

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

**Plant Abstract**

**Element Code:** PDCAC0J0E1

**Data Sensitivity:** Yes

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Echinomastus erectocentrus* var. *acuñensis* (W.T. Marshall) Bravo

**COMMON NAME:** Acuña cactus, redspine fishhook cactus, red pineapple cactus

**SYNONYMS:** *Echinocactus erectocentrus* Coult., *Echinomastus acuñensis* W.T. Marshall, *Neolloydia erectocentra* var. *acuñensis* (W.T. Marshall) L. Benson, *Sclerocactus erectocentrus* (Coult.) N.P. Taylor, *Sclerocactus erectocentrus* var. *acuñensis* (Coulter) Taylor

**FAMILY:** Cactaceae

**AUTHOR, PLACE OF PUBLICATION:** *Echinomastus erectocentrus* var. *acuñensis* (W.T. Marshall) Bravo, *Cactaceas y suculentas mexicanas* 25(3): 65. 1980. *Echinomastus acunensis* W.T. Marshall, *Saguaroland Bulletin*. 7: 33. 1953.

**TYPE LOCALITY:** Organ Pipe National Monument, Pima County, Arizona.

**TYPE SPECIMEN:** Lectotype: DES. William Supernaugh, 02 Jan 1951.

**TAXONOMIC UNIQUENESS:** The HDMS follows USFWS publication use of the taxonomy *Echinomastus erectocentrus* var. *acunensis*. According to NatureServe (2004), "The USFWS uses the name *Echinomastus erectocentrus* var. *acunensis* in publications regarding this taxon's status under the U.S. Endangered Species Act. Kartesz (1999) does not recognize this variety, but it may be because the combination in *Sclerocactus erectocentrus* has not been made (it is not in the Gray Card Index, internet version, June 28, 2001).

Summary of bibliographic citation and taxon history: W.T. Marshall partially described the species in his first edition of *Arizona's Cactuses* (1950). Marshall validly published the species in 1953 as *Echinomastus acunensis*. Lyman Benson (1969) placed the species in the genus *Neolloydia*, making it a variety of *Neolloydia erectocentra*. Hubert Earle (1980) raised the variety to a specific level, incorrectly assigning L. Benson (1969) as the authority. H. Bravo (1980) transferred the taxon back to *Echinomastus* and left it as a variety of *E. erectocentrus*. The consensus of the International Organization of Succulents (1990) is to place all of Lyman Benson's (1982) *Neolloydia* taxa into the genus *Sclerocactus* except for *N. conoidea*."

**DESCRIPTION:** Cactus with solitary stems, ovoid, 7.5-15 (-37.5) cm (3-6 (-15) in) tall and 7.5-10 (-12.5) cm (3-4 (-5) in) wide, gray-green in color. Groove extends from areole to base of each tubercle. Spines are distinctive, obscuring the surface of the stem. Radial spines 11-15

per cluster, up to 2.5 cm (1.0 in) long, reddish to yellowish with dark tips. Central spines 2.0-3.5 cm (0.75-1.4 in) long, straight, dark-tipped-reddish, pink or purplish with lower half straw-colored; 2-4 central spines per areole with upper turned upward. Upper central spines are ascending and converging, giving the appearance of a “red-headed crew cut” (Phillips, Phillips and Brian 1982). Flowers up to 5 cm (2 in) in diameter, petaloid perianth parts coral pink to mallow (Benson), pink to purple (Rutman). Fruits are pale green, drying to tan with several membranous scales, 1.25 cm (0.5 in.) long; opening along a dorsal slit. Black seeds are rigose.

**AIDS TO IDENTIFICATION:** Single plump stem and straight central spines. *Mammillaria microcarpa* has more than one stem, and hooked central spines. *Echinocereus* spp. flowers are produced on old growth, below the apex, and usually have several stems and lighter colored spines. (Phillips, Phillips and Brian et al. 1982).

**ILLUSTRATIONS:** B&W photo showing tubercles and spines (Benson 1982: 795)  
Herbarium photo (*In*  
[http://ridgwaydb.mobot.org/cpcweb/CPC\\_ViewProfile.asp?CPCNum=13150](http://ridgwaydb.mobot.org/cpcweb/CPC_ViewProfile.asp?CPCNum=13150))  
Color photo and line drawing (Falk et al. 2001)  
Color photo (Felger 2000)

**TOTAL RANGE:** South-central and southwestern Arizona, and northern Mexico (Sonoita).

**RANGE WITHIN ARIZONA:** Western Pima to Maricopa, and Pinal counties, including Organ Pipe Cactus National Monument, Ajo, Coffee Pot Mountain, and Florence. Potential habitats exist in Sand Tank Mountains of the Barry M. Goldwater Air Force Range and the Tohono O’odham tribal lands.

## **SPECIES BIOLOGY AND POPULATION TRENDS**

**GROWTH FORM:** Succulent perennial.

**PHENOLOGY:** Flowering occurs early March to mid-April; flowering correlated with plant size, flower production is positively associated with winter rainfall.

**BIOLOGY:** The taxon is self-incompatible, thus requiring insect vectors for pollination. The primary pollinators are polylectic bee species, especially *Megachile palmensis* and *Diadasia rinconis*. Predation occurs by small mammals, and the larvae of the opuntia borer (*Moneilema gigas*), and seed predation occurs by the pyralith moth larvae (*Yosemitia graciella*).

**HABITAT:** Restricted range occurring on well-drained knolls and gravel ridges between major washes (Phillips, Phillips and Brian 1982), on granite soils in Sonoran Desert scrub association (Falk 2002, in NatureServe 2004).

**ELEVATION:** 1,300 - 3,610 ft. (397-1100 m). NatureServe (2004) reports elevation as 390-600 m (1,280-1,967 ft).

**EXPOSURE:** Open.

**SUBSTRATE:** Parent material is granite (Phillips, Phillips and Brian 1982). Limestone hills and flats (Benson 1982). Andesite (bright red to white) per Rutman (1994).

**PLANT COMMUNITY:** Palo Verde-Saguaro Association of the Arizona Subdivision of the Sonoran Desert Scrub. Dominant associated species include: *Ambrosia deltoidea* (Triangleleaf bursage), *Cercidium microphyllum* (Foothill paloverde), *Encelia farinosa* (White brittlebush), *Ephedra* spp. (Mormon tea), *Fouquieria splendens* (Ocotillo), *Larrea tridentata* (Creosotebush), *Olneya tesota* (Ironwood), and *Opuntia acanthocarpa* (Buckhorn cholla). (Phillips, Phillips and Brian 1982).

**POPULATION TRENDS:** Kelvin Highway population is down, probably due to poaching. According to NatureServe (2004), "Data collected through 1981 at Organ Pipe Cactus National Monument strongly suggested a total population decrease since 1977 (Buskirk 1981). Currently, the Organ Pipe population is the only one being monitored. Since 1988, the population has been declining and the number of juveniles reaching reproductive age is decreasing. In 1997, a large number of flowering individuals were uprooted by small mammals and the cactus skeletons remained (S. Rutman, pers. comm. 1998). Of all the populations, the Organ Pipe population appears the healthiest (Rutman 1988).

A 1987 trip report (Rutman 1988) from Coffee Pot Mountain indicated an unusually high mortality. This population was monitored for several years but the data has not been processed. The Sonoita population is reported as being extensive and healthy (Richard Felger, pers. comm. 1998).

Johnson (1993) reported a pattern suggesting that small individuals are more susceptible to abiotic sources of mortality due to their limited water storage capacity, and because larger individuals are mostly affected by biotic factors like predation.

Past mining activities in the Ajo area have removed a significant portion of the population and the remaining plant populations have been fragmented (Falk 2002).

## **SPECIES PROTECTION AND PRESERVATION**

**ENDANGERED SPECIES ACT STATUS:** C (USDI, FWS 2006)  
[C USDI, FWS 1999]  
[C USDI, FWS 1997]  
[C USDI, FWS 1996]

[C1 USDI, FWS 1994]

[C1 USDI, FWS 1993]

[C1 USDI, FWS 1990]

[C1 USDI, FWS 1985]

[LT USDI, FWS 1975]

**STATE LIST STATUS:**

Highly Safeguarded (ARS, ANPL 1999)

**OTHER STATUS:**

Determined Endangered (Norma Oficial Mexicana PROY-NOM-059-ECOL-2000)

**MANAGEMENT FACTORS:**

Illegal collection is a primary threat to this cactus variety. Other threats include mining, land development, road maintenance and development, recreation, grazing, small mammal predation, and seed predation. NatureServe (2004).

**CONSERVATION MEASURES TAKEN:**

The population within Organ Pipe Cactus National Monument (NPS) is protected and requires a permit for any collection. The taxon is offered protection under the Arizona Native Plant Law.

**SUGGESTED PROJECTS:**

All known populations should be monitored. Further research should include all known populations, focusing on reproduction, demography, and limitations on the geographic distribution. Additional information on the effect of seed predation by the pyralid moth larvae and the opuntia borer, *Moneilema gigas*, should be gathered. More detailed soil analysis and geographical material preference should be examined. Genetic analysis of the known populations should be conducted. Efforts should be taken to locate additional populations, especially on habitats that exist in the Sand Tank Mountains and on the Tohono O'odham tribal lands.

**LAND MANAGEMENT/OWNERSHIP**

BLM - Phoenix and Tucson Field Offices; NPS - Organ Pipe Cactus National Monument; State Land Department; Private.

**SOURCES OF FURTHER INFORMATION**

**REFERENCES:**

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**MAJOR KNOWLEDGEABLE INDIVIDUALS:**

- William Buskirk - Earlham College, Richmond, Indiana.  
Sue Rutman – Organ Pipe Cactus National Monument, Ajo, Arizona.

**ADDITIONAL INFORMATION:**

Peters: Population study since 1977 on two populations in Organ Pipe Cactus National Monument, a population on the top of Childs Mt., west northwest of Ajo. However, this habitat is wrong according to Sue Rutman. Frank Reichenbacher said it could be *E. johnsonii* which grows on black limestone.

Notes from Diversity Review, 1989, by SST. Decline of OPNM population in past 10 years. Also, “Childs Mt. misleading (Black Mt.)” population now stable (BLM Safford District, Rare Plant Workshop 1994).

Phillips, 1982: Recommended for Federal Threatened listing

Frank Reichenbacher (Bureau of Land Management, Safford District, Rare Plant Workshop) stated that the spines get darker and longer as you go west. The Sonoran, Organ Pipe and Ajo populations are similar. The Florence population is intermediate between *E.e. erectocentrus* and

*E.e. acuñensis*, having fewer central spines and occurring on granite soil.

Distribution and range on Safford District is not known. Information on poaching activity is needed.

**Revised:** 1989-12-27 (SST)  
1994-11-28 (DBI)  
1997-11-12 (SMS)  
1999-12-20 (DJG)  
2004-07-30 (AMS)  
2004-08-19 (SMS)

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