

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

Plant Abstract

Element Code: PDCAC06065

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Echinocereus fasciculatus* (Engelm. ex S. Watson) L.D. Benson

COMMON NAME: Magenta-flower hedgehog-cactus, pinkflower hedgehog cactus, strawberry cactus, bundle hedgehog, robust hedgehog cactus

SYNONYMS: *Mammillaria fasciculata* Engelm., *Echinocereus fendleri* var. *fasciculatus*, *Echinocereus fasciculatus* var. *fasciculatus*, *E. abbeae*, *E. fendleri* var. *robustus*, *E. rectispinus* var. *robustus*, *E. reichenbachii* var. *robustus*

FAMILY: Cactaceae

AUTHOR, PLACE OF PUBLICATION: *Echinocereus fasciculatus* (Engelm. ex S. Watson) L.D. Benson, The cacti of Arizona 21. 1969. *Mammillaria fasciculata* Engelm., Notes of Military Reconnaissance 157. 1848. FNA (1993+) reports citation as *Mammillaria fasciculata* Engelm. ex S. Watson, Smithsonian Misc. Collect. 258: 118. 1878.

TYPE LOCALITY: USA, Arizona, along the Gila River.

TYPE SPECIMEN: Possible type: NY 385869, F.E. Lloyd.

TAXONOMIC UNIQUENESS: The species *fasciculatus* is 1 of 23 species in the genus *Echinocereus*, and 1 of 11 in Arizona. Benson (1969) reports 3 varieties *E. fasciculatus*, all of which occur in Arizona (Missouri Botanical Garden (MBG) and Arizona Department of Agriculture (ADA) also follows varieties). These include *E.f.* var. *fasciculatus*, *E.f.* var. *boyce-thompsonii*, and *E.f.* var. *bonkerae*. Others, such as Flora of North America (FNA, 1993+) elevated the varieties to full species level, except for var. *boyce-thompsonii* which they consider to be a synonym of *E. fasciculatus*. Still others (NatureServe 2005, and ITIS accessed 2005), consider *fasciculatus* to be a variety of *E. fendleri*. The Arizona Heritage program (HDMS) is currently following FNA (1993+), and tracking this identity at the full species level.

DESCRIPTION: Perennial succulent, 5-30 branched stems, forming somewhat open clumps; the tissue is firm not flabby. Stems are mostly erect, cylindric, (5-)10-40 x 4.5-8 cm ((2-)4-16 x 1.8-3 in); ribs 8-18 (10-15 per FNA 1993+), not markedly tuberculate; larger stems green, elongate. Areoles are 10-15 mm apart, circular, 4.5 mm in diameter, not bearing white felt at maturity. There are 8-16 spines per areole, that are usually straight, with a broad zone of different colors: yellowish, reddish brown, or gray to black, or white to black, becoming gray; radial spines 7-15 per areole, 5-15 mm long. The central spines are 1-3 per areole, divergent-porrect, 15-75 mm, all terete. Benson (1982) describes a principal central spine that is prominent, spreading or deflexed, straight, accompanied by 1-3 short accessory centrals. Flowers measure 6-10 x 8-10 cm

(2.4-4 x 3.2-4 in), Benson (1981, 1982) reports 5-6.2 cm (2-2.4 in) in diameter and length; the flower tube is 10-20 x 15-40 mm; flower tube hairs 2.3-4 mm. The inner tepals are rose-pink to magenta (rarely nearly white) in color, with darker midstripes, and a darker magenta color or sometimes purplish maroon near base, (20-)35-52 x 12-20 mm; the tips are relatively thin and delicate. The anthers are yellow, and the nectar chamber measures 3.3-5 mm. The fruit is bright red or orange-red, measures 20-30 mm, with white or sometimes pink pulp; seeds reticulate-punctate, 1.5 mm long, and black. (Benson, 1981 and 1982; FNA 1993+).

AIDS TO IDENTIFICATION: This species has larger and more numerous stems than *E. fendleri*, and it grows principally in the desert, where usually it is not concealed by grasses. For those who follow varieties, var. *boyce-thompsonii* forms stem clumps similar to those of var. *fasciculatus*, but is commonly distinguished by yellow to golden spines. Except during the period of flowering, var. *bonkeriae* looks very different from the other varieties. Each stem in the clump seems a smooth mass of short spines, as if it had been mowed carefully with electric clippers. There is none of the shaggy effect of the long, uneven spines characteristic of the other varieties. (Benson 1982). *E. fasciculatus* may prove to intergrade clinally with *E. engelmannii* var. *acicularis* wherever their geographic ranges approach each other. At its upper altitudinal limit, *E. fasciculatus* tends to have shorter spines, fewer central spines, shorter stems, and more compact growth habit (FNA 1993+).

ILLUSTRATIONS: Line drawings of varieties (Benson, 1982: fig. 672, 673, 676)
Color photos of varieties (Benson, 1982: fig. 671, 674, 675, 677)
Color photo (<http://arizona.cacti.home.att.net/>)
Line drawing (<http://www.desertmuseum.org/>)
Color photo (<http://www.desert-tropicals.com/>)
Color photo (Joshua Tree Nat. Park, <http://www.americansouthwest.net>)
Color photo (Leigh, 2000: <http://www.rimjournal.com/>)
Line drawing (Flora of North America at <http://www.eFloras.org>)
Color photos of specimens (<http://seinet.asu.edu/collections>)

TOTAL RANGE: From Arizona and Sonora Mexico. Also reported from New Mexico (Hidalgo and Grant counties), although records are at least in part based on vigorous old plants of *E. fendleri*, which sometimes have 1-2 short supplementary central spines (FNA 1993+).

RANGE WITHIN ARIZONA: In Arizona from Yavapai, Coconino, Gila, Maricopa, Pinal, Graham, Pima, Santa Cruz and Cochise counties.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Perennial shrub/subshrub.

PHENOLOGY: Flowers from March to June. One of the earliest cactus to bloom. Reported to bloom later (May-June) in higher elevations.

BIOLOGY: Requires little water, light shade to full sun, and porous well-drained soil. The fruits are edible and tasty, and consumed by birds and animals. *Echinocereus fasciculatus* may prove to intergrade clinally with *E. engelmannii* var. *acicularis* wherever their geographic ranges approach each other (FNA 1993+).

HABITAT: Sand, gravel, and rocks of hillsides and hilltops. Flats to steep canyon sides in desert scrub, semidesert grasslands, and interior chaparral (FNA 1993+).

ELEVATION: 1,800 – 5,600 feet (549-1708 m) in Arizona (SEINet accessed 3/23/3005).

EXPOSURE: West, southwest, south, north, and northeast-facing slopes.

SUBSTRATE: Sand, gravel, and rocks; sandstone and limestone; dark soil among basalt rock.

PLANT COMMUNITY: Sonoran Desert, upper Sonoran Desertscrub, Interior Chaparral, and pinyon-juniper zone. By looking at full species and former varietal level records (SEINet, accessed 3/23/2005), associated species across the range in Arizona include: *Acacia constricta* (Mescat Acacia), *A. greggii* (catclaw Acacia), *Agave parryi* (Parry's agave), *A. utahensis* var. *kaibabensis* (Utah Century Plant), *Aloysia wrightii* (Oregonillo), *Ambrosia* sp. (bursage), *Ambrosia confertifolia* (weak-leaf bursage), *Amorpha californica* (California Indigo-bush), *A. fruticosa* (False Indigo-bush), *Amsonia palmeri* (Palmer's Blue-star), *Arctostaphylos pungens* (Mexican Manzanita), *Aristida longiseta* (= *A. purpurea* var. *longiseta*, long-awned grass), *A. purpurea* (purple three-awn grass), *Artemisia ludoviciana* (white sagebrush), *Asclepias engelmannii* (= *A. engelmanniana*, Engelmann milkweed), *Baccharis pteronioides* (Yerba-de-Pasmo), *Baileya multiradiata* (Wild Desert-marigold), *Berberis* (= *Mahonia fremontii* (Fremont Mahonia), *B.* (= *Mahonia haematocarpa* (Colorado Mahonia), *Bothriochloa barbinodis* (cave bluestem), *Bouteloua curtispindula* (side-oats gramma), *B. eriopoda* (black gramma), *B. gracilis* (blue gramma), *Bromus rubens* (foxtail brome), *Canotia holacantha* (crucifixion-thorn), *Carnegiea gigantea* (Saguaro cactus), *Ceanothus greggii* (Mohave Desert Whitethorn), *C. integerrimus* (deerbrush), *Cercidium* sp. (= *Parkinsonia*, paloverde), *Cercocarpus montanus* (Colorado birch-leaved mountain-mahogany), *Dalea formosa* (Feather-plume Dalea), *Dasyilirion wheeleri* (spoonflower), *Dodonaea viscosa* (varnish-leaf), *Encelia farinosa* (white brittlebush), *Ephedra* sp. (Mormon-tea), *Ericameria nauseosa* var. *juncea* (rubber rabbitbrush), *Eriogonum alatum* (winged wild-buckwheat), *E. fasciculatum* (California wild buckwheat), *E. microthecum* (slender buckwheat), *E. wrightii* (Wright's wild buckwheat), *Erioneuron pulchellum* (fluffgrass), *Escobaria vivipara* var. *bisbeeana* (Bisbee pincushion cactus), *Ferocactus wislizeni* (Southwestern barrel-cactus), *Fouquieria splendens* (Ocotillo), *Gutierrezia sarothrae* (broom snakeweed), *Juniperus erythrocarpa* (= *J. coahuilensis*, red-berry juniper), *J. osteosperma* (Utah juniper), *Krameria parvifolia* (= *K. erecta*, littleleaf ratany), *Larrea tridentata* (creosote bush),

Lycium fremontii (Fremont's desert-thorn), *Mammillaria grahamii* (Graham's nipple-cactus), *M. macdougallii* (= *M. heyderi* var. *macdougallii*), *Melampodium leucanthemum* (Planis blackfoot), *Menodora scabra* (Roush Mendora), *Mimosa biuncifera* (= *M. aculeaticarpa*, Cat's-claw Mimosa), *Nolina microcarpa* (Sacahuista bear-grass), *Opuntia acanthocarpa* (stag-horn cholla), *O. basilaris* var. *longiareolata* (beavertail pricklypear), *O. engelmannii* (prickly-pear), *O. fulgida* (Sonoran jumping cholla), *O. phaeacantha* (New Mexican prickly-pear), *Parthenium incanum* (Maciola fever=few), *Pinus edulis* (Pinyon pine), *Pinus monophylla* (single-leaf pine), *Prosopis* sp. (Mesquite), *Quercus turbinella* (shrub live oak), *Rhamnus crocea* (red-berry buckthorn), *Rhus ovata* (sugar sumac), *Senna covesii* (cove cassia), *Simmondsia chinensis* (Jojoba), *Sporobolus cryptandrus* (sand dropseed), and *Yucca baccata* (fleshy-fruit Yucca).

POPULATION HISTORY AND TRENDS: Unknown

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None
STATE STATUS: Salvage Restricted (ARS, ANPL 1999)
OTHER STATUS: None

MANAGEMENT FACTORS: As with most cacti, *E. fasciculatus* is subject to horticultural collecting.

PROTECTIVE MEASURES TAKEN:

SUGGESTED PROJECTS: Studies are needed to determine biology, ecology, distribution, and to answer genetic questions about taxonomic placement.

LAND MANAGEMENT/OWNERSHIP: BLM – Tucson Field Office; NPS – Saguaro National Park; State Land Department; Private.

SOURCES OF FURTHER INFORMATION

REFERENCES:

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MAJOR KNOWLEDGEABLE INDIVIDUALS:**ADDITIONAL INFORMATION:**

The first part of the genus name *Echinocereus* comes from the Greek for 'hedgehog', while the second part 'cereus' comes from the Latin for 'large candle.'

Spanish name: pitahayita.

Revised: 2002-09-12 (SMS)
2005-04-18 (SMS)

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