ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract **Element Code:** PDCAC0J0E2
Data Sensitivity: Yes

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Echinomastus erectocentrus* var. *erectocentrus* (Coult.) Britton & Rose
COMMON NAME: Needle-spine Pineapple Cactus, Red-spine butterfly-cactus
SYNONYMS: *Echinocactus erectocentrus* Coult.; *Neolloydia erectocentra* var. *erectocentra* (W.T. Marshall) L. Benson; *Sclerocactus erectocentrus* var. *erectocentrus* (Coulter) N.P. Taylor
FAMILY: Cactaceae

AUTHOR, PLACE OF PUBLICATION: *Echinomastus erectocentrus* (J.M. Coult.) Britton & Rose, The Cactaceae; descriptions and illustrations of plants of the cactus family 3: 148. 1922. *Echinocactus erectocentrus* J.M. Coulter, Contr. U.S. Nat. Herb. 3(7): 376. 1896.

TYPE LOCALITY: USA; Arizona; Cochise County; Near Benson.

TYPE SPECIMEN: Isotype: US 03052066 (*Echinocactus erectocentrus*). Evans, W.H. --, -- ---1891. Neotype: POM 273980, L. Benson #10326, April 17, 1940, "east of the junction of U.S. 80 and the road to Sonoita, Pima County, Arizona."

TAXONOMIC UNIQUENESS: The species *Echinomastus erectocentrus* includes 2 varieties, *E. e.* var. *erectocentrus* and *E. e.* var. *acuñensis*. Those populations north of Tucson, Arizona, are geographically, ecologically, and morphologically intermediate between the two named varieties. *Echinomastus erectocentrus* var. *acuñensis* is replaced to the northwest by *E. johnsonii*; the two populations are weakly differentiated (eFloras, 2009). Kartesz (1994 checklist) recognizes this cactus as a distinct species without varieties.

DESCRIPTION: Succulent perennial cactus with solitary stems, ovoid or somewhat cylindroid, 5-34.5 x 6.3-10 cm; ribs (15)18-21; areoles 8-14 mm apart along the rubs; indentations between tubercles are sharp and narrow. Tubercles are mammillate, 6 mm broad, and 6 mm long vertically. The spines are dense, 13-19 per areole, purplish to dark reddish-brown tipped. Radial spines 13-18 per areole; abaxial (shortest) radial spine 6-15 mm long; adaxial and lateral (longest) radial spines are 9-25 mm long. Central spines 1-2 per areole, erect, 12-29 mm long; longest adaxial central spine is straight or sometimes curved toward the apex of the plant. The abaxial or solitary central spine is 13-15(-29) mm long. Flowers are 3.9-7.0 x 4.4-5.2 cm, the inner tepals whitish, pale lavender, or very pale pink, proximally olive green, 2.5-2.7 x 0.6-1 cm. The stigma lobes are bright red to dark red; papillae red. Fruit is green, drying to tan, 10 x 8 mm. (eFloras, 2009).

AIDS TO IDENTIFICATION: *E. e.* var. *acuñensis* has 2-3 central spines per areole, is relatively conspicuous, the ascending or abaxial spine is porrect. The abaxial central spine is 25-35 mm long. The inner tepals of var. *acuñensis* are a pale to bright rose-pink, proximally orangish brown, chestnut, maroon, or greenish brown. In var. *erectocentrus* the central spine is relatively inconspicuous, erect, 1-2 per areole. The abaxial central spine is 13-15(-29) mm long. The inner tepals are whitish, pale lavender, or very pale pink, proximally olive green. (eFloras, 2009).

Benson (1982) states two varieties can be segregated based on size and flower color, but in reality these are not good indicators. Better way to distinguish these two varieties is by geography. Variety *erectocentrus* occurs in the general Tucson area east and south to the Mexican border. Variety *acuñensis* occurs in northern Sonora, Mexico, and in the Arizona in Organ Pipe Cactus National Monument, north and eastward in an arc across Pima and Pinal counties to the Florence area. However, their population is known to overlap with variety *erectrocentrus* near SR-83 and I-10 southeast of Tucson based on recent surveys (Baker, 2007).

ILLUSTRATIONS/PHOTOS:

Line drawing of spine cluster (Benson 1969:192)
B&W photo of plant in habitat (Benson 1982:193)
B&W photo of stem showing erect central spine (Benson 1982:794)
B&W photo of plant in flower (Benson 1982:794)
Line drawing (USFWS)
Color photos (2003, http://www.mineralarts.com/cactus/needlespine.html)
Color photo of plant and habitat (John Ellis, accessed 9/12/2003 from http://www.teessidecacti.org/BCSS/GALLERY/PICTURES/HABITAT/haaz_009.htm)
Color photos (Accessed 9/12/2003 from http://www.saguaro-juniper.com/i_and_i/cacti/barrels/echinomastus.html)
Line drawing (*in* Falk and Jenkins et al. 2001)
Color photos of plant and habitat (AGFD/ANHP, *in* Falk and Jenkins et al. 2001)
Color photo of specimen collection from DBG (*in* CPC accessed 2003 from http://ridgwaydb.mobot.org/cpcweb/CPC_ProfileImage.asp?FN=2939a)
Color photos (Erik Enderson, copyright photos can be found @ http://www.erikenderson.com/Galleries/Cacti_and_Succulents/)

TOTAL RANGE: Known from Pima, Pinal, and Cochise counties in Arizona.

RANGE WITHIN ARIZONA: Occurs from the general Tucson area east and south to the Mexican border. It grows mainly in desert grasslands in eastern Pima, southeastern Pinal (vicinity of the lower San Pedro River), and western Cochise counties.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Succulent perennial shrub/subshrub.

PHENOLOGY: Flowers from March-May.

BIOLOGY:

HABITAT: *E. e.* var. *erectrocentrus* generally inhabits desert grasslands on low gravelly hills and bajadas, on igneous and calcareous substrates (eFloras, 2009). DBG (2009) reports this variety growing on alluvial fans and hills, usually limestone. Has been collected from desert grasslands mixed with open woodlands (SEINet, accessed 2009).

ELEVATION: The elevation ranges between 900 – 1500 meters (2,953 – 4,921 feet) as reported by eFloras (2009); while the Desert Botanical Garden (www.dbg.org, 2009) reports the elevation range between 396 - 610 meters (1,300 – 2,000 feet).

EXPOSURE: East, south, and west.

SUBSTRATE: Igeneous and calcareous substrates.

PLANT COMMUNITY: Desert grasslands. Associated species include: *Abutilon incanum* (Pelotazo), *Acacia constricta* (whitethorn acacia), *Acourtia nana* (dwarf desert peony), *Agave palmeri* (Palmer agave), *A. schottii* var. *schottii* (Schott's agave), *Allionia incarnata* (trailing windmills), *Aristida purpurea* (purple three-awn), *Atriplex canescens* (fourwing saltbush), *Baccharis sarathroides* (desertbroom), *Calliandra eriophylla* (fairy duster), *Ceanothus*, *Celtis pallida* (desert hackberry), *Coryphantha* ssp., *Cylindropuntia fulgida* var. *fulgida* (jumping cholla), *C. leptocaulis* (Christmas cactus), *C. spinosior* (walkingstick cactus), *Dasylirion wheeleri* (common sotol), Dasyochloa *pulchella* (low woollygrass), *Dyssodia* spp., *Echinocereus fasciculatus* (pinkflower hedgehog cactus), *E. rigidissimus* (rainbow hedgehog cactus), *Ephedra trifurca* (longleave jointfir), *Escobaria vivipara* var. *bisbeeana* (Bisbee spinystar), *Ferocactus wislizenii* (fishhook barrel cactus), *Flourensia* (tarwort), *Fouquieria splendens* (ocotillo), *Hibiscus denudatus* (rock hibiscus), *Isocoma tenuisecta* (burroweed), *Juniperus*, *Krameria erecta* (littleleaf ratany), *Larrea tridentata* (creosote bush), *Lycium* sp. (desert-thorn), *Machaeranthera pinnatifida* (lacy tansyaster), *Mammillaria grahamii* (Graham nipple cactus), *M. heyderi* var. *bullingtoniana* (little nipple cactus), *M. heyderi* var. *macdougalii* (Macdougal's nipple cactus), *Menodora scabra* (rough menodora), *Mimosa biuncifera*, *Muhlenbergia porteri* (bush muhly), *Opuntia engelmannii* var. *engelmannii* (Engelmann prickly-pear cactus), *O. phaeacantha* (tulip prickleypear), *Parkinsonia microphyllum* (foothill paloverde), *Parthenium incanum* (mariola), *Pennisetum ciliare* buffelgrass), *Prosopis velutina* (velvet mesquite), *Psilostrophe cooperi* (whitestem paperflower), *Rhus* (sumac), *Tiquilia canescens* (woody crinklemat), *Yucca angustissima* (narrowleaf yucca), *Y. elata* (soaptree yucca), *Y. x schottii* (Schott's yucca), *Zinnia acerosa* (desert zinnia), and *Zizyphus obtusifolia* var. *canescens* (gray-thorn or lotebush). (SEINet, 2009; taxonomy checked at plants.usda.gov, 2009).

POPULATION TRENDS: Unknown. Problems are trampling, over construction (Ducote 1994).

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None (USDI, FWS 1996).
[C2 USDI, FWS 1993]
[C2 USDI, FWS 1990]
[C2 USDI, FWS 1985]
[LT USDI, FWS 1975]

STATE STATUS: Salvage Restricted (ARS, ANPL 1999)
[Salvage Restricted (ARS, ANPL 1993)]

OTHER STATUS: Forest Service Sensitive (USDA, FS Region 3 1990, 1999)

MANAGEMENT FACTORS: Primary threats include collection for cactus trade, and habitat degradation due to urbanization. It is not common in cultivation because of its difficulties to propagate, which is another added interest for collection by some individuals in the cactus trade.

CONSERVATION MEASURES TAKEN:

SUGGESTED PROJECTS: Studying aspects of this species general biology and ecology would be useful. Population size and sites need to be determined, including potential habitat in Whetstone and Empire mountains. Genetic studies would be helpful to answer taxonomic questions.

LAND MANAGEMENT/OWNERSHIP: Majority is in state and private holdings. A couple locations on the BLM – Safford Field Office and USFS – Coronado National Forest. They are also found on the TNC – Lower San Pedro River Preserve.

SOURCES OF FURTHER INFORMATION

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ADDITIONAL INFORMATION:

Dr. Don Pinkava (retired, ASU: pers comm 1991) believes var. *acuñensis* may be indistinct from var. *erectocentrus*.

When searching for this cactus, Benson (1982) reports “The reddish-spined cylindroid stems are hidden among grasses during the summer rainy season, but they are more conspicuous at other times of the year.”

Revised: 1980-xx-xx (ANHP)
1991-11-11 (SR)
1994-12-07 (DBI)
1997-10-22 (SMS)
2003-10-09 (SMS)
2009-07-25 (SMS)