

although most of the calyces have roughened nutlets a few of them (and these always the oldest) have decidedly smooth nutlets. In plants characteristically smooth-fruited it is quite common to find that the oldest calyces contain three smooth nutlets and a tuberculate one. Not only is there a decided tendency towards heteromorphism in markings and roughenings, but to a slight degree also in size and firmness of attachment. The abaxial nutlet is commonly a trifle larger than the other nutlets and is somewhat more firmly attached to the gynobase. None of the nutlet-variations can be geographically correlated. Despite its variable fruit the species is readily recognized because of its densely bracteate inflorescence, deeply dye-stained root and long-protruded gynobase.

8. *C. angustifolia* (Torr.) Greene. Diffusely branched from the base, 5-20(-45) cm. tall; stems canescent, villous-hirsute, commonly somewhat strigose-villous, lowermost branches decumbent or loosely ascending; leaves linear, 1.5-4 cm. long, 1-4 mm. wide, spreading, not crowded below, hispid or strigose, somewhat pustulate especially underneath; spikes geminate, usually ca. 5 cm. long, rather dense, commonly naked; corolla usually inconspicuous, tube 1-2 mm. long, limb 1-2.5 mm. broad; fruiting calyces ovate-oblong, 3-4 mm. long, stiffly ascending, strongly biseriate, slightly asymmetrical; pedicels less than 0.5 mm. long; mature calyx-lobes lance-linear, rigid, slightly connivent, midrib thickened and hirsute, margin somewhat villous-ciliate, abaxial lobe longest and most hirsute; nutlets normally 4, heteromorphous, ovate-oblong, brown or plumbeous with pale tuberculations or rarely murications, back convex, face flattish, margin somewhat angular; odd nutlet next the abaxial calyx-lobe, a trifle larger and more persistent than the similarly colored and shaped consimilar nutlets which are ca. 1 mm. long, groove usually narrowly open above but broadening at the base; gynobase columnar, equalled by consimilar nutlets but shorter than odd nutlet; style usually surpassing even the odd nutlet.—*Pittonia* i. 112 (1887). *Eritrichium angustifolium* Torr. Pacif. R. R. Rep. v. 363 (1857). *Krynitzkia angustifolia* Gray, Proc. Am. Acad. xx. 272 (1885).

Southern California and southern Utah, southward to Lower California, Sonora and western Texas.

CALIFORNIA: Death Valley, *Coville & Funston 479* (G); Danby, 1896, *Orcutt* (UC); Barstow, 1915, *K. Brandegee* (UC); sandy places near Barstow, 960 m. alt., *Spencer 2091* (G); Needles, 1884, *Jones* (G); Riverside Mt., 1910, *Grinnell* (UC); Palm Springs, 1913, *Eastwood* (G); in sandy places, Palm Springs, *Spencer 843, 849, 853, 855, 1526a, 2066a, 2071b* in pt. and *2118* (G); sand dunes, Old Beach, near Holtville, *Parish 8124* (UC); Twenty-nine Palms,

1902, *Brandegee* (UC); desert sand, Indio, 30 m. alt., *Spencer 1517* (G); sandy wash, Shaver's Well near Mecca, 59 m. below sea-level, *Munz & Keck 4763* (G); sands, Mecca, *Spencer 1512* and *1785* (G); Cameron Lake, *Brandegee* (UC); Yaqui Wells, *Eastwood 2632* (G); bottom lands near Colorado River, 750 m. alt., *Hall 5922* (UC); in sandy places, Colorado Desert, *Spencer 195, 196, 197* and *201* (G); without locality, *Coulter 500* (G). LOWER CALIFORNIA: stony ridges, Los Angeles Bay, *Palmer 606* (G); San Agueda, *Palmer 241* (G, UC); Angel de la Guarda Island, *Johnston 4227* (G). NEVADA: Moapa, *Goodding 2181* (G, UC); Overton, 450 m. alt., *Heller 10439* (G); Amargosa in moist place near station, 900 m. alt., *Heller 10976* (G); sandy wash, Meadow Valley Wash, *Goodding 2169* (G); Muddy Valley, *Kennedy & Goodding 26* (UC). ARIZONA: Fort Yuma, *Thomas* (NY, TYPE); Fort Yuma, *DuBarry* (NY, COTYPE); Gila River, *Thurber 690* (G); Tucson, 1907, *Lloyd* (G); Tucson, 1884, *Parish* (G); Tucson, 1894, *Toumey* (UC); campus of University of Arizona, *Thornber 407* and *516* (UC); without locality, 1876, *Palmer* (G); without locality, 1881, *Pringle* (G). SONORA: Torres, 1902, *Purpus* (UC); dry places, Canyon of Guadalupe, *Smith* (NY); Las Durasnillas, 1892, *Brandegee* (UC); Guaymas, *Palmer 169* (G, UC). NEW MEXICO: mesa west of Organ Mts., 1905, *Wootton* (UC). TEXAS: El Paso, 1884, *Jones* (G).

Probably the most common *Cryptantha* in the lower deserts of California. It is readily recognized by its characteristic ashy herbage, dense spikes, and heteromorphous dark nutlets which are covered with small light colored low tubercles. It is a well marked species, having its closest relation in *C. Grayi*.

9. *C. Grayi* (Vasey & Rose) Macbr. A small slender herb 5-15 (-18) cm. high; stems usually several, strict or spreading, appressed or spreading villous-hispid; leaves quite numerous, linear, 1-4 cm. long, 1-2 mm. wide, densely pustulate-setose beneath but much less so above, basal ones somewhat aggregated, upper ones reduced; spikes usually geminate, naked, densely flowered, 1-4 cm. long; corolla minute to medium-sized, tube shorter than calyx, limb 0.5-3 mm. broad; fruiting calyx oblong-ovate, 1-2 mm. long, sessile or subsessile, decidedly biseriate; mature calyx-lobes lance-linear, rigid, slightly connivent, midrib short-hirsute, margins somewhat villous-hispid, axial lobe most pubescent; nutlets 4, homomorphous, very small, 0.5-0.7 mm. long, triangular-ovate, dark colored, usually bearing light-colored low tuberculations, edges angled or rounded, areola shallow and deltoid with the groove above it commonly closed; gynobase subulate, equalling or a little shorter than the nutlets; style much surpassing the nutlets.—*Contr. Gray Herb. n. s. xlvi. 43* (1916).

Var. *genuina*. Corolla conspicuous, 2-3 mm. broad; nutlets tuberculate.—*Krynitzkia Grayi* Vasey & Rose, Proc. U. S. Nat. Mus. ix. 536 (1888). *C. Grayi* Macbr. l. c.

Middle Lower California.