

# CACTACEAE CACTUS FAMILY

## Part Four

### Grusonia F. Rchb. Club-chollas

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Shrubs trailing or clump-forming. STEM segments firmly attached (most of our spp.) to easily dislodged, subequal in length, cylindrical and usually clavate, curving upward from near bases, to subspheric, glabrous. SPINES with epidermis sheath deciduous at apices, exposing yellow spine tips; at least one of the major spines angular-flattened to ribbon-like. GLOCHIDS commonly increasing greatly in numbers as areoles age. FLOWERS: ovary and floral tube bearing large tufts of white to tan wool. FRUIT narrowly obconic to ellipsoid, smooth, fleshy at first but soon drying, sometimes spiny. SEEDS pale yellow to brownish; discoid, the girdle smooth. --Spp. 13; N. Amer. deserts. [Genera *Corynopuntia* Knuth, *Marenopuntia* Backeb., *Micropuntia* Daston; Section *Clavatae* Engelm.; Series *Clavatae* (Engelm.) K. Schum. (Commemorates H. Gruson, noted for his collections). Robinson, H. 1973. *Phytologia* 26:175-176.

Collectors should obtain at least two or three consecutive stem segments plus fresh flowers and/or mature fruits with detailed descriptions as to color, shape and size. Characters of spines, unless otherwise stated, are based on those in well developed areoles, usually in the distal portions of stem segments.

1. Plants trailing, mat-forming; flowers yellow; spines of fruit retrorsely barbed, stiff.
  2. Tubercles broad, 1-3.5 times as long as wide, not or but little obscured by interlacing spines ..... *G. emoryi*
  - 2' Tubercles, narrow, 4-6 times as long as wide, obscured by interlacing spines.
    3. Mature fruits very spiny, bur-like and bearing glochids; plants to 50 cm tall, the basal branches mostly 2-4 stem segments long ..... *G. kunzei*
    - 3' Mature fruits only glochidiate; plants to 20 cm tall, basal branches 1-2 stem segments long ..... *G. parishii*
- 1' Plants clump-forming; flowers rose to purple; spines of fruit antrorsely barbed (view under high magnification), hair-like, flexible ..... \**G. pulchella*

**Grusonia emoryi** (Engelm.) Pinkava (for W. H. Emory). Devil Club-cholla. --Mat-formers, low, much-branched, 15-30 cm tall, from fibrous roots. STEM segments curved-clavate, gradually to abruptly narrowed at base, 7-19 cm long, 2.5-5 cm in diam.; tubercles very conspicuous, 2-5 cm long. AREOLES white- to gray-felty, subcircular, 4-6 mm in diam. SPINES mostly in apical areoles to (in northern populations) well distributed along stems, yellow, tan to red brown, yellow-tipped, 12-30 per areole, spreading, the largest 3-7 cm long; major (1-)3-5 apical spines ascending-divergent, tan to red-brown, angular-flattened to subterete; major 3-5 basal spines divergent, yellowish to red-brown, angular-flattened, sharp-edged. GLOCHIDS yellow to brown, apical in areole, 5-7 mm long. FLOWER: inner tepals yellow, 2-3 cm long; filaments yellow to reddish, the anthers yellow; style cream; stigmas cream or tinged pink. FRUIT yellow, cylindrical to ellipsoid, fleshy, spineless (rarely with a few very short spines) but usually densely yellow-glochidiate, 4-9 cm long, 1.4-4 cm in diam.; areoles 30-45. SEEDS yellowish-white to yellow, smooth, 5-6 mm long, 3.5-4 mm wide.  $2n = 44$ . [*Corynopuntia stanlyi* (Engelm. ex B. D. Jackson) Knuth, *Grusonia stanlyi* (Engelm. ex B. D.

Graham, Greenlee, Pinal cos.; 750-1200 m (2400-3900 ft); May-Jun; NM, and disjunct and local in Presidio Co., TX; n Chih. in Mex.

**Grusonia kunzei** (Rose) Pinkava (for R. E. Kunze). Kunze Club-cholla --Mat-formers, much-branched, to 50 cm tall. STEM segments, curved and narrowed at base, 10-15 cm long, 2.5-4 cm in diam.; tubercles prominent, 2-3 cm long. AREOLES gray-white-felty, subcircular, ca. 5-6 mm in diam. SPINES well distributed along stems, obscuring them, 17-27 per areole; major 4-5 apical spines tan to reddish tan, divergent, angled at base, the largest subterete, to 5 cm long; major 4-6 basal spines tan with whitish margins, strongly flattened, deflexed, the largest to 4.5 cm long. GLOCHIDS yellow, few in apical part of areole, 5-6 mm long. FLOWER: inner tepals yellow to pale yellow-green, to 1.5-2 cm long; filaments white; anthers yellow; style light green to white; stigmas white. FRUIT lemon-yellow to yellow, fleshy, sometimes proliferating, 4-7.5 cm long, 1.5-4 cm in diam.; glochidiate and spiny, the spines straw-yellow to brown, (4-)6-17 per areole, 12-20 mm long; areoles (40-)45-70. SEEDS yellowish-white, smooth, 4-5 mm long, 3.5-4.5 mm wide.  $2n = 44$ . [*Corynopuntia stanlyi* (Engelm. ex B. D. Jackson) Knuth var. *kunzei* (Rose) Backeb., *C. stanlyi* (Engelm. ex B. D. Jackson) Knuth var. *wrightiana* (Baxter) Backeb., *Grusonia wrightiana* (Baxter) Baxter, *Opuntia kunzei* Rose, *O. stanlyi* Engelm. ex B. D. Jackson var. *kunzei* (Rose) L. D. Benson; *O. stanlyi* var. *peeblesiana* L. D. Benson (as to type); *O. wrightiana* Baxter]. --Sonoran Desert, silty, sandy to gravelly flats and hills; La Paz, Pima, Yuma cos.; 200-600 m (700-1900 ft); Apr-Jun; Baja C., Son. in Mex.

**Grusonia parishii** (Orcutt) Pinkava (for S. B. Parish). Parish Club-cholla. --Mat-formers, low, much-branched, 10-20 cm tall. STEM segments clavate, 5-9 cm long, 2-3 cm in diam.; tubercles prominent, 1.5-2.5 cm long. AREOLES grayish white-felty, sub-circular, ca. 5 mm in diam. SPINES mostly in distal areoles to well distributed, white to brownish, yellow-tipped, 14-17(-22) per areole; major apical spines ca. 5, brownish, divergent, subterete, angular-flattened at base, the largest to 4.2 cm long; major 5-6 basal spines whitish, pinkish or tan-centered, strongly deflexed, flattened, the largest white-margined, 2.5-4.5(-5.8) cm long. GLOCHIDS yellow, distal in areole, 5-8 mm long. FLOWER: inner tepals pale yellow with narrow reddish center line, 1.5-2.2 cm long; filaments pinkish or greenish to pale yellow, the anthers pale yellow to yellow; style whitish to pale yellow or dull pinkish; stigmas white, greenish-white to pale yellow. FRUIT yellow, fleshy, 3.5-5.5 cm long, 1.5-2 cm in diam., spineless but densely yellow-glochidiate; 35-52. SEEDS yellowish-white, smooth, 4-4.5 mm long, 3.5-4.5 mm wide.  $2n = 22$ . [*Corynopuntia parishii* (Orcutt) Knuth, *C. stanlyi* (Engelm. ex B. D. Jackson) Knuth var. *parishii* (Orcutt) Backeberg, *O. parishii* Orcutt, *O. stanlyi* Engelm. ex B. D. Jackson var. *parishii* (Orcutt) L. D. Benson]. --Mohave and Sonoran deserts, silty, sandy to gravelly flats, dunelets and hills; Maricopa, Pima, Pinal, Mohave cos.; 350-900 m (1200-2900 ft); May-Jul; CA, NV. Plants of the s AZ populations are less robust than the others and were segregated as *Opuntia stanlyi* var. *peeblesiana* by Benson (1969) who unfortunately selected as type of this variety a specimen belonging to *G. kunzei*.

Diploid *G. parishii* which bears fruits with glochids but no spines may be distinguished from tetraploid *G. kunzei* which bears fruits with glochids and spines.

\***Grusonia pulchella** (Engelm.) H. Rob. (beautiful). Sand Club-cholla. --Clump-formers, low, much-branched, 10-20 cm tall; from tuberous roots, 7-10 cm long, 3.5-5(-7.5) cm in diam. STEM segments cylindrical to ellipsoid, clavate, 1-4(-10) cm long, 0.5-1.2(-2.5) cm in diam.; tubercles rather prominent, 5-9 mm long. AREOLES white- to gray-felty, subcircular, 1-2 mm in diam. SPINES mostly in distal areoles, red-brown to white, aging gray, 8-15 per areole, divergent to deflexed, flattened, the largest to 6 cm long. GLOCHIDS yellow to reddish yellow, distal in areole, to 8 mm long, barbed. FLOWER: inner tepals rose to purple, 1.5-2.5 cm long; filaments green to yellow; anthers yellow; style purplish; stigmas white to yellowish. FRUIT reportedly reddish, obconic, smooth, fleshy, 1.5-3 cm long, 0.8-1.2 cm in diam., with soft, antrorsely barbed spines; areoles ca. 50. SEEDS reportedly 3-6

mm broad.  $2n = 22$ . [*Corynopuntia pulchella* (Engelm.) Knuth, *Grusonia pulchella* (Engelm.) H. Rob., *Micropuntia barkleyana* Daston; *M. brachyrhopalica* Daston; *M. gracilicylindrica* Daston; *M. pygmaea* Wiegand & Backeb.; *M. spectatissima* Daston; *M. tuberculosirhopalica* Wiegand & Backeb.; *M. wiegandii* Backeb., *Opuntia pulchella* Engelm.]. --Mohave Desert, sandy to stony flats or slopes, often at edges of dry washes and lakes; 1500-1700 m (4900-5500 ft); May-Jul; areas of CA, NV, UT adjacent to AZ.

Arizona reports of not only *G. pulchella* but also *G. clavata* (Engelm.) H. Robinson known only from New Mexico (Benson 1969, 1982; Lode 1993) are not documented (Parfitt 1988) with adequate specimens and have resulted from locality data errors and/or confusion with *G. parishii* or the cholla, *Cylindropuntia whipplei* (Engelm. & J. M. Bigelow) Knuth.

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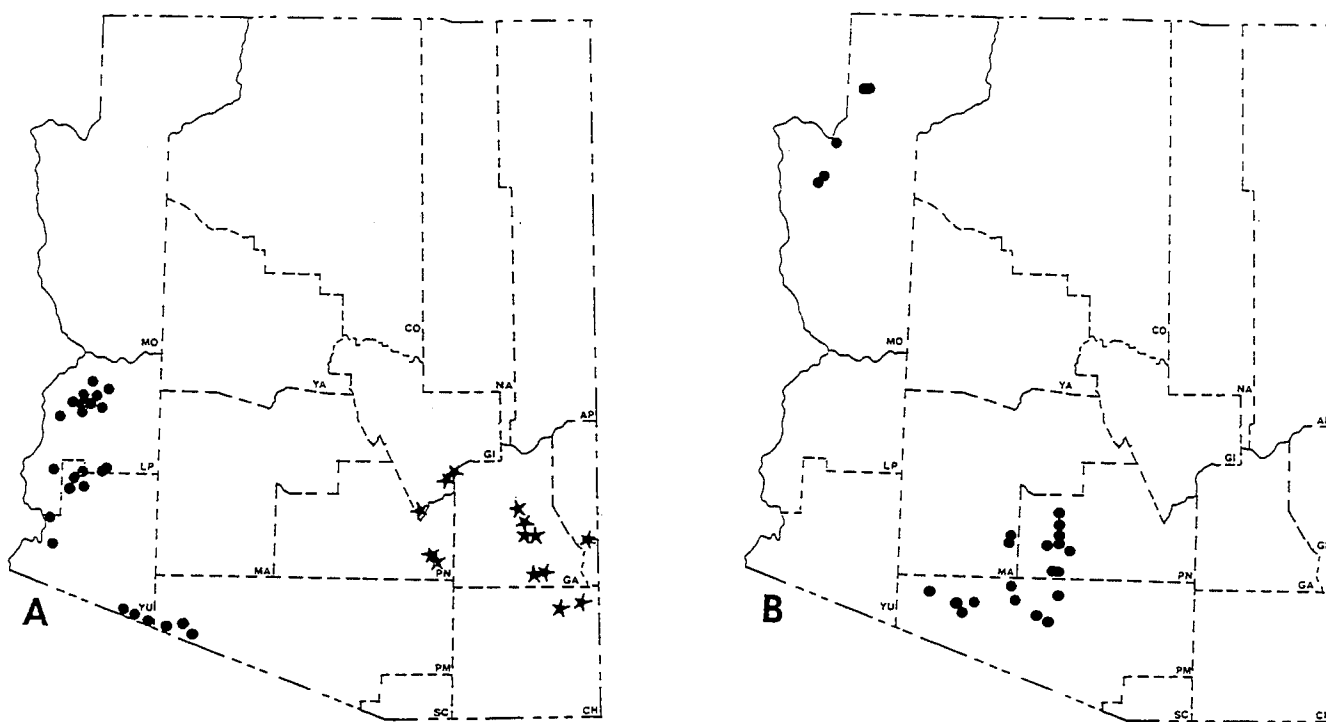
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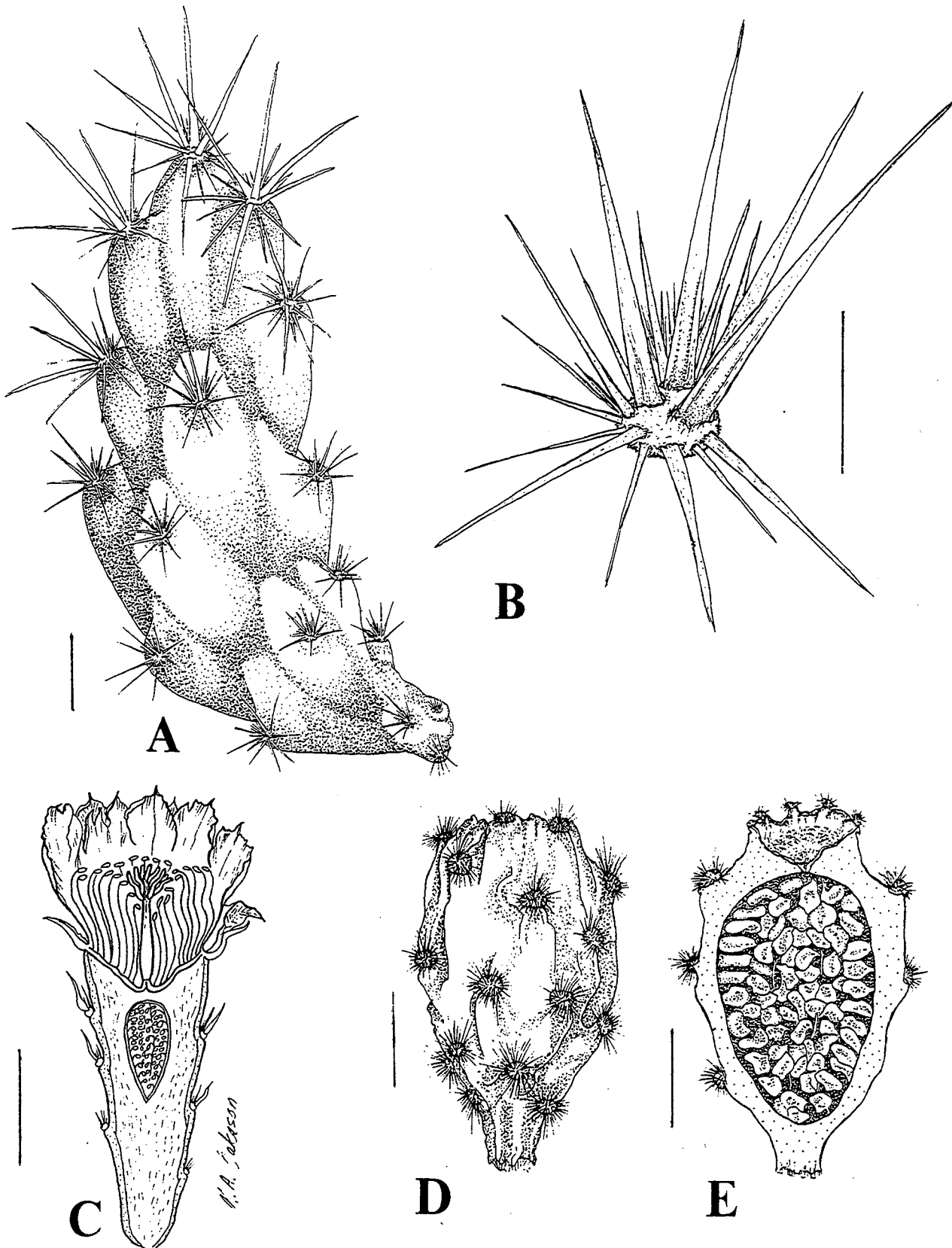
#### NOMENCLATURE NOTES

The following new combinations are necessary in support of this treatment:

- Grusonia emoryi* (Engelm.) Pinkava, comb. nov. Basionym: *Opuntia emoryi* Engelm., *Proc. Amer. Acad.* 3:303. 1856.
- Grusonia kunzei* (Rose) Pinkava, comb. nov. Basionym: *Opuntia kunzei* Rose, *Smithsonian Misc. Coll.* 50: 505. 1908.
- Grusonia parishii* (Orcutt) Pinkava, comb. nov. Basionym: *Opuntia parishii* Orcutt, *West Amer. Sci.* 10(No. 81): 1. 1896.



Cactaceae Fig. 1. Distribution of: A. *Grusonia emoryi* (circles); *G. kunzei* (stars); B. *G. parishii*.



Cactaceae Fig. 2. *Grusonia emoryi*. A, stem segment. B, apical spine cluster. C, flower (l.s.). D, fruit. E, fruit (l.s.) with seeds. Scale bars = 2 cm. Illustrations by M. A. Oakason.