

only a phase of, *C. Clevelandi* with which it agrees in nutlets although differing in its longer style and bracteate inflorescence. *Cryptantha Clevelandi*, var. *florosa* occurs on Santa Cruz and San Miguel islands which are adjacent to Santa Rosa Island.

52. **C. Abramsii** Johnston. Erectly and sparsely branched herb 1-3 dm. high; stem slender, finely strigose; leaves linear, rather numerous, 1-3 cm. long, 1-1.5 mm. broad, acutish, hispid-strigose, usually sparsely hirsute-ciliate towards the base; spikes solitary or rarely geminate, 2-10 cm. long, evidently leafy-bracted; corolla evident, 1.5-2.5 mm. broad; fruiting calyx ovate, strict, 2.5-4 mm. long, asymmetrical, becoming distant and obscurely biserial, sessile by an oblique broadly conic base; mature calyx-lobes lance-linear, loosely connivent, midrib somewhat thickened and on abaxial lobe sparsely and very shortly hirsute, margins strigose; nutlets 1-4, lanceolate, acuminate, ca. 2 mm. long, smooth, shiny, back convex, sides obscurely obtuse, groove closed and broadly forked at very base of nutlet; gynobase narrow, about $\frac{2}{3}$ height of nutlets; style reaching to $\frac{3}{4}$ - $\frac{4}{5}$ height of nutlets.—Contr. Gray Herb. n. s. lxxviii. 52 (1923).

Southern California, known only from the type locality.

CALIFORNIA: San Pedro Hills near Malaga Cove, *Abrams 3139* (G, TYPE; UC, ISOTYPE).

Although suggesting *C. leiocarpa* in its bracteate inflorescence, this species differs in its shorter style and elongate nutlets with a broad decidedly basal forking of the groove. It is most related to *C. Clevelandi*, var. *florosa* and possibly is only a bracteate phase of it.

Ser. XIV. FLACCIDAE. Nutlet 1, smooth, somewhat ovate, laterally rounded or obscurely angled, always abaxial; style reaching to $\frac{1}{4}$ - $\frac{2}{3}$ height of nutlet; calyx-lobes armed with pallid encrusted arcuate or uncinata hairs.

Style reaching to $\frac{1}{2}$ - $\frac{2}{3}$ height of nutlet; nutlet with an open areola; rather coarse plants.....53. *C. rostellata*.
Style reaching to less than $\frac{1}{2}$ height of nutlet; nutlet with a

closed groove; more slender plants.
Nutlets nearly terete, rostrate; hairs on calyx usually decidedly encrusted and pale.....54. *C. flaccida*.
Nutlets evidently compressed, acute; hairs on calyx rather smooth and less pale.....55. *C. sparsiflora*.

53. **C. rostellata** Greene. Stems stiffish, usually somewhat reddish, 1-2 dm. high, with few ascending branches above, strigose, canescent; leaves few, notably persistent and opposite, thickish, firm, oblanceolate, 10-15 mm. long, 2-3 mm. broad, ascending; spikes

solitary or geminate, stiffish, naked, 2–4 cm. long; corolla inconspicuous, 0.5–1 mm. broad; fruiting calyces 3–4 mm. long, oblong-ovate, spreading or ascending (not strict), coarse, rather few, subsistent, sessile by a very asymmetrical base; mature calyx-lobes lanceolate, margin sparsely ciliate or strigose, midrib on all lobes armed with stout encrusted uncinata or arcuate hairs; ovules 4, the one next the abaxial calyx-lobe alone developing; nutlets 1, smooth, compressed, ovate-lanceolate to lanceolate, 2–3 mm. long, back convex, sides rounded, base truncate; groove closed above but dilated below into a definite areola; gynobase very short and stout; style reaching up to $\frac{1}{3}$ – $\frac{1}{2}$ height of nutlet.—*Pittonia* i. 116 (1887). *Krynitzkia rostellata* Greene, Bull. Calif. Acad. Sci. i. 203 (1885). *K. Suksdorfii* Greenm. Bot. Gaz. xl. 146 (1905). *C. Suksdorfii* Piper, Contr. U. S. Nat. Herb. xi. 484 (1906).

Southern Washington (Klickitat County) southward through eastern Oregon to the Sacramento Valley of California.

WASHINGTON: on dry hills near Rockland, *Suksdorf* 1495 (G, TYPE of *K. Suksdorfii*; UC, ISOTYPE). OREGON: on dry hills near Dalles City, *Suksdorf* 2346 (G, UC); camp by Grizzly Butte, Crook Co., 1170 m. alt., *Leiberg* 282 (G, UC). CALIFORNIA: Hornbrook, 1889, *Howell* (UC); Hornbrook, *Howell* 1386 (UC); Leesburg, 1884, *Curran* (UC, "part of type"); near Chico, 1887, *Parry* (UC); Lake County, 1884, *Curran* (G).

Obviously related to *C. flaccida* but readily separated by its usually coarse habit, longer style, compressed nutlets and basally dilated groove. The type is given as having been collected in "Lake County," California. Specimens in the University of California Herbarium, given as from "Leesburg," a town in Colusa County, California, are labeled as "part of type." This material, to judge from general appearance, seems quite the same as the authentic specimen of *C. rostellata* contained in the Gray Herbarium and probably is part of the same collection.

54. **C. flaccida** (Dougl.) Greene. Subsimple or ascendingly branched pallid strigose herb 1.5–4.5 dm. high; stems sparsely close-strigose with short pallid encrusted hairs; leaves oblance-linear or linear or even filiform, 2–6 cm. long, 1–2(–3) mm. wide, closely strigose, strict or ascending, firm, basal portion of lower leaves somewhat persistent; spikes quinate to solitary, naked, usually stiffish, 4–8(–16) cm. long; corolla inconspicuous or medium sized, 1–4 mm. broad; fruiting calyces oblong-ovate, 2–4(–5) mm. long, evidently asymmetrical, usually strict and closely hugging the stem, commonly firm and stiff, sessile or sessile, base broadly conic; mature calyx-lobes lance-linear, closely connivent above with the tips commonly spread-

ing, margins more or less ciliate or strigose, midrib thickened and armed with pale spreading coarse encrusted arcuate or uncinata bristles, abaxial lobe longest and most hirsute; ovules 4 but only the one next the abaxial calyx-lobe developing; nutlet 1, lance-ovate, rostrate-acuminate, subterete or only slightly compressed, smooth or very finely granulate; groove closed and frequently with the margins overlapping, rarely open particularly towards the base where dilated to form a small areola; gynobase low and stout, scarcely developed, 0.6–0.2 mm. tall; style $\frac{1}{3}$ – $\frac{1}{2}$ as high as nutlet.—*Pittonia* i. 116 (1887). *Myosotis flaccida* Dougl. in Lehm. Pugil. ii. 22 (1830). *Eritrichium oxycaryum* Gray, Proc. Am. Acad. x. 58 (1874). *Krynitzkia oxycarya* Gray, Proc. Am. Acad. xx. 269 (1885). *C. multicaule* Howell, Fl. N. W. Amer. i. 487 (1901); not Nels. (1900). *C. Howellii* Nels. Bot. Gaz. xxxiv. 30 (1902).

Washington and Idaho to Southern California.

WASHINGTON: Coulee City, *Piper* 3887 (G); junction of Crab and Wilson creeks, 450 m. alt., *Sandberg & Leiberg* 304 (G, UC); near Sprague, 540 m. alt., *Sandberg & Leiberg* 173 (G, UC); Almota, *Piper* 1702 (G); Walla Walla, 1883, *Brandegge* (UC); Waitsburg, *Horner* 1170 (G). OREGON: along Des Chutes River at Sherar's Bridge, *Howell* 502 (G, ISOTYPE and photograph of TYPE of *C. multicaulis*); Rhea Creek, 390 m. alt., *Leiberg* 54 (G, UC); camp at Grizzly Butte, 1170 m. alt., *Leiberg* 283 (G, UC); crevices of rocks, Tone, 1903, *Lunell* 16 (G); bank of Hood River, 1883, *Henderson* (G); railroad track, Tonquin, *Nelson* 3096 (G); dry stubble-field pastured to sheep, 1.6 km. north of Salem, *Nelson* 4893 (G); dry bank, 1.6 km. north of Salem, *Nelson* 2222 (G); dry slope near Illahe, *Nelson* 1377 (G). IDAHO: valley of Clearwater River, *Sandberg, MacDougal & Heller* 163 (G); about Lewiston, *Heller* 3068 (UC); sandy flats, Falk's Store, 660 m. alt., *Macbride* 36 (G); loamy sagebrush flat, Regena, 750 m. alt., *Macbride & Payson* 2842 (G); Boise, 1881, *Canby* (G); without locality, 1892, *Mulford* (G). CALIFORNIA: dry land near Yreka, *Butler* 734 and 1298 (UC); Yreka, *Smith* 211 (G); Ager, 1887, *K. Brandegge* (UC); Edgewood, 1887, *Brandegge* (UC); Hy-Am-Pum, 1888, *Chestnut & Drew* (UC); Iqua, 1882, *Rattan* 19 (G); Hupa Indian Reservation, 150 m. alt., *Chandler* 1304 (G); dry hillside at little Van Duzen Bridge, 750 m. alt., *Tracy* 2758 (UC); dry hillside at Alder Point Bridge on Eel River, 150 m. alt., *Tracy* 1880 (UC); along ridge above Hopland, *Baker* 3003 (G); Potter Valley, 1898, *Purpus* (UC); sunny hillsides, Potter Valley, *Purpus* 1294 (UC); near Madison, *Heller & Brown* 5410 (G); Russian River bed at Cloverdale, *Bolander* 6541 (G, UC); between Cloverdale and Ukiah, *Bolander* 3896 (UC); Leesville, 1889, *Brandegge* (UC); Cloverdale, 1890, *K. Brandegge* (UC); Howell Mt., 360 m. alt., *Tracy* 439 (UC); Colusa County, 1884, *Curran* (G); Tiburon, *Eastwood* 306 (G); Lower Pleasant Valley, 1891, *Jepson* (UC); Sacramento Valley, *Hartweg* 1872 (G); near mouth of Little Grizzly Creek below Genessee, *Heller & Kennedy* 8853 (G); stony bank, 13 km. north of Oroville, *Heller* 11325 (G, UC); Little Chico Canyon, 1896, *Austin* 624 (UC); Little Chico, 1883, *Austin* (UC); Kelsey, 1889, *Brandegge* (UC); Sweetwater Creek, 1907, *K. Brandegge* (UC); The Buttes, 1891, *Jepson* (UC); Jackson, 390 m. alt., *Hansen* 152 (G, UC); Pine Grove, 750 m. alt., *Hansen* 430 (G); York Falls, 600 m. alt., *Hansen* 431 (G, UC); Knight's Ferry, 1854, *Bigelow* (G); Mokelumne Hill, *Blaisdell* (G); Harmon Peak, *Davy* 1420 (UC); Agua

Fria, 1897, *Congdon 44* (G); Beckwell Adobe, 1897, *Congdon 45* (G, UC); Yosemite Valley, *Bolander 6386* (G, UC); Yosemite, 1875, *McLean* (UC); Yosemite Valley, 1200–1350 m. alt., *Abrams 4560* (G); Wawona, *Lemmon* (UC); Borax Lake, *Torrey 329* and *333* (G); Madera, *Buckminster* (UC); Tehipite Valley, 1200 m. alt., *Hall & Chandler 505* (UC); Toll House, Fresno County, 1215 m. alt., *Hall & Chandler 32* (UC); Dunlap, 1893, *Eastwood* (UC); hillsides, North Tule River, *Purpus 5692* (UC); near Old Colony Mill, Giant Forest, 1905, *K. Brandegee* (UC); Portersville, *Donnelly 25* (UC); Camp Badger, 1892, *Holway 6* (UC); sunny gravelly slopes, Bear Creek, *Purpus 1707*; grassy fields, Caliente, *Heller 7625* (G); Caliente, 1892, *Brandegee* (UC); Tehachapi, 1889, *Brandegee* (UC); Keane, 510 m. alt., *Jones* (UC); north of Mt. Diablo, *Brewer 1129* (G); along banks and roadsides, Crystal Springs Lake, *Baker 468* (G, UC); Mt. Hamilton, *Elmer 5038* (UC); between Brick Yard and Licks Observatory, 1110 m. alt., *Pendleton 907* (UC); along Mt. Hamilton road, 22.5 km. from San Jose, *Heller 7437* (G, UC); Coyote, *Chandler 937* (UC); Lewis Creek, 1893, *Eastwood* (UC); Jolon, *Brandegee* (UC); without locality, 1899, *Jarea 1* (G); Lancaster, *K. Brandegee* (UC); Saugus, 1889, *Brandegee* (UC); Los Angeles, 1884, [*Nevin?*] *57g* (G); grassy mesa, Red Hill, 330 m. alt., *Johnston 1941* (G); dry ridges near Cuyamaca Lake, *Abrams 3824* (G); Colorado Desert, 1905, *Brandegee* (UC); without locality, *Blake* (G).

One of the best known species in the genus, readily recognized by its pallid strigose pubescence, stout arcuate bristles on the calyx-lobes, very short style and solitary terete ovate and rostrate nutlet. The type was collected by Douglas probably in eastern Oregon or Washington.

55. ***C. sparsiflora*** Greene. Very slender, sparingly and ascendingly branched sparsely strigose herb 1–3 dm. tall; cotyledons somewhat persistent, ovate to orbicular, 2.5 mm. broad, contracted to a petiole 2 mm. long; leaves few, narrowly linear, 1–3 cm. long, ca. 1 mm. broad, strigose, herbaceous, noticeably opposite below; spikes geminate or solitary, 2–6 cm. long, slender, not stiff, with 1–2 bracts near very base; corolla inconspicuous, less than 1 mm. broad; fruiting calyces 2–3 mm. long, ovate or oblong-ovate, ascending, few, early deciduous, subsessile by a very asymmetrical broadly conic base; mature calyx-lobes linear-lanceolate, united for $\frac{1}{2}$ – $\frac{1}{4}$ length of calyx, loosely connivent, margins sparsely ciliate, midrib slightly thickened, armed with short stout smoothish uncinuate hairs; ovules 4, the one next the abaxial calyx-lobe alone developing; nutlet 1, ovate, acute (scarcely if at all acuminate), decidedly compressed, smooth or finely granulate, 2 mm. long, equalled or somewhat surpassed by calyx-lobes, base somewhat truncate, back convex, margins angled, groove closed and broadly forking near the base; gynobase low; style attaining $\frac{1}{3}$ – $\frac{1}{2}$ height of nutlet.—*Pittonia* i. 116 (1887). *Krynitzkia sparsiflora* Greene, Bull. Calif. Acad. Sci. i. 203 (1885).

Slopes surrounding the Sacramento and San Joaquin valleys of California.

CALIFORNIA: Lake County, 1884, *Curran* (G, UC); Coburn Mills, 1892, *Brandege* (UC); Mormon Bar, Mariposa Co., 1889, *Congdon* (G); Whitlocks, 1897, *Congdon* (G); Havilah, 1891, *Brandege* (UC).

Although having broad nutlets suggestive of *C. Torreyana*, this species is clearly related to *C. flaccida* as shown by its somewhat encrusted strigose pubescence, single abaxial nutlet, and falcate or uncinata bristles on the calyx-lobe. The plant is characterized by its broad nutlets, very slender habit, and short uncinata bristles on the calyx. The type of the species was collected by Curran somewhere in northern California, probably in Lake or Colusa counties.

Ser. XV. AFFINES. Nutlets 1 or 4, smooth, ovate, laterally rounded, asymmetrical with an excentric groove and an irregular areola, when single always abaxial; style reaching $\frac{1}{4}$ – $\frac{2}{3}$ height of nutlets.

Nutlets 4; style reaching at least to $\frac{2}{3}$ height of nutlets; flowers in biseriate spikes; plant erect.....56. *C. affinis*.
Nutlet solitary; style not reaching to middle of nutlet; flowers axillary; plant spreading.....57. *C. glomeriflora*.

56. **C. affinis** (Gray) Greene. Usually sparsely branched herb 1–2(–4) dm. high; branches commonly few and ascending but plant occasionally much branched from the base, hispid or short-hirsute throughout; leaves narrowly to broadly oblanceolate, 1–4(–5) cm. long, 2.5–6(–8) mm. broad, few, short-hirsute, usually minutely pustulate, obtuse or rounded at tip, lowest pair clearly opposite; spikes geminate or solitary, usually 2–8 but becoming 15 mm. long, slender, remotely flowered, commonly with a very few large leafy bracts below; corolla inconspicuous, 1–2 mm. long, limb ca. 1.5 mm. broad; fruiting calyx 2.5–4 mm. long, usually about as broad as long, laterally compressed, ascending; pedicels 0.5–1 mm. long; mature calyx-lobes lanceolate, somewhat connivent, not greatly surpassing the nutlets, midrib weakly thickened and on the abaxial lobe sparsely hirsute, margins appressed-hispid; nutlets 4, homomorphous, smooth or very finely granulate, shiny, brownish to greenish, frequently mottled, 1.8–2.5 mm. long, ovate, obliquely compressed, back low-convex, margins rounded; groove evidently excentric, closed, simple or shortly and unequally forked at the base; gynobase short, stout, ca. $\frac{1}{2}$ height of nutlets; style evidently surpassed by nutlets or rarely equalling them.—*Pittonia* i. 119 (1887); *Macbr. Contr. Gray Herb.* n. s. xlvi. 46 (1916). *Krynitzkia affinis* Gray, *Proc. Am. Acad.* xx. 270 (1885). *C. geminata* Greene, l. c. *C. confusa* Rydb. *Bull. Torr. Bot. Cl.* xxxvi. 679 (1909).