

long; spikes ternate or geminate, soon loose, $\frac{1}{2}$ to 3 inches long; calyx 1 to $1\frac{1}{4}$ lines long, its lobes linear, densely short-hispid with spreading hairs, the lower part of the outer lobes tufted with a row of deflexed or spreading bristles; corolla 1 to $1\frac{1}{2}$ lines broad; nutlet 1, smooth, polished, ovate or lanceolate but narrowed into a slender beak, almost circular in cross-section (high-rounded on back, rounded on face), the ventral groove shortly forked at base; style shorter than nutlet.

Rocky slopes, 1000 to 3000 feet: Lake Co. to Napa Co. Apr.-June.

Geog. note.—*Cryptantha hispida* is restricted to areas of serpentine in Lake County and Napa County. The following stations may be cited: ridge e. of Indian Valley, ne. Lake Co., Hoover 3583; near Cobb Valley, sw. Lake Co., T. Walker; Snell Valley, n. Napa Co., Jepson 18,825; Limekiln Creek, n. of Pope Valley, Napa Co., Jepson 18,812; Moore's Creek, Howell Mt., Napa Co., Tracy 1575; betw. Monticello and Pope Valley, M. S. Baker. Although very close to *Cryptantha clelandii* morphologically, *Cryptantha hispida* is geographically segregated from that species and in addition occupies a different sort of habitat. The differences between the two units, as here accepted, are difficult to express in precisely differentiating terms. *Cryptantha hispida* has very slender stems, *Cryptantha clelandii* rather stoutish ones. The nutlet of *Cryptantha hispida* is very thick and rounded and markedly and rather abruptly slender-beaked. The nutlet of *Cryptantha clelandii* is low-rounded on the back, usually a little flattish on the face, that is, it is slightly compressed, and is lanceolate, sometimes with attenuate apex, rarely beaked (Santa Cruz Isl., Sezauer). The calyx in *Cryptantha hispida* is densely short-hispid with spreading hairs, the midrib of the lobes armed with a row of bristles mostly on lower part, the bristles spreading or sometimes markedly deflexed. The calyx in *Cryptantha clelandii* is clothed with ascending hairs and throughout with divergently spreading long bristles. The differences between these two, as indicated, may not be strong enough to sustain *Cryptantha hispida* as a sound species, but although the characters for *Cryptantha clelandii* are notably variable, the characters as drawn for *Cryptantha hispida* are constant and uniform in all collections made in the various parts of its area.

Refs.—*CRYPTANTHA HISPIDA* Greene; Baker, West. Am. Plants 2:10 (1903), nomen nudum; Brand in Engler, Pflz. 4:722; 60 (1931), type loc. Knorville, ne. Napa Co., C. F. Baker 2966.

27. *C. clelandii* Greene. Stems branching from the base or subsimple, slender, 3 to 18 inches high; herbage appressed- or spreading-hispid; leaf-blades linear to oblong, $\frac{1}{4}$ to $\frac{1}{2}$ or 1 inch long; spikes geminate or ternate or paniculate, $\frac{1}{2}$ to $1\frac{1}{2}$ inches long, dense or at length loose; calyx 1 to $1\frac{1}{2}$ lines long; calyx-lobes linear, hirsute-appressed and markedly spreading-bristly throughout; corolla $\frac{1}{4}$ to $1\frac{1}{4}$ lines broad; nutlets 1 to 4, lanceolate, attenuate or acuminate, smooth and polished, rounded dorsally, convexly 2-planed ventrally or flattish; groove closed, the basal areola small, open; style $\frac{2}{3}$ as long as nutlets, or equaling or slightly surpassing them.

Rocky or sandy hillslopes, especially luxuriant on "burns" in the chaparral, 5 to 2500 feet: South Coast Ranges from Stanislaus Co. to San Luis Obispo Co.; coastal Southern California. South to Lower California. Mar.-May (or Aug.).

Geog. note.—In the South Coast Ranges, *Cryptantha clelandii* extends toward the coast but is also found in the inner ranges. At the southern extremity of its distribution; it is strictly coastal; there it replaces the more northern *Cryptantha leiocarpa*, from which it is scarcely distinguishable.

Locs.—South Coast Ranges: Puerto Cañon, w. Stanislaus Co., Hoover 4337; betw. Scott Valley and Felton, Santa Cruz Mts., Yates 5254; Big Sur River (coast cliffs s.), Hoover 2678; Jolon grade near King City, K. Brandegee; San Luis Obispo, Condit; Annette (2 mi. nc.), inner South Coast Range, w. Kern Co., Higgins 7977. Tehachapi Mts.: Tehachapi, K. Brandegee. Cismontane S. Cal.: Bicknell sta., nw. Santa Barbara Co., Jepson 12,678; Purissima Hills, near Lompoc, Jepson 11,954; Santa Cruz Isl., Frido Sezauer; Hueneme, Ventura Co., Peirson 5774; Santa Catalina Isl., Fosberg 10,647; Santa Monica Cañon, Santa Monica Mts., Barber 116; San Diego, Greene.

In the form called *Cryptantha hispida* Greene, the style equals the nutlets or slightly surpasses them, whereas in *Cryptantha clelandii* the style is $\frac{2}{3}$ as long as the nutlets. This distinction does not, however, seem to segregate material into two groups that are in any way significant, and the former binomial is, therefore, reduced to synonymy. When *Cryptantha clelandii* exhibits large corollas (2 to $2\frac{1}{2}$ lines wide) it is var. *florosa* Jtn., ranging from San Luis Obispo Co. (Arroyo Grande, Jepson 20,263) and Santa Barbara Co. (Purissima Hills, Jepson 11,923) south to San Diego.

Var. *dissecta* (Jtn.) Jepson & Hoover comb. n. Stem stoutish, branching; calyx 3 to $3\frac{1}{4}$ lines long; corolla 3 lines broad; nutlets 1 to 3, ovate, attenuate or subobovate; style slightly exceeding nutlets.—Chaparral hills, 1300 to 1500 feet: western Lake Co. (Scott Valley, Tracy 1744).

Refs.—*CRYPTANTHIA CLEVELANDII* Greene, Pitt. 1:117 (1887), type loc. San Diego, Cleveland & Greene. *C. rattani* Greene, Pitt. 1:160 (1888), type loc. San Jose, Rattan. *C. abramsii* Jtn., Contrib. Gray Herb. 68:52 (1923), type loc. San Pedro Hills near Malaga Cove, Los Angeles Co., Abrams 3139. *C. hispidula* var. *abramsii* Brand; Engler, Pflz. 4²²:60 (1931). *C. brandegei* Jtn., L. 68:53, type loc. Santa Rosa Isl., T. Brandege. *C. hispidissima* Greene, Pitt. 1:118 (1887), type loc. San Luis Obispo Co., Lemmon. *C. leiocarpa* var. *hispidissima* Mebr., Contrib. Gray Herb. 48:43 (1916). *C. clevelandii* var. *hispidissima* Jtn.; Munz, Man. 427 (1935). Var. *FLOROSA* Jtn., Contrib. Gray Herb. 74:95 (1925), type loc. Linda Vista, San Diego Co., Macbride & Payson 797. Var. *DISSETA* Jepson & Hoover. *C. dissecta* Jtn., Jour. Arn. Arb. 29:383 (1939), type loc. "near foot of grade w. of Lakeport," Lake Co. (i.e., probably near Highland Spr.), M. S. Baker 8956.

28. *C. leiocarpa* Greene. Stem commonly branched from the base, 5 to 18 inches high, the branches many, ending in a short spike or in a dense glomerule of spikes; herbage hispid with spreading hairs, often densely so; leaf-blades linear, $\frac{1}{2}$ to 1 or $1\frac{3}{4}$ inches long; spikes leafy-bracted at base, rarely bractless, mostly short and glomerate, $\frac{1}{4}$ to $\frac{1}{2}$ inch long; calyx-lobes linear or linear-lanceolate, sometimes oblong, dark green, ascending-hirsute and spreading-bristly, 2 to 3 lines long; corolla $\frac{1}{3}$ to $1\frac{1}{2}$ lines wide; nutlets usually 4, rarely 1, narrowly ovate or lanceolate-rostellate, smooth, rounded dorsally, flattish ventrally, the lateral angles marked by a somewhat definite line but essentially obtuse, the ventral groove minutely forked at base or the fork obsolete.

Sand dunes, sandy flats or grassy headlands, 5 to 500 feet: along the coast line from Los Angeles Co. to Humboldt Co. North to southern Oregon. Apr.-June.

Geog. note.—On morphological grounds *Cryptantha leiocarpa* is weakly and inconstantly distinguishable from *C. clevelandii*. By restricting, as is here done, citations of stations to the coast line, the practical effect of morphological weakness is thereby lessened. It is hoped, then, this device may aid, negatively or positively, further inquiry: Playa del Rey, Los Angeles Co., Parish 11,864; Santa Rosa Isl., T. Brandege; Point Pinos, Monterey Co., K. Brandege; Presidio, San Francisco, Jepson 21,129; Pt. Reyes, Marin Co., Curran; Boodega Head, Sonoma Co., K. Brandege; Cape Mendocino, Tracy 9939 (nutlets convexly 2-planed on face).

Refs.—*CRYPTANTHIA LEIOCARPA* Greene, Pitt. 1:117 (1887); Jepson, Fl. W. Mid. Cal. 445 (1901), ed. 2, 348 (1911), Man. 850 (1925). *Echinosperrum leiocarpum* F. & M., Ind. Sem. Hort. Petrop. 2:36 (1836), type loc. Ft. Ross, Sonoma coast; Lianaea 11: Litt.-Ber. 104 (1837); Erythra 2:140 (1894). *Krynitzkia leiocarpa* F. & M., L. 7:52 (1841). *Eritrichium leiocarpum* Wats., Bot. King 244 (1871). (†) *C. leiocarpa* var. *eremacargoides* Brand; Engler, Pflz. 4²²:53 (1931), type loc. Monterey, J. Ball.

29. *C. ganderi* Jtn. Bushy-branching plant 4 to 15 inches high; herbage spreading-hispid; leaf-blades linear or linear-lanceolate, mostly sessile, $\frac{3}{4}$ to 1 inch long; spikes mostly solitary, loose, 3 to 5 inches long; calyx 4 lines long, tufted on lower half with long divergent bristles, the lobes linear-filiform, densely ascending-hirsute on lower half inside; corolla minute ($\frac{1}{2}$ line wide); nutlet 1, smooth, ovate-rostrate, low-rounded or flattish dorsally, flattish ventrally, the lateral angles obtuse, the ventral groove widely forked at the sub-truncatish base of nutlet.

Desert valleys, 700 to 1100 feet: Borrego Valley, northeastern San Diego Co., Colorado Desert. South to Lower California and Sonora (Jour. Arn. Arb. 20: 386). Apr.

Tax. note.—In all its single features *Cryptantha ganderi* resembles closely various California species of *Cryptantha*. In the sum total of its characters, however, it seems an unusual plant and would be expected to have that which it apparently does not have, a distinctive or unique feature of a kind which in many cases characterizes other southwestern species of this genus. Dorsally, the nutlets bear a few widely scattered microscopic murications or needle-like points—but these represent very obscure and inconsiderable structures.

Ref.—*CRYPTANTHIA GANDERI* Jtn., Jour. Arn. Arb. 20:386 (1939), type loc. Borrego Valley, San Diego Co., Gander 5328 (merotyp. vidi).

30. *C. maritima* Greene. Stem usually stout with many ascending branches, 5 to 11 inches high; herbage rufescent, hispid, often also appressed-hirsute; leaves linear, somewhat thickened, $\frac{1}{2}$ to 1 inch long; spikes densely flowered, elongate in age, freely bracteate, the bracts linear, 1 to 3 lines long; calyx-lobes linear-oblong to filiform, 1 line long, spreading-bristly (some bristles as long as the lobes) and