

border which connect *C. barbiger*a and *C. intermedia*. *Cryptantha intermedia*, var. *Johnstonii* differs from *C. barbiger*a, var. *Fergusonae* only by not being conspicuously villous on the calyx. It appears to be one of the very large-flowered, coarse phases of *C. intermedia*. Material of *C. intermedia* from the eastern margin of the Colorado Desert not infrequently has the style definitely surpassing the nutlet-tips whereas that from other regions seems uniformly to have the style not reaching beyond the nutlets.

29. ***C. barbiger*a** (Gray) Greene. Erectly branched hirsute herb 1–4 dm. high; stems solitary or several, very bristly and sparsely if at all strigose; leaves oblong to lance-linear, obtuse, 1–5(–7) cm. long, 3–7(–13) mm. broad, hirsute, inconspicuously pustulate; spikes geminate or rarely solitary or ternate, naked, becoming as much as 15 cm. long; corolla inconspicuous, limb 1–2 mm. broad; fruiting calyx 5–10 mm. long, ovate-oblong or oblong-lanceolate, ascending, asymmetrical, deciduous; pedicels 0.3–0.7 mm. long, villous; mature calyxlobes lanceolate to linear-lanceolate, connivent above with tips recurved, margin conspicuously long white-villous, midrib thickened and hirsute, abaxial lobe slightly the longest; nutlets 1–4, homomorphous, lance-ovate, 1.5–2.5 mm. long, strongly verrucose, usually brownish, back convex, edges obscurely angled or rounded, groove opened or closed but towards base gradually dilated to form a triangular areola; gynobase narrow, $\frac{2}{3}$ – $\frac{3}{4}$ height of nutlets; style reaching to or slightly beyond the nutlet-tips.—*Pittonia* i. 114 (1887). *Eritrichium barbigerum* Gray, Synop. Fl. N. Am. ii. pt. 1, 194 (1878). *Krynitzkia barbiger*a Gray, Proc. Am. Acad. xx. 273 (1885). *K. mixta* Jones, Contr. W. Bot. xiii. 6 (1910).

Southern California and southern Utah, to Arizona and northern Lower California.

UTAH: deep sand, Diamond Valley, Goodding 889 (G, UC); St. George, 900 m. alt., Jones 5106 (UC, ISOTYPE of *K. mixta*); Utah, Parry 171 (G, TYPE of *E. barbigerum*); without locality, Palmer 348 (G). CALIFORNIA: floor of canyon, Silver Canyon in White Mts. east of Laws, Heller 8270 (G, UC); Providence Mts., Munz, Johnston & Harwood 4281 (UC); Baxter, Parish 9869 (UC); sandy places near Barstow, 900 m. alt., Spencer 2089 and 2092 (G); Victor, 780 m. alt., 1903, Jones (UC); Mohave Desert, 1880, Lemmon (G); sandy canyon floor, Palm Canyon, 300 m. alt., Johnston 1053 (G); Palm Canyon, 210 m. alt., Spencer 1513 (G); crevices of rocks near Indian Wells, 105 m. alt., Spencer 1519 (G); Canyon Springs, Hall 5856 (UC); desert sand, Indio, 90 m. alt., Spencer 1516 (G); sandy wash and among rocks in lower hillsides, Shavers Well near Mecca, 75 m. alt., Munz & Keck 4757 (G, UC); San Felipe Creek, Eastwood 2710 (G); San Felipe Creek, 1894, Brandegee (UC); desert sand, Mountain Springs, 780 m. alt., Spencer 187, 200a and 862 (G); sandy places, Colorado Desert, Spencer 189 and 191 (G); Colorado Desert, 1889, Brandegee (G); Colorado Desert, Orcutt 2264 (UC). ARIZONA: Diamond

Creek, 1893, *Wilson* (UC); near Tempe, 1897, *Bolton* (UC); Verde Mesa, *Smart 126* (G); Nogales, 1892, *Brandege* (UC); Benson, 1882, *Dunn* (UC); Patagonia Mts., 1902, *Orcutt* (UC); Clifton, *Rusby 285* (UC); Clifton, *Davidson 174a* (UC); mesas near Camp Lowell, 1881, *Pringle* (G); Tucson, 1894, *Toumey* (UC); Sabino Canyon, 1894, *Toumey* (UC); Tucson Mts., *Thorner 532* (UC); Tucson, 1907, *Lloyd* (G); Yucca, 1912, *Wootton* (G); without locality, 1876, *Palmer* (G). LOWER CALIFORNIA: San Telmo, 1893, *Brandege* (UC); San Esteban, 1889, *Brandege* (UC); Lagoon Head, *Palmer 780* (G, UC); San Luis, 1889, *Brandege* (UC); San Sebastian, 1889, *Brandege*.

When Gray originally described *Eritrichium barbigerum* he had before him material now referred to *C. barbiger*, *C. nevadensis* and *C. intermedia*. The plant here treated as *C. barbiger* constituted the bulk of the material first described as *E. barbigerum* and almost wholly that which he later designated as *Krynitzkia barbiger*. Parry's number 171, which is taken as type, is a large and very fine example of the species, having coarse leaves, and very elongate, apically recurved, long-villous calyx-lobes. In some of its forms the species is scarcely more than a minute-flowered phase of *C. intermedia*. When typically developed it is very characteristic because of its large leaves and conspicuously villous, elongate calyx-lobes.

30. **C. nevadensis** Nels. & Kenn. Slender, strigose herb 1-5 dm. high; stems erect or becoming flexuous, solitary or several, closely short-strigose and at times sparsely hirsute, closely or laxly branched; leaves linear-oblongate to linear, acute or obtuse, 1-4 cm. long, 1-5(-7) mm. broad, not numerous, appressed-hispid, more or less pustulate; spikes geminate or ternate, occasionally bracted toward the base, congested and somewhat glomerate or elongate and becoming 15 cm. long; corolla inconspicuous, limb 1-2 mm. broad; fruiting calyx oblong-ovate to lanceolate, 5-12 mm. long, ascending, slightly asymmetrical, pedicels ca. 0.5 mm. long; mature calyx-lobes lanceolate or linear, connivent above with the slender tips usually recurving, margins more or less villous, midrib thickened and hirsute; nutlets 4, homomorphous, verrucose or towards the tip muriculate, lance-ovate to lanceolate, 2-2.9 mm. long, back convex, margins somewhat angled, groove open or closed but below dilated into a small areola; gynobase narrow, $\frac{2}{3}$ - $\frac{3}{4}$ length of nutlets; style reaching to or almost to the tips of the nutlets.—Proc. Biol. Soc. Wash. xix. 157 (Nov. 1906).

Var. **genuina**. Stems very slender, usually flexuous, strigose; calyx 8-12 mm. long; nutlets lanceolate, long acuminate, back verrucose but conspicuously muriculate towards the apex, ca. 2.5 mm. long.—*C. nevadensis* Nels. & Kenn. l. c. *Krynitzkia barbiger*, var. *inops* Brandg. Zoe v. 228 (Sept. 1906). *C. barbiger*, var. *inops* Macbr. Proc. Am. Acad. li. 548 (1916). *C. arenicola* Heller, Muhl. ii. 242