, contrary to L.D. Benson (1969, 1982); it was originally discovered in Mexico somewhere south of Nogales.” In addition, they state “*Mammillaria wrightii* var. *wilcoxii*, which grows all around Nogales, Arizona, is easily misidentified as *M. mainiae*.”

**Revised:** 1999-11-10 (LBK)  
2000-02-01 (JCP)  
2004-07-15 (SMS)

To the user of this abstract: you may use the entire abstract or any part of it. We do request, however, that if you make use of this abstract in plans, reports, publications, etc. that you credit the Arizona Game and Fish Department. Please use the following citation:

Arizona Game and Fish Department. 20XX (=year of last revision as indicated at end of abstract). X...X (= taxon of animal or plant). Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. X pp.