

**CACTACEAE, PART 2. CACTUS FAMILY**  
**Echinocactus Link & Otto**

Michael Chamberland  
Beal-Darlington Herbarium  
Department of Botany and Plant Pathology  
Michigan State University  
East Lansing, MI 48824-1312

Barrel cacti, heavily spined, to 2 m tall. STEM subglobose, spheric, or cylindric, single or clustering at maturity, to 80 cm in diameter, glabrous; ribs 8-40, straight or occasionally spiraled or undulate. LEAVES of long shoot minute or obsolete. AREOLES generally circular, in some becoming confluent along the rib, pubescent with white to straw-colored trichomes. SPINES terete to flattened, commonly annulate-ridged, inflexible, canescent to glabrous; central spines straight to curved; radial spines smaller, frequently poorly distinguished from centrals. FLOWERS diurnal, solitary, apical to subterminal, perfect, actinomorphic, campanulate, 4-7 cm long, 3-8 cm wide; ovary cylindric to globose, floral tube and ovary with lanceolate, linear, or spine-like scales bearing copious white axillary trichomes; outer tepals mucronate; inner tepals petaloid, yellow, pink, reddish, or whitish, numerous, their margins often fimbriate; stamens numerous, exserted, the filaments slender; style and stigma lobes (up to 13) white to yellow or pink. FRUIT white to red; scales of floral tube and ovary dry and persistent, with axillary trichomes commonly enveloping and concealing the glabrous fruit epidermis; cylindric to spheric, 1-8 cm long; often dehiscent through a basal pore. SEEDS numerous, black to maroon, smooth to wrinkled or papillate, lenticular, 2-3 mm long. --6 spp.; sw U.S. and Mex. (Greek *echinos* = hedgehog + *kaktos* = a spiny plant). Chamberland, M. J. 1991. Biosystematics of the *Echinocactus polycephalus* complex. MS thesis. Arizona State University, Tempe. Unger, Gottfried. 1992. Die großen Kugelkakteen Nordamerikas. Art-Buchbinderei, Graz, Austria.

1. Inner tepals pink to magenta; stem solitary at maturity; ribs 8; epidermis typically blue-green; spines glabrous; seed testa appearing wrinkled ..... *E. horizontalonius*
- 1' Inner tepals yellow; stems commonly clustered at maturity; ribs 11-25; epidermis gray-green to yellow green; spines canescent to glabrous; seed testa appearing rounded to angular-ridged ..... *E. polycephalus*

***Echinocactus horizontalonius*** Lemaire (with a level disk). Turk's-Head, Blue-Barrel, Eagle's-Claw. --Small barrel cactus to 40 cm tall. STEM typically solitary at maturity, subglobose to cylindric, blue-green, ashy-green, or purplish, to 20 cm in diameter; ribs 8, these rounded, vertical or occasionally spiraled. AREOLES generally circular, 5-15 mm in diameter, 5-30 mm apart along the rib. SPINES pinkish-gray to ashy-white or black, glabrous, 6-9 per areole, rigid, terete to horizontally flattened, annulate; central spines 1-3, 2-5 cm long, often poorly distinguished from radial spines. FLOWERS apical, 4-7 cm long, 3-8 cm wide; floral tube (to 2 cm long) and ovary with grayish to black spine-like scales; outer tepals pink to magenta, with spinose tips brown to black; inner tepals pink to magenta, margins often fimbriate, to 3 cm long; stamen filaments white; the style and stigma lobes pink. FRUIT 1-3 cm long, scales sometimes largely hidden by trichomes. SEEDS black, wrinkled and minutely papillate, 2.5-2.8 mm long.  $2n = 22$ . -- Limestone hills, Pima and Pinal Cos.; elevation 1000-1150 m (3300-3800 ft.); June; widespread in the Chihuahuan Desert: NM, TX; Mex. The small populations in s AZ and Sierra Viejo, Sonora, Mex., are disjunct. The Sonoran Desert plants tend to grow taller, and have been described as *E. horizontalonius* var. *nicholii* L. Benson. However, the distinction of this variety is obscured by the variability present in the Chihuahuan Desert populations.

***Echinocactus polycephalus*** Engelm. & J. Bigelow (many-headed). Cotton-top cactus. --Barrel cactus with clustering stems, to 50 cm tall. STEM basally branched, clustering, or mound-forming, rarely solitary at maturity, cylindrical, gray-green to yellow-green, to 30 cm in diameter; ribs 11-25, these flat-sided, vertical. AREOLES generally circular, 8-20 mm in diameter, 20-40 mm apart along the rib. SPINES red to straw-colored, aging to gray, glabrous to canescent with white trichomes (then obscuring underlying spine color), 10-19 per areole, rigid, horizontally flattened, annulate; central spines 1-4, 5-7 cm long; radial spines 6-14. FLOWERS subterminal, 4-6 cm long, 4-6 cm wide; floral (to 2 cm long) and ovary with numerous lanceolate to linear scales, usually reddish to maroon; outer tepals yellow, or tinted reddish, with spinose tips maroon, reddish, or yellow; inner tepals yellow, margins often fimbriate, to 3 cm long; stamen filaments white; the style and stigma lobes pale yellow. FRUIT 1-4 cm long, scales rarely all hidden by trichomes. SEEDS dark maroon to black, angular to rounded, smooth to papillate, 2.4-3.1 mm long. --2 vars., which hybridize near Grand Wash Cliffs, Mohave Co., AZ. Rocky xeric slopes and washes, Lower Sonoran and Mohave deserts, also along slopes of the Grand Canyon and Little Colorado River: Coconino, Mohave, and Yuma Cos.; Jul-Aug. CA, NV; nw Mex.

var. ***polycephalus***. --STEM gray-green. SPINES canescent. FRUIT scales black, maroon, or tan, 10-14 mm long. SEEDS 2.8-4.7 mm long, rounded, or angular with flat planes transversing the testa, the testa appearing dull (minutely papillate) due to protruding surfaces of testa cells.  $2n = 22$ . --Rocky slopes and washes; Mohave and Yuma Cos.; elevation 50-850 m (100-2500 ft); CA, NV, nw Mex.

var. ***xeranthemoides*** J. Coulter (like dry flowers). --STEM gray-green to yellow-green. SPINES canescent to puberulent, or glabrous. FRUIT scales commonly yellow to tan, 16-30 mm long. SEEDS 2.4-3.1 mm long; rounded, the testa appearing shiny due to surfaces of testa cells being slightly convex to flat.  $2n = 22$ . --Rocky hills and canyons along the Grand Canyon and Little Colorado River: Mohave and Coconino Cos.; elevation 450-1700 m (1400-5100 ft); NV.

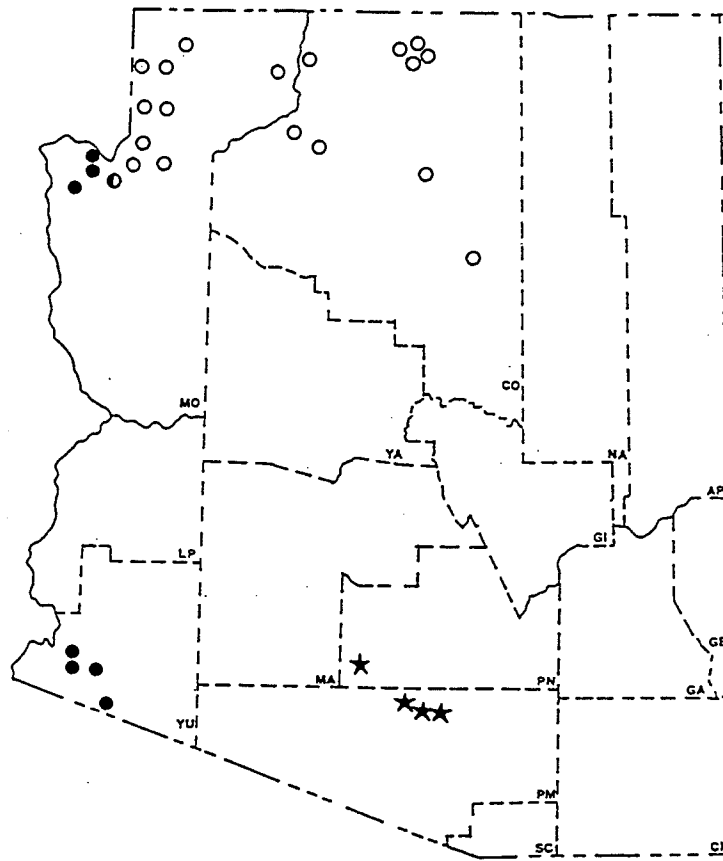


Figure 1. Distribution of *Echinocactus horizontalonius* (stars), *E. polycephalus* var. *polycephalus* (closed circles), *E. polycephalus* var. *xeranthemoides* (open circles), hybrids between *E. polycephalus* var. *polycephalus* and var. *xeranthemoides* (half-open circle).