

abata From *C. abata* it differs in the lack of a conspicuous elevated margin around the scar and by the indefinite roughenings on the dorsal surface. It differs from *C. virginensis* and *C. insolita* in its definite perennial habit, narrow congested inflorescence, more tomentose indument, and the smoother nutlets with only a slightly elevated margin around the scar.

22. *Cryptantha insolita* (Macbr.) Payson

Cryptantha insolita (Macbr.) Payson, Ann. Mo. Bot. Gard. 14:273, 1927.

Oreocarya insolita Macbr. Contr. Gray Herb. 48:28, 1916.

Biennial or short-lived perennial from a slender taproot, 3-4 dm tall; stems 1-several, 1-3 dm long, strigose and conspicuously setose; leaves spatulate, mostly basal, obtuse, 3-5 cm long, 0.5-1.4 cm wide, dorsal surface subtomentose and sparsely appressed setose pustulate, ventral surface similar but the setae smaller and fewer, pustules few and small, petioles long-hairy at the base; inflorescence open, cymes few, much elongating, 0.7-1.4 dm long, weakly setose, foliar bracts inconspicuous; calyx segments linear-lanceolate, in anthesis 3.5-4.5 mm long, in fruit becoming 7-9 mm long, densely hirsute; corolla white, the tube 3-4 mm long, crests at base of tube well developed, fornicies yellow, slightly emarginate, papillose, 0.5-1 mm long, limb 6-8 mm wide; style exceeding mature fruit 1-1.5 mm; nutlets ovate to lanceolate, 3.7-4 mm long, one to four maturing, the margins acute, in contact or nearly so, dorsal surface carinate, tuberculate, granulo-muricate and sometimes slightly rugulose, ventral surface tuberculate and somewhat rugulose, scar narrow but open, the margin showing some tendency to become elevated. Collections: 2 (0); representative: L. N. Goodding 2286 (GH, RM).

Holotype: L. N. Goodding 2286, collected in Clark County, Nevada, at Las Vegas, 4 May 1905, GH. Photograph at BRY. Isotype at RM.

Distribution: Known only from the region about Las Vegas. Growing in white alkaline soil, 1,900 to 2,500 feet. Map No. 22. April to June.

This species somewhat resembles *C. elata* of eastern Utah and western Colorado, but it is doubtful if the two are even remotely related. However, this plant is probably closely related to *C. virginensis*, but differs in the length of the floral bracts, number of cymes, and the shape of the nutlets.

23. *Cryptantha virginensis* (Jones) Payson

Cryptantha virginensis (Jones) Payson, Ann. Mo. Bot. Gard. 14:274, 1927.

Kuhnia glomerata var. *virginensis* Jones, Contr. West Bot. 13:5, 1910.

Oreocarya virginensis (Jones) Macbr. Proc. Am. Acad. Sci. 54:7, 1916.

Biennial, 1.5-3.5 (4) dm tall, stems 1-several, arising

from a stout taproot, 0.3-0.6 dm long, setose-hirsute; leaves oblanceolate to spatulate, obtuse, 3-10 (12) cm long, 0.5-1.5 cm wide, dorsal surface sparsely setose, pustulate, also with some fine tangled hair beneath, ventral surface subtomentose and weakly appressed setose, with only a few pustulate hairs; inflorescence a broad thyrus with the individual cymes much elongating, 0.5-3 dm long, foliar bracts conspicuous; calyx segments linear-lanceolate, in anthesis 3-4 mm long, in fruit becoming 7-11 mm long, hirsute; corolla white, the tube 3-4 mm long, crests at the base of tube conspicuous, fornicies yellow, emarginate, papillose, about 1 mm long, limb 7-9 mm broad; style exceeding mature fruit 1-1.5 mm; nutlets ovate, 3.3-4.5 mm long, 2.4-2.6 mm wide, usually only one to two nutlets maturing, margins in contact, acute, dorsal surface with a distinct ridge, the surface tuberculate and usually rugulose, ventral surface very uneven with indeterminate rugae and tubercles, scar open, and triangular, with an elevated margin. Collections: 64 (ii); representative: I. W. Clokey 5820 (ARIZ, BRY, ORF, RM, UTC); B. Maguire 4470 (RM, UTC); F. W. Gould 1580 (ARIZ, BRY, DIX, RM); Maguire and Holmgren 25404 (ARIZ, BRY, UTC); Alexander and Kellogg 3019 (RM, UTC); J. Beatley 4275 (BRY, LA); L. C. Higgins 1243 (BRY).

Holotype: M. E. Jones 5195a, collected in Washington County, Utah, at Laverkin, 8 May 1894, POM. Isotypes at UC, RM, MO, US.

Distribution: Southwestern Utah, southern Nevada, northwestern Arizona, and southeastern California. Growing on gravelly to clay soils, 2,000 to 8,000 feet. Map No. 23. March to July.

Cryptantha virginensis has its closest relatives with *C. tumulosa* and *C. hoffmannii*. From the former it differs in the biennial habit, more open inflorescence, more setose indument, and the nutlets which are more conspicuously roughened.

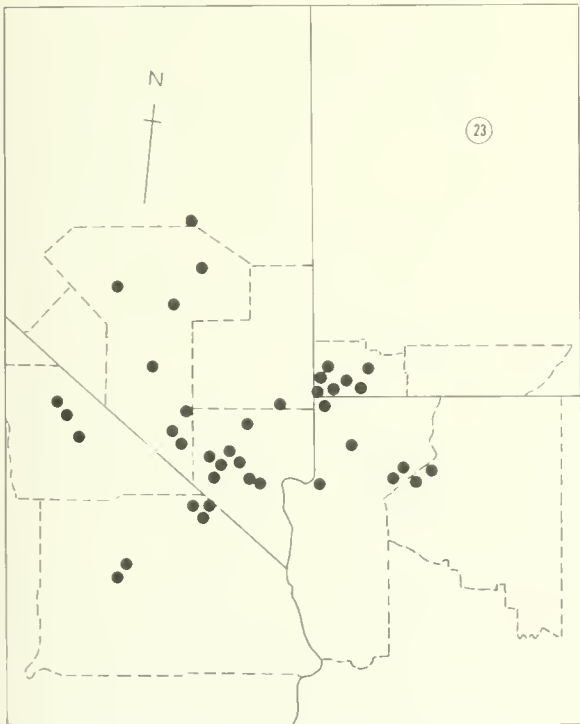
There can be no doubt that *C. virginensis* and *C. hoffmannii* are very closely related; and, because of the variation encountered in each, it is difficult to find characters of a high order which are consistently differential. Variation as now known in *C. virginensis* is rather great, especially marked in size of nutlets, length of the calyx, and the markings on the nutlets. However, where they approach each other in range, they occupy different life zones, and *C. virginensis* comes into flower a month or more earlier. The former also has fragrant flowers while *C. hoffmannii* does not. Additional collections of this complex are badly needed from western Nevada and eastern California.

24. *Cryptantha hoffmannii* Johnston

Cryptantha hoffmannii Johnston, Contr. Arn. Arb. 3:90, 1932.



Map No. 22. Southern Nevada. Range of *C. insolita* (Macbr.) Payson.



Map No. 23. Southern Nevada and parts of adjoining states. Range of *C. virginensis* (M. F. Jones) Payson.

Oreocarya hoffmanni (Johnst.) Abrams, Abrams, III, Fl. Pac. St. 3:600, 1951.

Plants biennial, 1.7-3.4 dm tall; stems 1-several, 0.2-1.6 dm long, conspicuously hirsute; leaves spatulate, crowded at the base, reduced upward, 2-5 cm long, 0.5-1.2 cm wide, spreading setose-hirsute, pustulate on both leaf surfaces, but more conspicuous dorsally; inflorescence broad-topped, interrupted, 1-2.8 dm long, floral bracts evident but not conspicuous; calyx segments lanceolate, in anthesis 3-5 mm long, in fruit becoming 5-8 mm long, hirsute-hispid; corolla white, the tube 3-4 mm long, crests at base of tube evident, fornices yellow, rounded, 0.5 mm long, papillose, limb 5-7 mm wide; style exceeding mature fruit 0.2-0.8 mm; nutlets ovate, 3-3.5 mm long, 2-2.5 mm wide, two to four nutlets maturing, the margins in contact, acute, both surfaces irregularly low rugose and minutely tuberculate, the dorsal with a low inconspicuous crest, scar open, triangular, without an elevated margin. Collections: 10 (i); representative: R. Hoffmann 78 (GH); Alexander and Kellogg 2503 (ARIZ, POM, RM); F. W. Pierson 7544 (GH, POM); P. Train 3977 (UTC); J. Roos 5849 (POM).

Holotype: R. Hoffmann 78, collected in Inyo County, California, on rocky open slopes of Westgard Pass, 7,300 feet, 11 July 1930, GH. Photograph at BRY.

Distribution: Western Nevada and southeastern California. Growing on gravelly soil in the pinyon-juniper community, 7,000 to 9,000 feet. Map No. 24. June and July.

Johnston, in the original description, said that this species was most closely related to *C. insolita*, however; I believe that its closest relative is *C. virginensis*, as discussed under that taxon.

25. *Cryptantha abata* Johnst.

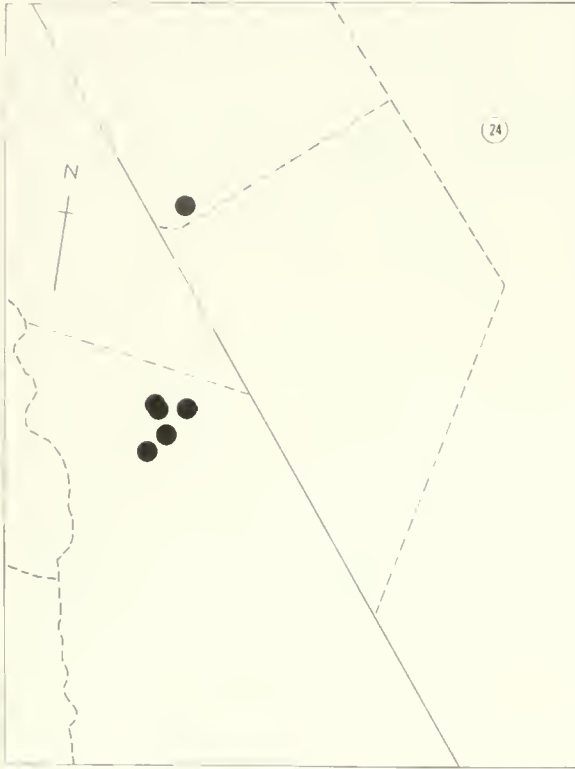
Cryptantha abata Johnst. Journ. Arn. Arb. 24:240, 1948.

Krynitzkia depressa Jones, Contr. West. Bot. 13:5, 1910, not *C. depressa* A. Nels. Bot. Gaz. 34:29, 1902.

Oreocarya depressa (Jones) Macbr. Contr. Gray Herb. 48:32, 1916.

Cryptantha modesta Payson, Ann. Mo. Bot. Gard. 14:278, 1927, not *C. modesta* Brand, Fedde, Rep. Spec. Nov. 24:48, 1924.

Plants perennial, arising from a strong woody taproot, 0.5-1.8 dm tall; stems many, 0.2-1.5 dm long, strigose and weakly setose, leaves oblanceolate to spatulate, obtuse, strigose, setose, and subtomentose, the petioles ciliate margined; inflorescence narrow, 0.2-0.8 dm long; calyx segments lanceolate to ovate, 2.5-4 mm long in anthesis, in fruit becoming 5-8 mm long, setose; corolla white, the tube 3-4 mm long, crests at base of tube conspicuous, fornices yellow, rounded, papillose, about 0.5 mm long, limb 7-8 mm wide; style exceeding mature fruit 0.5-1 mm; nutlets ovate, 3-3.5 mm long, 2-2.5 mm wide, usually all four maturing, margins in contact, obtuse to acute, dorsal surface carinate, tuberculate, muricate, and



Map No. 24. Inyo County, California, and adjoining Nevada. Range of *C. hoffmannii* Johnston.

sometimes with low inconspicuous ridges, ventral surface deeply and irregularly rugose, scar open, triangular, surrounded by a slightly elevated margin. Collections: 28 (v); representative: M. E. Jones 6692 (POM, UTC); B. F. Harrison 9009 (BRY); W. S. Boyle 1117 (BRY, UTC); L. N. Goodding 996 (POM, RM); Eastwood and Howell 651 (CAS); L. C. Higgins 1015, 1016 (BRY).

Lectotype: M. E. Jones 6692, collected at Aurum, Nevada, 7,300 feet, 20 June 1893, POM. Photograph at BRY. Isotype at US.

Distribution: South-central Utah, northwestern Arizona, and eastern Nevada. Growing on sandy or gravelly soil, 4,000 to 9,000 feet. Map No. 25. April to early July.

The name Payson applied to this species of southern Utah and eastern Nevada was invalid because of an earlier homonym. Johnston, noting this, named the plant *C. abata*.

Cryptantha abata is a modest, densely tufted *Cryptantha*, that is not greatly different in general appearance from some of the varieties of *C. humilis* or of *C. tumulosa*. It differs from these species by the short inflorescence, the deeply rugose nutlets on the ventral surface, and the spatulate leaves.

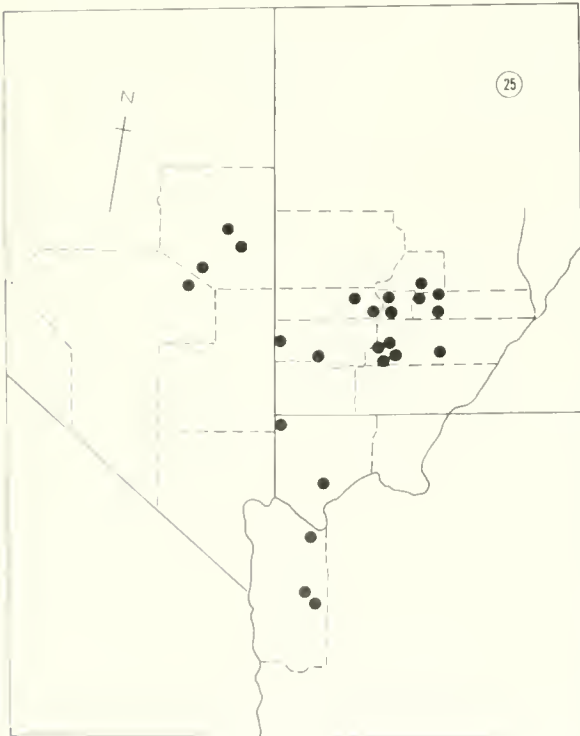
This plant is not often collected because of the early flowering time.

26. *Cryptantha caespitosa* (A. Nels.) Payson

Cryptantha caespitosa (A. Nels.) Payson, Ann. Mo. Bot. Gard. 14:281, 1927.

Oreocarya caespitosa A. Nels. Frythea 7.65, 1899.

Densely caespitose perennials, 0.5-1.5 dm tall; stems 1-many, arising from a much-branched woody caudex, 0.2-0.9 dm long, weakly setose, and appressed strigose; leaves oblanceolate to spatulate, 1-3 cm long, 0.3-0.7 cm wide, pubescence of two kinds, strigose and appressed setose, becoming tomentulose toward the petiole; inflorescence narrow, 0.3-1 dm long, foliar bracts inconspicuous; calyx segments lanceolate, in anthesis 3-4 mm long, in fruit becoming 5-8 mm long, strigose and weakly setose, also somewhat tomentulose; corolla white, the tube 3-4 mm long, crests at base of tube conspicuous, fornicies yellow, rounded, about 0.5 mm long, limb 4-7 mm wide; style equally long or 0.5 mm longer than mature fruit; nutlets lanceolate, 3-3.5 mm long, 2-2.5 mm wide, the margins acute, in contact, dorsal surface with low rounded rugae, also tuberculate, and with numerous murications between the ridges, ventral surface muricate, scar open, narrowly triangular, margin of scar not elevated. Collections: 40 (vi); representative: A. Nelson 4671 (CS, RM); E. Nelson 4497 (RM); G. E. Osterhout 6248 (RM); E. B. Payson 4249 (RM); R. C. Rollins 1685 (RM, UTC); D. Atwood 1568 (BRY); L. C. Higgins 1557, 1562, 1563, 1566, 1586, 1570 (BRY).



Map No. 25. Southwestern Utah and adjoining states. Range of *C. abata* Johnston.