

Opuntia phaeacantha Engelm., BROWN-SPINED PRICKLY PEAR. Shrub, stem succulent, spinescent, mostly individual plants but potentially clonal via rooted stem segments of broken branches, fibrous-rooted, green-stemmed, often with horizontal branches radiating from base but elevated above ground, in range to 100 cm tall; shoot = a series of flattened, photosynthetic stem segments (cladodes, pads, joints), narrowly constricted between segments but not readily breaking apart, cladodes with helically arranged short shoots (from axillary buds) bearing clusters of radiating leaf spines (areoles) on pads at all nodes on the stem surface; trunk absent; adventitious roots never formed at nodes. **Stems:** cladodes in range round to broadly elliptic (obovate) in outline, 100–220 × 100–145 mm, typically 10–13 mm thick, with helically arranged, low tubercles (≈ modified leaf bases) and associated spine-bearing areoles in the axils; tubercles ± domelike on new cladodes become ± flattened, green, photosynthetic, glabrous, not glaucous; flesh (cortex and pith) watery and mucilaginous; areoles round to oblong, in range 3–3.5 mm across, covered with light brown woolly hair aging darker brown. **Leaves:** helically alternate, simple, sessile, without stipules, dimorphic; photosynthetic cauline leaves short-lived on newly emerging shoots, narrowly conic compressed somewhat on surface next to stem, 5–7 × 1.5 mm, fleshy, mostly purplish red, short-pointed at tip, arching toward cladode tip, abscising during shoot expansion and absent when cladode < 1/3 mature size; leaf spines on areoles (= modified leaf form) of two types, persistent, radial spines and deciduous glochids, not photosynthetic; radial spines (i.e., > 9 mm long) in range 2–4 per areole (absent on the basal 1/4 of cladode), unequal, mostly deflexed, linear, slender, the longest 40–59 mm long, straight, flattened on upper side at base, sharp-pointed, light brown becoming tannish above midpoint, lacking spine sheath, shorter radial spines light brown at base and mostly whitish; deciduous spines (glochids) barbed at tip, irritating in skin, formed in a dense, erect cluster at upper edge of areole, in range typically 3–4 mm long, light brown. **Inflorescence:** flowers solitary (areole dies after flowering), sessile, with ovary covered with stem tissue hence having tubercles and spine-bearing areoles and short-lived, narrowly conic cauline leaves. **Flower:** bisexual, radial, 80–85 mm across; **perianth** of ca. 24 segments; segments free, helically alternate, overlapping, unequal in a graded series, the outermost segment ovate and 10 mm long, fleshy and greenish with purple-red above midpoint, middle segments truncate wedge-shaped and orangish as well as pink, the longest inner segments obovate, 40–45 × 27–34 mm and orange-yellow; perianth abscising from immature fruit as a unit with stamens forming a shallow depression that becomes elevated and truncate in fruit; **stamens** > 200, free, formed on a steeply sloped axis, at anthesis erect but when touched responding and quickly tilting toward style; filaments slender, linear, of the outermost stamens 15–17 mm long gradually decreasing to 8–9 mm long (the innermost stamens), greenish at base and light yellow above; anthers dorsifixed, dithecal, 1.8–2.3 mm long, light yellow, longitudinally dehiscent; pollen light yellow; **pistil** 1; ovary inferior, embedded in receptacle (stem tissue), short-obovoid, ca. 25 × 25 mm, slightly glaucous, with raised areoles, briefly bearing ephemeral, rose-purple conic leaves (photosynthetic) like stems to 7 mm long, areoles ± round, the hairs tan, with glochids and some areoles developing several fine spines weakly attached at base, 1-chambered with many ovules attached to outer wall; chamber obovate and ca. 6 × 6 mm in longitudinal section, ovary wall ca. 6 mm thick and mucilaginous; style thick, cylindrical to slightly inversely club-shaped, 19–20 × 6–6.5 mm (below stigma), whitish at base

changing to rose-pink, surrounded by a sunken nectary chamber; **nectary chamber** ca. 2 × 6 mm with low ridges beneath filaments; stigmas ca. 10, exserted to 4 mm above central anthers, fleshy, fingerlike to tonguelike, 4.5–5.5 mm long, incurved, green, papillate with a colorless short hair projecting near tip. **Fruit:** berry, many-seeded, short-obovoid (lacking a narrow neck at base), in range 30–38 mm long, light beet red, ± truncate at top, with clusters of brown glochids and on several areoles several short radial spines to 8 mm long; fruit wall 5–7 mm thick; pulp watery, watermelon-colored around seeds in oval-shaped chamber. **Seed:** ± roundish in outline, 5–5.5 mm, bony, tan, encircling girdle protruding to 1 mm. June–early August.

Native. Spinescent stem-succulent shrub occurring occasionally within mixed hybrid populations in Thousands Oaks (SH), where characteristics of *O. oricola* and *O. littoralis* dominate. *Opuntia phaeacantha* is largely a desert species but likely at one time was carried in range via cattle. Individuals with essentially all of the defining features of this species, particularly for plants formerly treated as *O. phaeacantha* var. *phaeacantha*, appear as phenotypes within the Thousand Oaks hybrid swarm. These individuals often show no vegetative reproduction; they have longer radial spines than neighboring plants, their areoles on the roundish cladodes produce no more than four radial spines, and all spines are deflexed, with the longest spine brown and about fifty millimeters long. These individuals begin to flower in early summer, later than the start of flowering of other species and their hybrids. In *O. phaeacantha*, the ovary and subsequent fruits are shorter than on neighboring hybrid plants, and the seeds are about five millimeters diameter including the girdle, which protrudes one millimeter. Any local individual of *O. phaeacantha* likely has some characteristics introgressed from the other hybrids and species, and for our plants that would include having a pink style and light yellow filaments (greenish bases), whereas the species is described as having a white style and green with pale yellow to white filaments. Perhaps there are individuals within the large populations that resemble an interspecific hybrid of *O. littoralis* and *O. phaeacantha* that has been named *O. ×vaseyi* or *O. ×occidentalis*, or also involving *O. oricola* (named *O. ×demissa*). In general it is not worth the effort to guess on the parentage and to describe any of these hybrid forms, which are not valid monophyletic lineages, although useful for describing the vegetation.

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