

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

Plant Abstract

Element Code: PDCAC0X010

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Escobaria orcuttii*
COMMON NAME: Orcutt's Foxtail Cactus, Orcutt's Pincushion Cactus, Carpet Foxtail Cactus
SYNONYMS: *Coryphantha sneedii*, *C. strobiliformis* var. *orcuttii*, *C. orcuttii*, *Escobaria sneedii* ssp. *orcuttii*
FAMILY: Cactaceae

AUTHOR, PLACE OF PUBLICATION: Boedeker, Friedrich. Mammillarien-Vergleichs-Schlüssel 17. 1933.

TYPE LOCALITY: United States.

TYPE SPECIMEN: California Academy Sciences, CAS 214884 (lectotype). C.R. Orcutt, #s.n. March 1926.

TAXONOMIC UNIQUENESS: Although there are some different opinions on the taxonomy of the genus *Escobaria* (see Additional Information, below), NatureServe (2015) recognizes 16 species and 17 varieties. *E. orcuttii* is one of four species found in Arizona; there are eight varieties also found in the State. *E. robbinsiorum* is the only species restricted to Arizona

DESCRIPTION: **Plants** branched (with age to 250 branches in some populations), most branches of largest clumps often immature, usually stiff and erect, white, stem obscured by spines. **Roots** diffuse but ± fleshy or short taproots, largest roots basally less than ± 1/3 of stem diam., often dying in age, root system then diffuse adventitious roots. **Stems** protruding above ground level for at least 1/2 its length, spheric at first, later cylindric or clavate, 3-27 × 1.3-7(-10) cm; tubercles 3.5-12 × 2.5-6 mm, stiff; areolar glands absent; parenchyma not mucilaginous; druses present, some large, 0.5-1 mm, lenticular, always conspicuous in old parts of stem; pith 1/5-1/3 of lesser stem diam.; medullary vascular system absent. **Spines** (31-)37-76(-95) per areole, all bright snowy white or, if ± pigmented (in some populations especially on igneous rock), then central spines tan, stramineous, golden yellow, pale chalky pink, pale purplish gray, or pinkish brown (rarely dark brown), palest when fresh, weathering through gray to black, dark tips usually only on largest central spines, usually pink to orange-brown or purplish brown (very rarely blackish); radial spines (18-)25-52(-73) per areole (12-45 per areole on immature branches), ± appressed or tightly appressed, 3-14 × (0.01-)0.05-0.2 mm diam.; subcentral spines (0-)1-5(-10) per areole in adaxial part of cluster; outer central

spines (5-)8-17(-23) per areole, appressed or strongly projecting; inner central spines (0-)1-5(-12) per areole, always radiating like spokes on adult plants, porrect (all appressed), straight, longest spines 3-25.5 × 0.2-0.5(-0.6) mm. Flowers nearly apical, 11-28 × 7-25 mm; outer tepals sparsely to densely fringed; inner tepals ca. 11-26 per flower, generally white, cream, pale tan, greenish white, or pale rose-pink, midstripes usually ± sharply defined (sometimes absent), pink often suffused with brown, tan, yellowish, reddish, magenta, purple, lavender, or green, sometimes appearing pale orange proximally, mirroring anthers, or proximally pure white or faintly tinted with green, cream, or dull purplish red to bright pink, 5-14 × 0.8-4 mm; outer filaments white to cream, pinkish, dull purplish red, or magenta (sometimes white proximally, colored distally), usually not contrasting with inner tepals; anthers sulphur yellow or canary yellow; stigma lobes 2-7, white (rarely pale pink or yellowish white), 1-3 mm. **Fruits** dimorphic, either "red" color phase (blood red or crimson throughout, sometimes tinted with magenta) or "green" color phase (pale green or yellow-green, sometimes exposed parts brownish green, pinkish, bright yellow, dull orange, dull reddish purple, or pinkish brown, rarely dull brownish red throughout), cylindrical to fusiform or obovoid to narrowly clavate, often distorted from lateral pressure of adjacent tubercles, 5.5-21 × 2.5-8 mm, juicy when fresh, ± quickly drying, smaller fruits less succulent; floral remnant persistent. **Seeds** bright reddish brown or brownish orange, weathering to dull brown, ± comma-shaped, tending toward obovoid, (0.9-)1-1.6 mm, distinctly pitted. **2n** = 22. (Flora of North America 2015).

AIDS TO IDENTIFICATION: Stems solitary, few in a clump, or commonly branched to form small dense clusters, the individual stems up to 6 cm thick and 15 cm tall; tubercles on mature stems with upper surface bearing a groove; spines whitish, usually with purplish or brownish tips, often brittle and breaking readily at the touch, about 45-60 per areole, spreading, about 70 percent slender and about 8 mm long, the remainder thicker and 9-11 mm long; flowers not opening widely, to 2 cm wide (usually smaller); tepals pale yellowish to pinkish or nearly white, usually with midribs darker, stigmas white to pink; fruits elongate, 1.5-2 cm long, green to somewhat reddish; seeds about 1 mm long, kidney-shaped, pitted, brown, with hilum lateral (New Mexico Rare Plant Technical Council, 2015).

Escobaria tuberculosa usually has more richly colored flowers that open widely, fruits that ripen bright red, and seeds that are smaller and rounder. *Escobaria orcuttii* is larger and less densely clustering than *E. sneedii* var. *sneedii* or *E. sneedii* var. *leei*. The allopatric *E. albicolumnaria*, *E. organensis*, *E. sandbergii*, and *E. villardii* are very similar, but have longer central spines (New Mexico Rare Plant Technical Council, 2015).

ILLUSTRATIONS:

Photos:

<http://swbiodiversity.org/seinet/taxa/index.php?taxon=Coryphantha%20strobiliformis%20var.%20orcuttii>.

<http://eol.org/pages/1282676/media>.

http://nmrareplants.unm.edu/rarelist_single_photo.php?SpeciesID=58

Line Drawing: http://nmrareplants.unm.edu/rarelist_single_line.php?SpeciesID=58.

TOTAL RANGE: Arizona, New Mexico (extreme SW, Hildago and Luna Counties), Texas and Mexico (Chihuahua).

RANGE WITHIN ARIZONA: Extreme SE Arizona, NW, NE and E of the Chiricahua Mountains, Cochise County.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Perennial succulent.

PHENOLOGY: Flowering Mar-Jun, fruiting May-Sep. range-wide; flowering Apr-May in New Mexico.

BIOLOGY:

HABITAT: Chihuahuan desert scrub to conifer woodlands, rock outcrops (rarely alluvial rubble), usually narrowly confined to limestone (Flora of North America 2015).

ELEVATION: 1970 – 8530 feet (600-2600m). The three Arizona collections are found between 4500 and 5400 feet (1370-1645m).

EXPOSURE: Not specified.

SUBSTRATE: Usually confined to limestone.

PLANT COMMUNITY: Chihuahuan desert scrub, desert grassland, and oak woodland.

POPULATION HISTORY AND TRENDS: Globally and nationally, NatureServe considers the species to be vulnerable, taking into consideration that its distribution extends into Mexico. In Arizona, it is listed as critically imperiled: there are only three known collections, and two are historical. In New Mexico, *E. orcuttii* is of limited distribution, but sometimes locally abundant. Overall, most populations seem to be in good condition.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None.

STATE STATUS: Salvage Restricted (ARS, ANPL 1999).

OTHER STATUS: Species of Concern (New Mexico 2006)

MANAGEMENT FACTORS: In the Florida Mountains of New Mexico, the introduced Ibex threatens to extirpate the local population from its grazing activities. A few portions of populations in Mexico are impacted by mining activity (New Mexico Rare Plant Technical Council 1999). Some populations have been threatened by collection, but plants are now commercially propagated and readily available to the public (EOL 2015).

PROTECTIVE MEASURES TAKEN: Officially, *E. orcuttii* is listed as Salvage Restricted under Arizona Native Plant Law, and as a Species of Concern in New Mexico.

SUGGESTED PROJECTS: Verify if the species is still extant at the known collection sites in Arizona.

LAND MANAGEMENT/OWNERSHIP: USDA Forest Service (Chiricahua NF); USDI Bureau of Land Management (Safford District); and private land holdings.

SOURCES OF FURTHER INFORMATION

REFERENCES:

- Baker, M.A. 2004. Further elucidation of the taxonomic relationships and geographic distribution of *Escobaria sneedii* var. *sneedii*, *E. sneedii* var. *leei*, and *E. guadalupensis* (Cactaceae). In: P. Barlow-Irick, J. Anderson and C. McDonald, eds. Southwestern rare and endangered plants: Proceedings of the Fourth Conference (22-26 March 2004). U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station (RMRS-P-48CD), Las Cruces, New Mexico.
- Castetter, E.F., P. Pierce and K.H. Schwerin. 1975. Reassessment of the genus *Escobaria*. Cactus and Succulent Journal (U.S.) 47(2):60-70.
- Encyclopedia of Life (EOL), accessed 11/23/2015, <http://eol.org/pages/1282676/details>.
- Flora of North America (eFloras.org), accessed 11/23/2015, http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=242415335.
- Gorelick, Root. 2015. New combinations in *Coryphantha* and *Escobaria* (Cactaceae). Jour. Bot. Res. Inst. Texas 9(1): 25-30.
- JStor|Global Plants, accessed 11/23/2015, <http://plants.jstor.org/stable/10.5555/al.ap.specimen.cas0214884>.
- NatureServe Explorer, accessed 11/23/2015, <http://explorer.natureserve.org/>.
- New Mexico Rare Plant Technical Council. 1999. *Escobaria orcuttii*. New Mexico Rare Plants. Albuquerque, NM: New Mexico Rare Plants Home Page. <http://nmrareplants.unm.edu> (Latest update: 20 April 2015).
- Tropicos, accessed 11/23/2015, <http://www.tropicos.org/Name/5104158>.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

ADDITIONAL INFORMATION: In Flora of North America, Volume 4 (2003), all taxa in the *Escobaria sneedii* Complex, which includes *Escobaria orcuttii*, have been submerged into a single highly variable species, *Coryphantha sneedii*, without recognition of subspecific taxa. The NMRPTC notes the subjectivity involved in taxonomic decisions within this complex and will continue to consider *E. orcuttii* to be a distinct entity. In discussions at the 2005 New Mexico Rare Plant Technical Council Meeting, Council members concluded that *E. orcuttii* represents a population of plants that is geographically defined and sufficiently distinct from other closely related populations that it deserves taxonomic recognition. Although the population of *E. orcuttii* is distinct as a whole, it may be difficult to assign some plants in the population to a specific taxon without the aid of geographic information.

Gorelick (2015) presents another interpretation of the *Coryphantha / Escobaria* taxonomy and nomenclature, and specifically addresses *orcuttii*.

Revised: 2015-11-23 (BDT)

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