

ARIZONA GAME AND FISH DEPARTMENT  
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract

Element Code: PDCAC0E110

Data Sensitivity: Yes

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Pediocactus simpsonii*  
**COMMON NAME:** Simpsons plains cactus; Simpson hedgehog cactus; Simpson's Hedgehog cactus; snowball pediocactus; mountain cactus; mountain ball cactus  
**SYNONYMS:** *Echinocactus simpsonii*; *Mammillaria simpsonii*  
**FAMILY:** Cactaceae

**AUTHOR, PLACE OF PUBLICATION:** *Pediocactus simpsonii* (Engelmann) Britton & Rose, An Illustrated Flora of the Northern States 2: 570. 1913. *Echinocactus simpsonii* Engelmann, Transactions of the Academy of Science of St. Louis 2: 197. 1863.

**TYPE LOCALITY:** United States: Utah: Kobe Valley. Benson (1981) reports type locality as "Kobe Valley, Nevada."

**TYPE SPECIMEN:** LT: H. Engelmann *s.n.*, 24 May 1859. (MO).

**TAXONOMIC UNIQUENESS:** The species *simpsonii* is 1 of 8 in the genus *Pediocactus*. This plant shows a bit of variation throughout its range and some taxonomists recognize several varieties including variety *simpsonii* (occurs in Arizona), *minor* and *robustior*.

**DESCRIPTION:** Solitary or colonial stems are depressed-hemispheric to subglobose, 2-15 cm high, 3-20 cm wide (or more); tubercles 5-25 mm long, 4-7 mm wide. Areoles elliptic to subcircular; central spines 4-10, mainly 5-25 mm long, brownish or blackish; radial spines mainly 10-25, white. Flowers are 1.2-3 cm long with whitish, pinkish, yellowish or greenish petaloids; sepaloids shortly fimbriate. Benson (1982) states "sepals either with greenish and purple midribs and pink margins or yellow with slight median and marginal pink tinges...petaloids pink to nearly white or sometimes magenta or yellow..." Fruit is green, often turning reddish brown, with few scales, 6-11 mm long, and 5-10 mm wide. Seeds are gray to black, tuberculate, 2-3 mm long.

**AIDS TO IDENTIFICATION:**

**ILLUSTRATIONS:** Color photo (E.F. Anderson in PLANTS Database, <http://plants.usda.gov>)  
Color drawings (M.E. Eaton in Smithsonian Institution Catalog of Botanical Illustrations, <http://www.nmnh.si.edu/botart/pediocac.htm>)  
Color photos (Colorado Spring Utilities, <http://www.csu.org/>)

Color photo (D. Powell, USDA Forest Service, <http://www.forestimages.org/>)

Color photo (R. Day-Skowron 1999, <http://www.rmrp.com/>)

Color photo (<http://www.fhnavajo.com/cdrom/pss.jpg>)

Color photo (D.I. Campbell,

<http://www.colostate.edu/depts/coopext/tra/plants/>)

B&W line drawings of variety *simpsonii* (Benson 1982: fig. 788)

Color photo of variety *simpsonii* (Benson 1982: fig. 789)

**TOTAL RANGE:** In the northwest from Oregon and Washington, east to Montana, south to New Mexico, and west to Arizona and Nevada. Also ranges into South Dakota.

**RANGE WITHIN ARIZONA:** Coconino County: Marble Canyon vicinity, Grand View and Wupatki National Monument. Mohave County: Shivwits Plateau.

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

**GROWTH FORM:** Perennial succulent shrub/subshrub.

**PHENOLOGY:** Flowers April to June.

**BIOLOGY:** A cold-hardy species that has been found as high as 11,000 feet. Occasionally, an unusual crested (fascinated) form has been observed.

**HABITAT:** Can be found growing in a variety of grassland, sagebrush, pinyon-juniper woodland, and montane forests. In Utah, found in shadscale, mixed desert shrub, pinyon-juniper, sagebrush, and Douglas fir communities at 1460 to 2830 m (Welsh et al., 1993). The variety *simpsonii* occurs in fine powdery soils of valleys, flats, and hillsides in dry areas mostly 1800-2850 m (6,000-9,500 ft) (Benson, 1982). *P. simpsonii* is frequently concealed under larger vegetation and can be camouflaged under plant litter and grasses. It may actually shrink below the ground surface, during winter dormancy.

**ELEVATION:** For range 6,000 – 9,500 ft (1800-2850), but have been reported as high as 11,000 ft (3355 m). In Arizona, 2 localities at 5,380 and 7,100 ft (1641 & 2166 m).

**EXPOSURE:** Prefers sunny exposures.

**SUBSTRATE:** One observation on loamy upland in Coconino County, AZ.

**PLANT COMMUNITY:** Variety *simpsonii* found in Northern Juniper-Pinyon Woodland and Sagebrush Desert; Rocky Mountain Montane Forest (Benson, 1982). In Mohave County (AZ), associated species include *Pinus ponderosa*, *Artemisia tridentata* and *Penstemon linarioides* (Holland, Niles, and Leary, 1979).

**POPULATION HISTORY AND TRENDS:****SPECIES PROTECTION AND CONSERVATION****ENDANGERED SPECIES ACT STATUS:****STATE STATUS:**

Salvage Restricted (ARS, ANPL 1999)

**OTHER STATUS:****MANAGEMENT FACTORS:** As with other cacti, subject to collection for cultivation.**PROTECTIVE MEASURES TAKEN:****SUGGESTED PROJECTS:****LAND MANAGEMENT/OWNERSHIP:** NPS – Grand Canyon National Park, and Wupatki National Monument.**SOURCES OF FURTHER INFORMATION****REFERENCES:**

- Arizona Revised Statutes. 1999. Arizona Native Plant Law, Appendix A.
- Benson, L. 1981. The Cacti of Arizona. Third Edition. The University of Arizona Press, Tucson, Arizona. Pp. 179-181.
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- Integrated Taxonomic Information System (ITIS). Retrieved 12/4/2002 from ITIS, <http://www.itis.usda.gov>.
- McDougall, W.B. 1973. Seed Plants of Northern Arizona. The Museum of Northern Arizona, Flagstaff, Arizona. P. 326.
- Missouri Botanical Garden – TROPICOS, Nomenclatural Data Base. *Pediocactus simpsonii* (Engelm.) Britton & Rose. <http://mobot.mobot.org/>. Accessed: 4 Dec 2002.
- USDA, NRCS. 2002. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.
- Welsh, S.L., N.D. Atwood, S. Goodrich, and L.C. Higgins, Eds. 1993. A Utah Flora. Second Edition, revised. Print Services, Brigham Young University, Provo, Utah, USA. Pp. 100-101.

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

Army engineer George Engelmann first named *Pediocactus simpsonii*, after James H. Simpson under the name *Echinocactus simpsonii*. Engelmann named the species in honor of the commander, who led the expedition in Colorado. Britton and Rose set forth the name *Pediocactus simpsonii*, the genus meaning from the plains (even though this cactus grows in the mountains).

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