

ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract

Element Code: PDCAC0X0C0
Data Sensitivity: YES

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Coryphantha robbinsorum*
COMMON NAME: Cochise Pincushion Cactus
SYNONYMS: *Cochiseia robbinsorum*; *Escobaria robbinsorum*
FAMILY: Cactaceae

AUTHOR, PLACE OF PUBLICATION: Earle. 1976. Saguaroland Bull. 30:64-66.

TYPE LOCALITY: Locality withheld. James A., Jimmy, and John Robbins, 1976.

TYPE SPECIMEN:

TAXONOMIC UNIQUENESS: Discussion of genus assignment is continuing. Currently this species is assigned to *Coryphantha*. For a broader discussion see Zimmerman (1978) and Miller and Hilsenbeck (1993).

DESCRIPTION: **Small** 1.0-1.5 cm (0.4-0.6 in.) above ground, unbranched cactus, 1.4-6.0 cm (0.6-2.4 in.) wide. Tubercles tightly packed in 8 and 13 spirals in mature plants (5 and 8 spirals in smaller plants). Stem usually single, most of which is underground, only top 1.0 cm (0.4 in.) above ground level. During spring and fall when drought normally occurs, plants shrink. Amount of retraction depends on microsite. Areoles circular to broadly elliptic, conspicuously filled with **copious long white trichomes** (giving "cottony" appearance). Deep furrow runs on upper portion of tubercle. Radial spines number 11-20 per areole, **bright white, stiff and brittle**, (8.0-18.0 mm (0.3-0.7 in.) long. Central spines usually lacking, 1-3 slender spines may be present in upper part of areole. The bell-shaped flowers parchment color (pale green-yellow to pale yellow-orange) 10.0-18.5 mm (0.4-0.7 in.) long and 12.0-29.0 mm (0.5-1.1 in) in diameter. Anthers yellow with green stigma lobes and style. Fruits spheroidal to obovoid, 6.0-8.5 mm (0.2-0.3 in.) long, 3.0-4.5 mm (0.1-0.2 in) thick; orange-red when ripe, turning reddish-brown. About twenty, globular black seeds in each fruit.

AIDS TO IDENTIFICATION: When mature, smaller than any other cacti in area. Cottony areoles, bright white spines are distinctive (no other species in Arizona has "cottony" areole on such a small plant). Spines so dense, stem cannot generally be seen. *C. vivipara* var. *bisbeeana* occurs in same habitat but does not have cottony areoles and has central spines that are differentiated from radials. However, need to be seen together to distinguish.

ILLUSTRATIONS: Line drawing. USFWS.
Color photo (http://www.desert-tropicals.com/plants/cactaceae/escobaria_robbinsorum.html)

TOTAL RANGE: Southeastern (Rutman 1989) and southwestern (Miller and Hilsenbeck 1993) Cochise County, Arizona, and northern Sonora, Mexico.

RANGE WITHIN ARIZONA: Southeastern and southwestern Cochise County.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Succulent Perennial

PHENOLOGY: Begins flowering in late March and into April. Flowers open mid-day. Fruits third week of June through third or fourth week of August. Rutman (1999 draft), states that "fruits begin to develop late April through May." Seeds come off mother plant and germinate below it. Short-distance dispersal of seed/fruit year-round; long distance dispersal, June-August "Flowers (and fruits, if pollination is successful) are produced annually. Seeds germinate at unknown intervals following fruit maturation, repeating the cycle" (US Fish and Wildlife Service, Federal Register 1985).

BIOLOGY: Plants tend to be solitary or scattered in discrete sub-populations rather than randomly spread out over the seemingly suitable habitat. Prefers areas with good drainage; full sun to light shade.

At the end of the first growing season, *C. robbinsorum* plants in cultivation reach a diameter of 3.0-4.0 mm (0.12-0.16 in.). Wild plants average an increase of about 3.0 mm (0.12 in) per year until they are between 6 and 9 years old when their growth slows to about 1.0 mm (0.04 in.) per year. Measurements of plants in the field suggest "a maximum age of nearly a century under very rare circumstances; alternatively, the largest plants observed are those that have enjoyed faster-than-average growth rates" (US Fish and Wildlife Service, Federal Register 1985).

Pollinated by bees. Red and fleshy fruit may attract birds which then disseminate seeds (Miller and Hilsenbeck 1993).

HABITAT: Rolling gray limestone slopes of hills in transition zone between Chihuahuan Desert Scrub and Semidesert Grassland (rocky, transition scrub). Plants are rooted in bedrock cracks or thin soil. Vegetation changes abruptly when it hits bedrock. (Habitat visited often by collectors.)

ELEVATION: 4,200 - 4,650 feet in U.S. (1,281 - 1,418 m); up to 5,200 feet (1,586 m) in Mexico

EXPOSURE: Usually not southern (A. Zimmerman. S. Rutman doesn't think exposure direction too important.)

SUBSTRATE: More-or-less on flatted ridgetops on bedrock and coarse gravels of Permian (grey) Limestone Formation.

PLANT COMMUNITY: Upper Chihuahuan Desertscrub. Associated species include *Muhlenbergia asperifolia*, *Calliandra eriophylla*, *Agave palmeri*, *Vauquelinia pauciflora*, *Echinocereus fendleri* var. *rectispinus*, *Dyssodia* spp., *Coryphantha vivipara*, *Opuntia phaeacantha*, *Fouquieria splendens*, etc. Phillips et al. (1982) state that *C. robbinsorum* occurs with *Mortonia*; however, the species do not occur in the same habitat.

POPULATION TRENDS: Apparently stable but may be affected by predatory insects and rodents. (S. Rutman publishing paper on results of monitoring plots soon.)

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: LT, without critical habitat (USDI, FWS 1986)
[PT USDI, FWS 1985]
[C1 USDI, FWS 1983]

STATE STATUS: Highly Safeguarded (Arizona Native Plant Law, 1993, 1999)

OTHER STATUS: Not Forest Service Sensitive (USDA FS Region 3 1999)

[Forest Service Sensitive, USDA FS Region 3, 1990]
CITES Appendix I

MANAGEMENT FACTORS: Local endemic, substrate specific. Illegal collecting; livestock occasionally kick up rocks and uproot plants; population appears stable. Human use in area currently is livestock grazing which doesn't affect populations. No active management needed.

CONSERVATION MEASURES TAKEN: Demographic monitoring plots established by USFWS in 1988.

SUGGESTED PROJECTS:

LAND MANAGEMENT/OWNERSHIP: State Land Department; Private.

SOURCES OF FURTHER INFORMATION

LITERATURE CITATIONS:

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- USDA, Forest Service Region 3. 1990. Regional Forester's Sensitive Species List.
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- Zimmerman, A.D. 1978. The relationships of *Cochiseia robbinsorum* Earle. Cactus and Succulent Journal of the Cactus and Succulent Society of America. 50:293-297.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

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ADDITIONAL INFORMATION:

For a full discussion of management issues and concerns, see Miller and Hilsenbeck (1993).

Vauquelinia pauciflora californica is indicator plant for this species.

Genus now *Echeverria* (according to Sheridan Stone), FWS bulletin (August, 1994).

Revised: 1990-12-28 (SR)
1994-12-23 (DBI)
1997-11-05 (SMS)
2001-12-12 (SMS)

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