

sheets with fruit. As would be suspected almost the whole of Gray's original description is based upon the Arizonian plant. Subsequently Gray excluded Bishop's collection and cited only the Ehrenberg material as representative of his species. For these reasons Palmer's Ehrenberg collection is taken as the type of *C. holoptera*.

2. *C. racemosa* (Wats.) Greene. Long-lived annual often decidedly suffruticose towards the base, 1-10 dm. tall; stems single with numerous ascending branches or many and diffusely branched, younger parts green, inconspicuously strigose and commonly hirsute, older parts woody and becoming brown from the falling away of the pale bark; leaves oblanceolate, acute, hirsute, pustulate, the early ones 3-6 cm. long and 6-12 mm. broad, the later and more abundant 1.5-4 cm. long and 2.5 mm. broad; racemes apparently forked and paniculately disposed, inconspicuously and irregularly bracted, 3-15 cm. long; corolla very inconspicuous, limb ca. 1 mm. broad; fruiting calyces oblong-ovate, ascending, 2-4 mm. long, slightly asymmetrical, tardily deciduous, inconspicuously biserial; pedicels usually well developed, 1-4 mm. long, slender, frequently nodding; mature calyx-lobes lance-linear, somewhat strigose, hirsute along the thickened midrib; nutlets 4, heteromorphous, triangular-ovate, the acute tips slightly out-curved, groove open or closed above but below broadening out into a shallow broadly triangular areola; odd nutlet next the abaxial calyx-lobe, 1-2 mm. long, subpersistent, finely muricate or tuberculate or both, light or dark; consimilar nutlets 0.8-1.5 mm. long, acute, tending to be very narrowly winged, dark with pallid tuberculations; gynobase subulate, $\frac{3}{4}$ length of odd nutlet and about equalling consimilar nutlets; style much surpassing the nutlets, almost as long as the mature calyx-lobes.—*Pittonia* i. 115 (1887); Johnston, Proc. Calif. Acad. Sci. ser. 4, xii. 1147 (1924). *Eritrichium racemosum* Wats in Gray, Proc. Am. Acad. xvii. 226 (1882). *Krynitzkia racemosa* Greene, Bull. Calif. Acad. Sci. i. 208 (1885). *Johnstonella racemosa* Brand, Fedde Repert. in press. *K. ramosissima* Gray, l. c. xx. 277 (1885). *C. suffruticosa* Piper, Proc. Biol. Soc. Wash. xxxii. 42 (1919). *C. racemosa*, var. *lignosa* Johnston, Univ. Calif. Pub. Bot. vii. 445 (1922). *J. racemosa*, var. *lignosa* Brand, Fedde Repert. in press.

Southern Nevada and western Arizona, and southwestward to middle Lower California and Carmen Island; usually growing in rocky places.

NEVADA: semishaded places, Las Vegas Mts., *Gooding* 2381 (G, UC); Petrified Forest Canyon west of Logan, 540 m. alt., *Heller* 10446 (G) and 10447

(G, UC); rocks, Ash Meadows, *Purpus* 6024 (UC). ARIZONA: Grand Canyon, 1885, *Gray* (G); Diamond Creek Canyon, *Wilson* 170 (UC). CALIFORNIA: on and about rocks, Silver Canyon, White Mts. east of Laws, *Heller* 8209 (G); Panamint Canyon, *Hall & Chandler* 7034 (UC, TYPE of *C. racemosa*, var. *lignosa*); Surprise Canyon, *Parish* 10125 (UC); Morongo Wash, 900 m. alt., *Parish* 3337 (UC); among rocks on canyon-side, Palm Canyon, 300 m. alt., *Johnston* 1002 (G); sandy places near Palm Springs, 120 m. alt., *Spencer* 2079 (G); among rocks, Cathedral Canyon near Palm Springs, 150 m. alt., *Spencer* 2078 (G); Borregos Springs, 1894, *Brandegee* (UC); San Felipe Creek, *Eastwood* 2704 (G); Split Mt., 1905, *Brandegee* (UC); canyon near Mesquite Station, *Parish* 775 (G, TYPE of *E. racemosum*; UC, ISOTYPE); desert sand, Colorado Desert, San Diego Co., *Spencer* 254 (G). LOWER CALIFORNIA: Cantillas Mts., 1883, *Orcutt* (G); Cantillas Mts., 1884, *Orcutt* (G, UC); San Julio Canyon, 1889, *Brandegee* (UC); San Sebastian, 1884, *Brandegee* (UC); San Reguis, 1889, *Brandegee* (UC); Santa Maria, 1889, *Brandegee* (UC); Cajon de Santa Maria, 1889, *Brandegee* (UC); talus, Puerto Refugio, Angel de la Guarda Island, *Johnston* 3374 (G); shaley slope, San Estaban Island, *Johnston* 3175 (G); cobble-stone beach, South San Lorenzo Island, *Johnston* 4192 (G); foot of cliff, Las Animas Bay, *Johnston* 3505 (G); Santa Rosalia, *Palmer* 188 (G); foot of gypsum cliff, San Marcos Island, *Johnston* 3621 (G); Carmen Island, *Palmer* 846 (G, UC).

A very distinctive plant to be confused only with *C. holoptera*, which has homomorphous, more broadly winged nutlets. The very diffusely branched form of *C. racemosa*, which is most common in the Mohave Desert, has been described as *C. racemosa*, var. *lignosa*. It may be worthy of recognition.

3. *C. angelica* Johnston. Much branched finely strigose herb 15-25 cm. high; stems spreading, rebranched, brown and glabrous below, strigose and canescent above; leaves linear, 8-24 mm. long, 1-2 mm. broad, loosely strigose, densely and minutely pustulate, ascending; spikes solitary, crowded, slender, naked, 4-9 cm. long, very floriferous; corolla minute, ca. 1 mm. long, ca. 0.5 mm. broad; fruiting calyces oblong-ovate, 1.5-2 mm. long, ascending, sessile, somewhat asymmetrical; mature calyx-lobes linear, erect, ribbed, sparsely hispid, abaxial one slightly the longest and most hispid; nutlets 4, heteromorphous, triangular-ovate, dark with small pale tuberculations, margins sharp and with a very narrow knife-edge, back convex, groove closed above but dilated below into a shallowly triangular areola; odd nutlet next the abaxial calyx-lobe, ca. 0.7 mm. long, somewhat persistent; consimilar nutlets ca. 0.6 mm. long; gynobase narrow, almost as long as the consimilar nutlets; style very much surpassing the nutlets.—Proc. Calif. Acad. Sci. ser. 4, xii. 1143 (1924).

Known only from Angel de la Guarda Island in the Gulf of California.

LOWER CALIFORNIA: on silty flats, Angel de la Guarda Island opposite Pond Island, *Johnston* 4221 (G, UC, ISOTYPES).