

CALIFORNIA: Mariposa, April 27, 1898, *Congdon* (UC); Mariposa, May 1903, *Congdon* (UC); Mariposa County, May 2, 1890, *Congdon C59* (TYPE, Gray Herb.).

A peculiar plant with small, broad, thickish leaves and low, loosely branched, coarse, rigid stems. It has passed as *C. ambigua* and *C. barbiger* but is distinct from both, differing in its large corollas, low stiff habit, strigose stems and in the shape and attachment of the nutlets. In having basally truncate and acuminate nutlets it somewhat suggests *C. muricata*, var. *denticulata*, but is very different in its low habit, strigose pubescence and short style and gynobase. The young spikes are not so tawny as are those of *C. muricata*.

34. **C. crinita** Greene. Erectly branched herb 2-3 dm. high; stems appressed and spreading-hispid, branches numerous; leaves oblanceolate to oblance-linear, 2-4 cm. long, 2-4 mm. broad, obtuse, hirsute, evidently pustulate; racemes ternate or geminate, naked, 3-6 cm. long; corolla conspicuous, 3-5 mm. broad; fruiting calyces 5-6.5 mm. long, spreading, ovate-oblong, obscurely biserial, deciduous, divided, conspicuously villous, hairs very long and white, oldest calyces 5-10 mm. distant; pedicels well developed, 2-3 mm. long, long-villous; calyx-lobes linear, erect, slightly unequal, without a thickened midrib and pungent bristles; ovules 4; nutlet 1, next the axial calyx-lobe, ca. 3 mm. long, 1.3 mm. broad, erect, dull, brownish, ovate-lanceolate, densely muriculate-granulate, frequently coarsely tuberculate especially above the middle, apex attenuate, base obtusish, back convex, margin rounded or obtuse, groove opened towards base to form a small deep triangular areola; gynobase elongate, about half length of nutlet; style reaching to about $\frac{3}{4}$ height of nutlet.—*Erythea* iii. 66 (1895).

Known only from Shasta County, California.

CALIFORNIA: bed of Stillwater Creek at Leightone, 1900, *Baker* (G, UC); Cow Creek, 1894, *Baker & Nutting* (UC); Stillwater, *Nutting* (UC); Shasta County, 1894, *Baker & Nutting* (UC, "Dup. of type").

Distinguished from all other members of the genus by its unusually long white hairs on the calyx and on the well developed pedicels. Very distinct from, but probably most related to, *C. Hendersoni*.

35. **C. excavata** Brandg. Loosely and ascendingly branched herb 1-2 dm. tall; stems short hispid-villous and usually appressedly so; leaves not numerous, 1.5-3 cm. long, 1-2 mm. broad, linear or spatulate-linear, obtuse, appressed-hispid, minutely pustulate, upper ones evidently reduced; spikes ternate or geminate, 3-8 cm. long, naked; corolla conspicuous, ca. 4 mm. broad; fruiting calyx, broadly ovate, 2-2.5 mm. long and nearly as wide, asymmetrical, sessile, spreading,

base rounded or very broadly conic, becoming remote and obscurely biserial; mature calyx-lobes lanceolate, subequal, erect or loosely connivent, frequently one displaced by the tip of the decumbent nutlet which they barely exceed in length, margin short hispid-villous, midrib scarcely thickened and somewhat short-hirsute; ovules 4; nutlet 1 and usually horizontal or infrequently 2-3 and then erect, ovate-triangular, recurved-acuminate, ca. 2.5 mm. long, densely granulate or granulate-muriculate, commonly sparsely tuberculate, base decidedly truncate, sides obtuse or rounded, back convex, groove dilated towards base and forming a broad deep narrowly triangular suprabasal areola; gynobase narrow, ca. 1 mm. long, about $\frac{1}{3}$ - $\frac{1}{2}$ length of nutlet; style reaching to $\frac{2}{3}$ - $\frac{3}{4}$ height of nutlets.—*Bot. Gaz.* xxvii. 452 (1899).

Inner North Coast Ranges of California; rare.

CALIFORNIA: occasional on shelving slopes of sand, Cache Creek, Yolo Co., *Baker 2886* (G, UC); Lake County, April, *K. Brandege* (UC).

The solitary, decumbent, triangular nutlet and short calyx are distinctive of this species. It appears to be related to *C. Hendersoni* on one hand, and apparently to *C. decipiens* on the other. No particular nutlet seems to develop, even in the same spike, for adjacent calyces may each develop its nutlet in a very different position relative to the spike-axis.

36. **C. Hendersoni** (Nels.) Piper. Ascendingly branched hispid herb 1.5-5 dm. tall; stems single or numerous, sparsely and loosely branched above, hispid; leaves oblanceolate or linear, 2-5(-7) cm. long, 2-5 mm. broad, acute or obtuse, appressed-hispid, lower ones somewhat persistent and pustulate, upper ones reduced; spikes usually ternate, rarely geminate or quadrinate, naked or at times bracted toward very base, 2-8 or rarely even 20 cm. long; corolla conspicuous, tube about equalling calyx, limb 4-7 mm. broad; fruiting calyx ovate-oblong or narrowly ovate, 3-6 mm. long, ascending, slightly asymmetrical, lowermost becoming obscurely biserial and distant, base rounded or broadly conic; pedicels ca. 0.5 mm. long; lobes lance-linear or linear, somewhat connivent above with herbaceous tips usually somewhat spreading, margins densely appressed villous-hispid, midrib obscurely thickened and hispid; nutlets 4 or by abortion rarely fewer, broadly ovate or very rarely lance-ovate, 2-2.8(-3) mm. long, smooth or more or less coarsely granulate, frequently coarsely tuberculate and at times finely papillate-muricate, back low convex, sides rounded or rarely obtuse, base rounded or somewhat truncate; groove

closed or very narrow, broadly forked below; gynobase narrow, ca. 1.3 mm. long, becoming $\frac{1}{2}$ - $\frac{2}{3}$ as high as nutlets; style reaching to about $\frac{4}{5}$ height of nutlets or barely exceeding them.—Piper ex J. C. Nelson, *Torreya* xx. 44 (1920). *Allocarya Hendersoni* A. Nelson, *Erythea* vii. 69 (1899); Piper, *Contr. U. S. Nat. Herb.* xxii. 113 (1920). *C. monosperma* Greene, *Pittonia* v. 53 (1902). *C. incana* Greene, *Leaflets* i. 79 (1904). *C. grisea* Greene, l. c. *C. trifurca* Eastw. *Bull. Torr. Bot. Cl.* xxxii. 203 (1905). *C. grandiflora* Rydb. *Bull. Torr. Bot. Cl.* xxxvi. 679 (1909). *C. Torreyana*, var. *grandiflora* Nels & Macbr. *Bot. Gaz.* lxi. 43 (1916). *A. dichotoma* Brand in Fedde, *Repert.* xviii. 313 (1922). *C. scabrella* Piper, *Proc. Biol. Soc. Wash.* xxxvii. 95 (1924).

Western Idaho to southwestern British Columbia and south to the Sierra Nevada and northern parts of California.

IDAHO: sandy hillsides in open places or amongst trees, Juliaetta, *Henderson* 4815 (G); hills about Lewiston, *Henderson* 2811 (G); Lewiston, 1895, *Piper* (G); about Lewiston, 450-600 m. alt., *Heller* 2998 (UC); Valley of Clearwater River, *Sandberg, MacDougal & Heller* 10 (G, ISOTYPE of *C. grandiflora*); Clearwater, *Spalding* (G); abundant all over wooded and unwooded hills, Palouse Country, *Henderson* 2811 in pt. (G); lava soil slope, Big Willo, 900 m. alt., *Macbride* 109 (G, UC). BRITISH COLUMBIA: Fort Vancouver, *Tolmie* (G). WASHINGTON: Wawawai, *Piper* 1941 and 1944 (G); Tacoma, 1894, *Van Renselaer* (G); Steilacoom, *Piper* 372 (G); Cape Horn, *Piper* 5018 (G); Falcon Valley, *Suksdorf* 456 (G) and 3278 (UC); dry hillsides, Columbia River, western Klickitat County, *Suksdorf* 180 (UC, ISOTYPE of *C. monosperma*). OREGON: along Hood River, *Heller* 10112 (UC); Lone Rock, 890 m. alt., *Leiberg* 116 (G, UC); rocky bank, 1.6 km. north of Tonquin, *Nelson* 3093 (G); Willamette River below Portland, *Sheldon* S10866 (G); dry rocky bank by roadside, Coalca, *Nelson* 2109 (G); rocky hillside, 5 km. north of McNary, *Nelson* 2083 (G); dry open ground in Bush's Pasture, Salem, *Nelson* 3253 (G); dry soil by roadside, 5 km. south of Salem, *Nelson* 2166 (G); Bridge Creek, *Howell* 501 (G); loose basaltic rock on wall of canyon, Silver Creek Falls, Marion Co., *Nelson* 4869 (G); 3.2 km. east of Curry-Douglas county-line on trail from Marial to West Fork, *Peck* 3995 (G); dry soil along trail, Marial, *Nelson* 1414 (G); rocky woods, Elk Rock, *Nelson* 1254 (G); dry soil along trail near mouth of Mule Creek, Curry Co., *Nelson* 1369 (G); steep seaward slope, The Heads, Port Oxford, *Peck* 8473 (G); Grant Pass, *Piper* 5105 and 5106 (G); Grant Pass, *Piper* 5043 (G, ISOTYPE of *C. scabrella*); Applegate, *Durden* (UC); near Stinking Water, 1200 m. alt., *Leiberg* 2362 (G, UC); Steins Mt., *Howell* 500 (G); adobe soil, Steins Mt. opposite Devines Ranch, 1500 m. alt., *Leiberg* 2465 (G, UC); without locality, hillsides, 1881, *Howell* (G, part of TYPE of *A. dichotoma*). CALIFORNIA: Hupa Valley, 1900, *Manning* (UC); Hupa Indian Reservation, 150 m. alt., *Chandler* 1302 (G, UC); mountain slopes along road between Three Creeks and mouth of Willow Creek, Humboldt Co., 750 m. alt., *Tracy* 3335 (UC); in chaparral in hills about Scotts Valley, 420-600 m. alt., *Tracy* 1744 (UC); between Mud Flat and Bennet Springs on Newville-Covelo road, *Heller* 11928 (G); Hough's Spring, Lake Co., 1882, *Cleveland* (UC); southeast side of Snow Mt. above Bonnie View, *Heller* 13236 (G); Rush Creek, Trinity Co., *Yates* 402 (UC); Klamathon, *Copeland* 3550 (G, ISOTYPE of *C. trifurca*); dry hills near Yreka, *Butler* 733

(UC) and 1416 (G, UC); Edgewood, 1887, *Curran* (UC); Siskiyou County, 1890, *Edmonds* (UC); along streams in meadows, Parker Creek, Warner Mts., 1650 m. alt., 1910, *Taylor & Bryant* (UC); Goose Lake Valley, 1884, *Austin* (UC); Milford, 1892, *Brandege* (UC); Mormon Bar, 1897, *Congdon* 50 (G); Salmon Creek, Tulare Co., 2100 m. alt., *Hall & Babcock* 5132 (UC); Nine Mile Creek, Tulare Co., *Culbertson* 4537 (G, ISOTYPE of *C. incana*); Redrock Meadows, Tulare Co., 2610 m. alt., *Hall* 8394 (UC). NEVADA: Reno, 1898, *Purpus* (UC); Dog Valley Road, 1895, *Hillman* (UC).

In northwestern United States, where this plant appears to be rather common, it is almost the only species of *Cryptantha* with conspicuous corollas. In the past it has been much confused with *C. ambigua* and *C. Torreyana*, although in fact it seems to be most closely related to *C. intermedia*. In Idaho it tends to intergrade with *C. Torreyana*, but over most of its range it is readily separated by its conspicuous corollas, commonly ternate spikes and usually tuberculate nutlets. Occasional plants are hard to separate from *C. ambigua* although *C. Hendersoni* is for the most part pretty easily recognized by its large-flowered, ternate spikes projected above the leafy mass of the plant. *Cryptantha intermedia* completely intergrades with *C. Hendersoni* in northern California, although the overwhelming mass of material of *C. Hendersoni* is readily distinguished from its relative by its less stiff and scarcely pungent pubescence, and broader tuberculate nutlets. It has been found expedient to admit considerable range of nutlet-variation in *C. Hendersoni*. Among plants quite similar in gross habit, and commonly from within a small natural region, the nutlets frequently (from plant to plant) vary from entirely smooth and shiny, to simply granulate or decidedly tuberculate. Roughly it can be said, however, that more of the northern than southern material is smooth-fruited. *Cryptantha incana* and *C. grandiflora* are names applied to the phase with smooth and shiny nutlets. The other names cited apply to forms with roughened fruit. *Cryptantha scabrella* was based on a phase of *C. Hendersoni* from southern Oregon in which the nutlets are papillate-muricate. *Cryptantha monosperma* has similar though less abundant and less well developed papillae, and appears to be a form in which only 1 or 2 nutlets develop. The aborted nutlets appear to be the abaxial ones.

37. *C. Traskae*, sp. nov., pumila sparse laxaque ramosa 8-10 cm. alta; caulibus gracilibus strigosis ca. 1 mm. crassis; foliis paucis linearibus 1-2 cm. longis 1-1.5 mm. latis acutis strigosis rare hispidis inconspicue pustulatis; spicis solitariis vel geminatis 1-5 cm. longis cum bracteis linearibus 2-5 mm. longis numerosis ornatis; floribus obscure biserialis maturitate 5-10 mm. separatis; corolla inconspicua ca. 1.5