Annals
of the
Missouri Botanical Garden

Vol. 14 SEPTEMBER, 1927 No. 3

A MONOGRAPH OF THE SECTION OREOCARYA OF CRYPTANTHA[1]

EDWIN BLAKE PAYSON[2]

Professor of Botany, University of Wyoming
Formerly Teaching Fellow in the Henry Shaw School of Botany of Washington University

INTRODUCTION

The group of plants treated in the present monograph is remarkably characteristic of the Upper Sonoran areas of the Great Basin region, although a few species are native to the eastern foothills of the Rocky Mountains, one or two have penetrated to the Canadian plains and two or three occur in northern Mexico and adjacent Texas. In western Colorado, Utah, Nevada, and southern Wyoming one or more species may be found on almost any barren hillside. Many seem to prefer soils that are so strongly impregnated with mineral salts that few other plants can compete with them. No species seems to be able to tolerate a moist or undrained situation.

These plants are often transient occupants of any habitat. They seem particularly at home on shifting or disturbed soil. A loose hillside or shale outcrop is a favorite locality for the commoner kinds. And yet they are never weeds in cultivated ground—that distinction is reserved for the annual members of the genus. What the factors are that determine this tendency to occupy changing habitats is as yet unknown to the author—one of many ecological problems suggested by the present study.

The members of the section *Oreocarya* are very similar in general appearance. They are usually gray with numerous trichomes and in most cases are beset with harsh bristles that render

[1] Issued October 8, 1927.

[2] Since the receipt of the manuscript of this paper, Dr. Payson passed away on May 15, 1927.

Short-lived perennial; stems few to many, unbranched above the base, rather slender, 15–30 cm. high, rather sparsely but conspicuously setose; leaves narrowly oblanceolate or spatulate, obtuse, 2–4 cm. long, strigose-canescent and setose, pustulate hairs abundant on both surfaces, slightly more numerous on dorsal, petioles ciliate with long, rather weak white hairs; inflorescence mostly confined to the upper ¼ or ½ of the stem, cymes elongating, foliar bracts inconspicuous, inflorescence densely setose with long, white, slender hairs; calyx subtomentose and abundantly setose, sepals in anthesis lanceolate, acute, 4 mm. long, in fruit linear-lanceolate, 7–8 mm. long, exceeding the nutlets by about 5 mm.; corolla white, tube 3–4 mm. long, equalling the sepals in anthesis, crests at the base of the tube well developed and conspicuous, fornices nearly closing the throat, well developed, not over 0.5 mm. long, distinctly papillose, probably yellow, limb about 6 mm. broad, tube and limb subequal, lobes united for ⅓ their length; fruit ovoid, all four nutlets usually maturing, style exceeding the mature nutlets 1–1.5 mm.; nutlets lanceolate, subacute, 3 mm. long, margins in contact, acute, surfaces of nutlets somewhat glossy, the dorsal distinctly rugose with rather distant, low rugae, somewhat tuberculate also, ventral surface only slightly uneven, scar straight, extending from near the base almost to the apex, closed above, slightly open near the base, no elevated margin present.

Distribution: Upper Sonoran Zone, western Utah. Type: Fish Springs, Utah, *M. E. Jones.*

Specimen examined:

Utah: Fish Springs, June 4, 1891, *Jones* (R.Mt., TYPE, Pomona, Calif.).

The most outstanding characteristic of this plant is the smooth inner surfaces of the nutlets. It is to be considered a member of the *spiculifera-interrupta-Sheldonii* group of species.

25. C. interrupta (Greene) new comb. Plate 28, figs. 68–70.

Oreocarya interrupta Greene, Pittonia **3**: 111. 1896.

Long-lived, caespitose perennial; stems few to many from the branching caudex, rather slender, 3–9 dm. high, rather sparsely strigose and setose with slender white trichomes; radical leaves

tufted on the caudices, oblanceolate, obtuse or acute, 3–5 cm. long, the blade tapering gradually to a hispid-ciliate petiole; lower leaf-surfaces rather densely strigose or subtomentose, setose with subappressed and rather inconspicuous bristles, pustulate, upper surfaces more finely strigose and very inconspicuously setose, pustules minute; stem-leaves similar, reduced and narrower upwards; inflorescence densely setose with white hairs, more or less interrupted, narrow cymes somewhat elongating at the top, stems bearing cymes for ½–⅔ of their length; calyx setose, sepals in anthesis about 3 mm. long, linear or linear-lanceolate, in fruit 6–8 mm. long, exceeding the nutlets by 4–5 mm.; corolla white, tube 3 mm. long, equalling the sepals in anthesis, crests at the base of the tube well developed, fornices probably pale yellow, low, scarcely papillose, limb 5–7 mm. broad, tube and limb subequal or the tube slightly longer, lobes united for ⅓ their length; fruit lanceolate-ovoid, 1–4 nutlets maturing, style exceeding the mature nutlets by less than 1 mm.; nutlets lanceolate, obtuse or subacute, 3 mm. long, margins in contact or nearly so, acute, surfaces of nutlets dull or slightly glossy, the dorsal definitely tuberculate with small tubercles, a few of these elongated on some nutlets, but the nutlets only rarely rugose, indefinitely muriculate, especially toward the apex and the margins, ventral surfaces similar but with fewer tubercles and muriculations, scar straight, extending from near the base to near the apex, closed or nearly so, margin not elevated.

Distribution: Upper Sonoran Zone in northeastern Nevada. Type: "in open woods some miles east of Wells," *Greene*.

Specimens examined:

Nevada: Park's Station, 25 miles north of Elko, Aug. 4, 1913, *Hitchcock 1005* (U.S.); Elko, Aug. 2, 1913, *Hitchcock 929* (U.S.); Humboldt Wells, Elko Co., July 28, 1908, *Heller 9185* (Mo., N.Y., U.S., Phila.).

This plant is imperfectly known but is apparently most closely related to *C. spiculifera*. From that species it differs in the less conspicuously setose, broader radical leaves, the tuberculate and not rugose nutlets, and the shorter style. It has not been possible to locate the type but specimens from near the type locality agree very well with the original description and there is probably no

doubt but that the species has been correctly identified. No specimens have been seen that were so high as the plants described by Greene. He says "1½ to 3 feet high." The specimens at hand are all about one foot high.

26. C. spiculifera (Piper) new comb. Plate 28, figs. 71–73.

Oreocarya spiculifera Piper, Contr. U. S. Nat. Herb. **11:** 481. 1906.

O. cilio-hirsuta Nels. & Macbr. Bot. Gaz. **55:** 378. 1913. (Type: *Nelson & Macbride 1799*, Minidoka, Idaho, June 23, 1912.)

Long-lived, caespitose perennial; stems few to many from the base, slender, 15–30 cm. high, strigose, hirsute and setose with long slender white hairs; leaves linear-oblanceolate or linear-spatulate, acute or obtuse, 3–7 cm. long, dorsal surface densely strigose and with rather numerous pustulate, spreading setae, ventral surface densely strigose, sparsely setose with somewhat weaker and more closely appressed pustulate hairs, petioles conspicuously long-ciliate; inflorescence on the upper ½ or ¾ of the stem, densely setose with long, white, slender hairs, cymules somewhat elongating, foliar bracts mostly inconspicuous; calyx strigose and densely setose, sepals in anthesis 4–5 mm. long, linear-lanceolate, in fruit 8–10 mm. long, exceeding the nutlets by 6–7 mm.; corolla white, tube 3–4 mm. long, equalling the sepals in anthesis, crests at the base of the tube evident, fornices well developed, at least 0.5 mm. high, scarcely papillose, pale yellow, limb about 7 mm. broad, tube and limb subequal or the tube slightly longer, lobes united for ¼ their length; fruit ovoid, all four nutlets usually maturing, style exceeding the mature nutlets by about 2 mm.; nutlets lanceolate, acute, 3–4 mm. long, margins usually in contact or nearly so, acute or obtuse, surfaces of nutlets dull, the dorsal definitely but narrowly margined, densely muriculate, rugose and sparsely tuberculate, ventral surfaces densely muriculate, sparsely tuberculate and with a few short rugae, scar straight, extending from near the base to near the apex, narrowly open, no elevated margin present.

Distribution: Upper Sonoran Zone of western Washington and south-central Idaho. Type: "collected at Ritzville, Adams County, by *Sandberg & Leiberg* (*No. 164*), June 6, 1893."