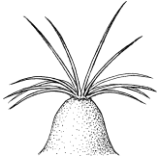


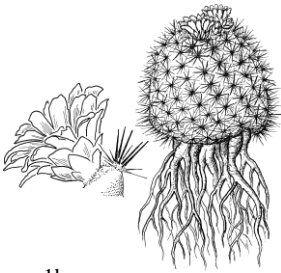
Key revised to emphasize distinguishing characters of spines, such as size and curvature, along with whether stems for each species are generally solitary or clustered.

**Pediocactus** Britton & Rose Ball cactus

Fls arising from tip of tubercle adj to areole, outer tepals minutely toothed, laciniate, or entire and undulate (ours); inner tepals pink, magenta, yellow, yellow-green, or white; pls unbr or few-br, deep-seated or rising above substrate; sts globose to ovoid, bearing low tubercles in 8–13 spiral longitudinal rows; spines needle- or awl-shaped to hairlike, gen smooth and hard, seldom corky or spongy and soft, finely puberulent to glab, radial spines spreading, erect, recurved, or somewhat pectinate, straight or irregularly curved, central spines straight or curved upward. (Gr *pedion*, field, and cactus).



1a



1b

**1a** Central spines slender, mostly spreading, white or cream turning reddish or brown at tips, 4–11 per areole, 5–21 × 0.3 mm; radial spines arcuate, white or cream, 15–35 per areole, 3–13 mm; sts gen solitary, 2.5–15(–25) × 2.5–15 cm; woodl, sagebr, grassl, conif for, lowl to mont; RMS, sw MT to n AZ and NM, e into GB, c and e ID; Simpson’s ball c. (*Echinocactus* s. vars. *minor*, s., *robustior*, *Mammillaria* s., *P. s.* subsp. *bensonii*, *idahoensis*, *robustior*, *P. s.* vars. *hermannii*, *indraianus*, *robustior*)

1 **P. simpsonii** (Engelm.) Britton & Rose

**1b** Central spines stout, erect or nearly so, black or dark gray with darker tips, 6–12 per areole, 15–35 × 0.5–1 mm; radial spines straight, reddish brown or tan to light gray, 10–30 per areole, 8–20 mm; sts often clustered, 5–30 × 5–15 cm; lowl to mont sagebr des, grassl, and conif for; e WA to e OR, e to w ID (*P. simpsonii* var. *n.*, *P. n.* subsp. *puebloensis*); 2 intergrading subsp. in our area

2 **P. nigrispinus** (Hochstätter) Hochstätter

**a1** Radial spines reddish brown, radiating out in all directions ± equally (st easily visible), 10–30, 10–20 mm; c WA, c and ne OR, and wc ID; dark-spine ball c. subsp. **nigrispinus**

**a2** Radial spines tan or light gray, gen pectinate on long side of areole (obscuring the st), 12–20, 8–15 mm; Steens Mts to the Owyhee canyon lands, se OR and sw ID; Beaston’s ball c. subsp. **beastonii** (Hochstätter) Hochstätter