

ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract

ElementCode: DCAC040C1
Data Sensitivity: YES

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Coryphantha scheeri* var. *robustispina*
COMMON NAME: Pima Pineapple Cactus; Scheer's Strong-spined Cory Cactus
SYNONYMS: *Mamillaria robustispina*; *Cactus robustispinus*; *Coryphantha robustispina*; *Coryphantha*
FAMILY: Cactaceae

AUTHOR, PLACE OF PUBLICATION: L. Benson. 1969. The Cacti of Arizona. p. 25.

TYPE LOCALITY: South side of Babuquibari (Baboquivari) Mountains in Sonora, Mexico.

TYPE SPECIMEN: MO. A. Schott, 1856.

TAXONOMIC UNIQUENESS: Species split into three varieties: var. *valida* (southeastern Arizona to Texas and Chihuahua, Mexico), var. *scheeri* (Mexico), and var. *robustispina* (south central Arizona) (Benson, 1969).

DESCRIPTION: Hemispherical cactus, adults measuring 10.0-46.0 cm (4.0-18 in.) tall, 8.0-18.0 cm (3.0-7.0 in.) in diameter. **Strong straw-colored central spines form cluster, one per areole**, measure up to 3.0 cm (1.2 in.) long. Central spine 2.0 mm (0.08 in.) in diameter, curved or hooked at **abruptly narrowing tip**. **Radial spines number 6** in young plants, increasing to **10-15** in older plants. Vary from 19.0-23.0 mm (0.76-0.92 in.) long with upper ones more slender. Areoles covered densely with deciduous wool which disappears at maturity. **Tubercles grooved along upper surface**. Stems can branch and clumps can form. Silky yellow flowers, coral color on edges, have narrow floral tube. Green fruit ellipsoid, succulent and sweet. Brown or black seeds finely veined or netted.

AIDS TO IDENTIFICATION: May be confused with juvenile *Ferocactus*. However, *Ferocactus* spines flattened, have transverse ridges, in contrast with round cross-section of *Coryphantha* spines. Also, areoles of *Coryphantha* are on tubercles (bumps) with grooves along upper surface, while areoles of *Ferocactus* are on ridges (ribs).

ILLUSTRATIONS: Line drawing (USFWS).
Line drawings of plant in flower, and fruit. (Benson, 1982: Fig. 858, p. 821).
Color photos (<http://home.earthlink.net/~ironwing/pimapineapplecactus.html>)

TOTAL RANGE: South-central Arizona and north-central Sonora, Mexico

RANGE WITHIN ARIZONA: Southeastern Arizona. Known range bounded by Santa Cruz County, Santa Rita Mountains (east); Pima County, Baboquivari Mountains (west), Tucson (north), Arizona-Mexican border (south).

SPECIES BIOLOGY AND POPULATION TRENDS

PHENOLOGY: Flowers in mid-July with onset of summer rains.

GROWTH FORM: Succulent Perennial

BIOLOGY: Plants very sparsely distributed. Densities can be lower than 1 plant per 4 acres. Seeds are viable; asexual reproduction (offsets) very important. Pollinated by small white and black bees. Fruit set and seed production very high in 1988 (Mills 1991). Obligate outcrossers. Bloom together one day a year (midday). Pollinated

by honeybees (see "Suggested Projects" p. 3). Widely scattered plants in Coronado may produce fruit within 5 years (Falk 1994). Plants shrunk but no erosion "pedestaling." Tap and lateral roots out to 1.5 meters.

Highest density on mid to low slope areas of Green Valley Ranch. At Buenos Aires National Wildlife, large amounts Lehmann lovegrass (LL), no *C.s. robustispina* which prefers open patches in snakeweed.

HABITAT: Ridges in semidesert grassland and alluvial fans in Sonoran desertscrub. Desert Botanical Garden (1999) reports that "Plants are found on alluvial hillsides in rocky, sandy soils.... habitat type is primarily desert grassland...."

ELEVATION: About 2,300 - 5,000 feet (702 - 1,525 m).

EXPOSURE: Flat ridgetops with little slope

SUBSTRATE: Soils are mostly rocky loams. "No soil analysis has been done" (Mills 1991).

PLANT COMMUNITY: Lower Sonoran Desertscrub and Semi-desert Grassland (dominated by *Acacia constricta* (white-thorn acacia), *Prosopis velutina* (velvet mesquite), *Gutierrezia microcephala* (thread snakeweed), *Ambrosia deltoidea* (triangle-leaf bursage), and various other cacti and grasses)

POPULATION TRENDS: Downward due to loss and degradation of habitat

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: LE (USDI, FWS 1993)
[C1 USDI, FWS 1990]
[C1 USDI, FWS 1985]
[C1 USDI, FWS 1980]
[PTN-T USDI, FWS 1975]

STATE STATUS: Highly Safeguarded (ADA 1993, 1999)

OTHER STATUS: None (FS Sensitive USDA, FS Region 3 1999)
[Forest Service Sensitive USDA, FS Region 3 1990]

MANAGEMENT FACTORS: Limited range and sparse distribution. Loss of habitat due to urban development, off-road vehicle use, road construction, agriculture, and mining; habitat degradation due to livestock grazing; alteration of habitat due to aggressive non-native grasses; and illegal collecting; range management practices that cause surface disturbances such as ripping and imprinting.

Management Needs:

1. Improved livestock management.
2. Education regarding Arizona Native Plant Law and cactus theft.
3. Surveys to delimit range, particularly in Mexico.
4. Studies to determine if transplantation as mitigation measure is successful.
5. Initiate demographic monitoring to determine if "populations" are stable.
6. Set aside several preserves large enough to sustain viable populations.

Management Implications: At Buenos Aires National Wildlife Resource, firebreak constructed around plant, then prescribed burn done. Plants survived. "Grandfather" had 24 fruits.

Species range includes very little federal land (<5-10%). Bureau of Land Management (BLM) has population in Coyote Mountains, Mendoza Canyon; just south of Tucson area. Small isolated tracts of BLM land critical in survival of species.

Habitat loss: do not trade out isolated parcels of BLM land. Green Valley core of species range, has highest density. 13 plants observed, more than 60% Lehmann lovegrass (LL) cover dead, less than 60% LL robust to moderate.

Central Arizona Project causing:

1. Loss of habitat. TASRI reservoir will destroy 1 square mile of habitat.
2. Grazing in Coyote Mountains.
3. Exotic plants and grasses such as LL can form monotypic stand and burn 3 times hotter than native grasses. If LL burned, does not disappear but returns in stronger condition. LL NOT problem in Animas Valley, New Mexico.

Dilemma: native grasses need fire but if area burned, aids LL, *C.s. robustispina* not adapted to fire. Burn issues also affected by housing and air quality. *C.s. robustispina* does not have good future in this area.

CONSERVATION MEASURES TAKEN: Arizona-Sonora Desert Museum holds seeds. Exported seeds to Royal Botanical Gardens at Kew in 1989. S. Mills also has seeds.

SUGGESTED PROJECTS: Evaluate base for exchange property with Coronado National Forest (see "Management Needs" above). Marked pollen test planned to determine pollination mechanism. Honeybees and solitary bees known as pollinators (see "Biology"), however, high levels of fruit set found in both dense and sparse populations. Other mechanisms may be involved.

LAND MANAGEMENT/OWNERSHIP: BIA - San Xavier Reservation and Tohono O'Odham Nation; BLM - Tucson Field Office; BOR - Phoenix Area; FWS - Buenos Aires National Wildlife Refuge; USFS - Coronado National Forest; State Land Department; City of Tucson; Private.

SOURCES OF FURTHER INFORMATION

LITERATURE CITATIONS:

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MAJOR KNOWLEDGEABLE INDIVIDUALS:

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Alan Zimmerman - Tucson, Arizona.

ADDITIONAL INFORMATION:

Revised:	1990-12-27 (SR)
	1991-10-20 (BKP)
	1991-12-04 (SR)
	1994-12-23 (DBI)
	2001-12-12 (SMS)

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Arizona Game and Fish Department. 2001. *Coryphantha scheeri var. robustispina*. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 5 pp.