

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

**Plant Abstract**

**Element Code:** PDCAC06039

**Data Sensitivity:** YES

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Echinocereus engelmannii* var. *variegatus*  
**COMMON NAME:** Engelmann's Hedgehog Cactus  
**SYNONYMS:** *Echinocereus engelmannii* subsp. *variegatus*  
**FAMILY:** Cactaceae

**AUTHOR, PLACE OF PUBLICATION:** Rumpler, Karl Theodor. In: Handbuch der Cacteenkunde 806. 1885.

**TYPE LOCALITY:** United States:California. Also states "head of Bill Williams [fork]"

**TYPE SPECIMEN:** MO 146608. John Milton Bigelow, #s.n. February 1, 1854.

**TAXONOMIC UNIQUENESS:** NatureServe (2015) lists 23 species, another 43 subspecies or varieties, and one named hybrid of *Echinocereus*. Twelve species are found in Arizona, as are 17 of the varieties or subspecies (one). Three of the species are only found within the State. *E. engelmannii* has eight named varieties, and four occur in Arizona: *acicularis*, *chrysocentrus*, *engelmannii*, and *variegatus*.

**DESCRIPTION:** For the species, *E. engelmannii*: **Plants** 3-60-branched, ultimately forming somewhat open clumps. **Stems** mostly erect, cylindric or somewhat tapering distally, (5-)14-45(-70) × 3-9 cm; ribs 10-13, crests slightly undulate; areoles 6-10(-15) mm apart. **Spines** (8-)15-20 per areole, usually straight (curved and twisted in desert mountains and peninsular ranges of California), individual spines with broad zones of different colors: whitish or grayish, dull golden-yellow, or reddish brown to nearly black; radial spines 6-14 per areole, 8-20(-50) mm; central spines (2-)4-6(-9) per areole, divergent-parallel, 12-70 mm, abaxial central spine often fading whitish, flat to sharply angled (terete or nearly so in north-central Arizona). **Flowers** 6-9 × 5-9 cm; flower tube 13-30 × 10-30 mm; flower tube hairs 1 mm; inner tepals bright rose-pink to magenta, often varying from paler to darker in same population, proximally darker, 37-75 × (8-)14-25 mm, tips relatively thin, delicate; anthers yellow; nectar chamber 4-6 mm. **Fruits** red or orangish, 25-45 mm, pulp whitish becoming infused with pink or red from the skin. *2n* = 44. (Flora of North America 2015).

**AIDS TO IDENTIFICATION:** Benson (1981) uses the following characteristics to distinguish *E. e.* var. *variegatus* from the other varieties:

**Stems:** 3-6, 3 to 6 inches long, 1-1/2 to 2 inches in diameter.

**Spine Color:** Dark red to nearly black, but the radials nearly white, the lower central white.  
**Lowered Deflexed and flattened central spine:** About 1-1/2 inches long, basally up to 1/24 inch broad, stiff for its size, nearly straight.  
**Other Central Spines:** Straight, shorter than the lower central, dark colored at least when young, about 1/48 inch in diameter.  
**Flower Diameter:** About 2 inches.  
**Petaloid Perianth Segments:** Purplish to magenta.  
**Geographical Distribution:** Grassland, woodland and Navajoan Desert. Arizona from Mohave County to Coconino County.

However, Breslin et al 2015, state that although the four varieties of *E. engelmannii* occurring in Arizona have been previously described based mostly on differences in spine number, length and/or color, some authors do not currently recognize these because they can be difficult to identify with certainty. They also state that sometimes in the field, notable differences can be presented. They highlight the following “recognized” varieties are var. *engelmannii*, the common south-central California form, uncommon in Arizona; var. *acicularis*, the common yellow to brownish spine form; var. *chrysocentrus*, from the northwestern Mohavean transition zone, which has a denser spine cover and a dagger-like, white central spine; and var. *variegatus*, the common particolored spine form from the Grand Canyon and Marble Canyon areas with noticeably smaller stems.

The Flora of North America (2015) also states that some of the species and varieties are too poorly described or too poorly known to fully treat at this time.

#### **ILLUSTRATIONS:**

Herbarium Mounts:

<http://swbiodiversity.org/seinet/taxa/index.php?taxon=Echinocereus%20engelmannii%20var.%20variegatus>.

Photo: Breslin et al 2015, p. 89.

**TOTAL RANGE:** Mostly Arizona, from just north and east of Kingman, north towards Mesquite, Nevada and the Utah-Arizona border, east to Lees Ferry and south to Cameron, all from Mohave and Coconino Counties. There are also collections south of Kanab, Utah and from the Cane Valley in Apache.

**RANGE WITHIN ARIZONA:** See Total Range.

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

**GROWTH FORM:** Perennial succulent.

**PHENOLOGY:** Collections in Arizona report flowers from April 27 – June 6. There was also a report from October 11.

**BIOLOGY:**

**HABITAT:** Grasslands, mountain shrub, chaparral, pinon-juniper woodlands.

**ELEVATION:** Based on Arizona collections, 2480 – 5320 feet (755-1622m).

**EXPOSURE:** Not specified, collection notes suggest various exposures.

**SUBSTRATE:** Rocky, sandy soils. One collection noted cryptogamic soil.

**PLANT COMMUNITY:** Grasslands, mountain shrub, chaparral, pinon-juniper woodlands. Plants associated with collections include: *Pinus edulis*, *Chrysothamnus nauseosus junceus*, *Artemisia* sp., *Agave utahensis kaibabensis*, *Cirsium neomexicanum*, *Coleogyne ramosissima*, *Thamnosma montana*, *Rhus trilobata simplicifolia*, aff. *Yucca elata*, *Yucca baccata*, *Y.* hybrids, *Leucelene ericoides*, *Echinocereus engelmannii*, *Echinocereus triglochidiatus*, *Echinocactus polycephalus*, *Castilleja*, *Calochortus*, *Yucca* aff. *elata*, *Gutierrezia sarothrae*, *Sphaeralcea*, *Nolina microcarpa*, *Ephedra*, *Amsonia*, *Euphorbia*, *Fraxinus*, *Acacia greggii*, *Brickellia microphylla*, *Opuntia polyacantha* var. *erinacea* type (*Opuntia nicholii*?), *Cercocarpus ledifolius*, *Aristida purpurea*, *Bouteloua curtipendula*, *B. eriopoda*, *Canotia holacantha*, *Ceanothus greggii*, *Chamaesyce polycarpa*, *Cylindropuntia acanthocarpa*, *Dasyochloa pulchella*, *Ericameria linearifolia*, *Eriogonum fasciculatum*, *E. wrightii*, *Gutierrezia microcephala*, *Juniperus californica*, *Opuntia basilaris*, *Opuntia engelmannii*, *O. phaeacantha*, *Pleuraphis rigida*, *Quercus turbinella*, *Salazaria mexicana*, *Sphaeralcea ambigua*.

**POPULATION HISTORY AND TRENDS:** Unknown for Arizona. There are 12 known collections. Several of these noted that the plant was fairly frequent or common. There is no additional information available that can be used to interpret population status or trend.

## **SPECIES PROTECTION AND CONSERVATION**

**ENDANGERED SPECIES ACT STATUS:** None.  
**STATE STATUS:** Salvage Restricted (ARS ANPL 1991)  
**OTHER STATUS:** “Least Concern” (IUCN RedList 2013)

**MANAGEMENT FACTORS:** None specified.

**PROTECTIVE MEASURES TAKEN:** Listed as a Salvage Restricted species under Arizona Native Plant Law and as a species of Least Concern by IUCN. About one-third of

the known locations occur within the Grand Canyon National Park or Glen Canyon National Recreation Area.

**SUGGESTED PROJECTS:** None.

**LAND MANAGEMENT/OWNERSHIP:** USDI, National Park Service (Grand Canyon NP and Glen Canyon NRA); USDI, Bureau of Indian Affairs (Navajo Nation); USDI Bureau of Land Management (both Kingman and Arizona Strip Field Offices).

## **SOURCES OF FURTHER INFORMATION**

### **REFERENCES:**

- Benson, Lyman. 1981. The Cacti of Arizona. 3rd edition. University of Arizona Press, Tucson, AZ. pp. 146.
- Breslin, Peter, Rob Romero, Greg Starr, Vonn Watkins, et al. 2015. Field Guide to Cacti and other Succulents of Arizona. Tucson Cactus and Succulent Society, Tucson, Arizona. pp. 302.
- Flora of North America (eFloras.org), accessed 12/16/2015, [http://www.efloras.org/florataxon.aspx?flora\\_id=1&taxon\\_id=242415249](http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=242415249).
- IUCN RedList, accessed 12/14/2015, <http://www.iucnredlist.org/details/152184/0>.
- NatureServe Explorer, accessed 12/15/2015, <http://explorer.natureserve.org/>.
- Tropicos, accessed 12/14/2015, <http://www.tropicos.org/Specimen/1447530> and <http://www.tropicos.org/Name/5105356>.

### **MAJOR KNOWLEDGEABLE INDIVIDUALS:**

**ADDITIONAL INFORMATION:** Plants smaller in all parts and with fewer central spines from north-central Arizona are *Echinocereus engelmannii* subsp. *decumbens* (Clover & Jotter) W. Blum & Mich. Lange. L. D. Benson (1969) referred those to var. *variegatus* (Engelmann & J. M. Bigelow) Rümpler, but the type locality of var. *variegatus* is in a different region (Flora of North America 2015).

**Revised:** 2015-12-16 (BDT)

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