

PITTONIA.

A SERIES OF BOTANICAL PAPERS

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at summit few and long-pedunculate heads: leaves of spatulate-oblanccolate outline, obtuse or acutish, saliently but not runcinately toothed: peduncles and involucre glandular-hispid: slender-fusiform achenes tapering; pappus fine and fragile.

Meadows along the Humboldt River at Deeth and elsewhere in eastern Nevada, thence northward to southern Idaho. Related to *C. runcinata* and *platyphylla*.

CREPIS LANCIFOLIA. Naked and scapiform stems and tufts of radical leaves several from a perennial root: herbage glabrous throughout even to the involucre: leaves 5 to 8 inches long, narrowly oblanceolate, attenuate-acute, entire, with narrow winged petioles: rather large and showy heads forming a somewhat close cymose terminal cluster: bracts of the involucre oblong-lanceolate, very thin and glabrous except at the very tip which is pubescent: achenes not known.

Moist meadows below Marshall Pass, Colorado, 4 Sept. 1896. Also of the group to which *C. runcinata* belongs, but with marked characters of leaf and involucre, and a peculiar mode of growth, the root being surmounted by a short branching caudex.

ALLOCARYA NITENS. Annual, prostrate, very diffusely branched, the slender branches a foot long or more, racemose and leafy or leafy-bracted almost throughout, the foliage and especially the calyx strigose-hispidulous; corolla minute: nutlets $\frac{1}{2}$ line long, ovate, acuminate, obtusely but prominently carinate ventrally down to the narrow supra-basal scar, the back wholly devoid of either rugosities or murication, but marked lengthwise by a low broad median elevation, the whole surface on all sides otherwise smooth and vitreous-shining.

Dry beds of spring pools in meadows of Pine Creek, Nevada, 20 July, 1896. A very strongly marked species by its smooth and polished nutlets.

ALLOCARYA LEPTOCLADA. Annual, prostrate, less diffusely branching than the last, the simple stoutish and somewhat wiry branches commonly more than 2 feet long, leafy at base, loosely floriferous throughout and without bracts: herbage apparently glabrous, but sparsely strigose-hairy under a lens: corollas rather large and showy for the genus: nutlets a line long, straight, lanceolate, the basal scar on a short-stipe, the ventral face carinate, the back muriculate and with a few sharp transverse ridges, these beset with short bristly hairs.

Habitat of the preceding. A species suggesting the Californian *A. stipitata* in the form of its nutlets, and *A. Nelsonii* (Eryth. iii. 48) in the bristly hairiness of the rugæ, otherwise very unlike either. It is by far the largest known species of the genus, a single plant often spreading over five feet of ground.

ALLOCARYA TENERA. Annual, erect, very slender, 3 to 6 inches high, leafy below and with few almost filiform naked racemose branches: herbage pubescent, not at all succulent: calyx very small, the linear segments spreading in fruit: corolla large for the plant: nutlets less than $\frac{1}{2}$ line long, scarcely compressed, slightly incurved, delicately granulate between the rather few thin and delicate transverse rugæ, the ventral face lightly carinate, the back not in the least so.

Adam's Springs, Lake Co., California, July, 1894, Mrs. Emily Booth.

OREOCARYA GLOMERATA (Nutt.), Greene, Pitt. i. 58. This specific type, excellently described by Nuttall originally under *Myosotis*,¹ has come to be very much confused in botanical collections with related but distinct species. Of this condition of things I have become increasingly well aware during the last ten years; and, since the nutlets do not differ strikingly in this aggregate, and since herbarium

¹ Nutt. Gen. i. 112.

specimens very usually fall far short of showing the full characteristics of the vegetative organs, I have deferred from year to year any attempt to segregate the forms; wishing first to use all possible diligence in the field-study of them; and their territory is vast. I have, by using the opportunities afforded by several more seasons of extensive travel, now satisfied myself of the perfect distinctness of those which follow. Nuttall's type is easily distinguished from all the rest by its broad and very obtuse or even retuse radical leaves, its small stature, and simple stem. Its rather elongated and straight nutlets are beset on the back by short and distinct transverse bars, with many intervening tuberculations. Hooker's figure of *Myosotis glomerata* does not represent Nuttall's type, but another species, while his description is evidently drawn from an aggregate of several.

OREOCARYA AFFINIS. Biennial, about a foot high, with the main stem erect, stout, well surpassing the several more slender ascending ones arising from around its base: radical leaves obovate-lanceolate, obtuse, canescent with a subtomentose indument intermixed with long and appressed bristly hairs having a conspicuously pustulate base, the lower cauline twice or thrice larger, green, and, with the stems and inflorescence, hispid: the short axillary forked racemes an inch long or more, forming a subcylindric thyrsus for two-thirds the length of the stem: corolla-tube about equalling the calyx: elongated and somewhat acuminate nutlets covered on the back with low subconic tubercles, or these occasionally somewhat confluent into transverse ridges, a more minute tuberculation or granulation apparent only near the margin.

Sandy hills near Red Buttes, Wyoming, 5 July, 1896. The figure in Hooker's *Flora* (of *Myosotis glomerata*) seems to represent a narrower-leaved form of this, in all save the character of the nutlets.

OREOCARYA THYRSIFLORA. Biennial, erect but seldom simple, the crown of the root usually producing 3 or more equal stout stems a foot high, these leafy toward the base and rather amply thyrsoïd-panicled from below the middle: leaves all oblanceolate, obtuse, strigose-hispid: branches of the inflorescence forked, and with a flower in the fork: calyx hispid and hirsutulous, the segments narrow, not elongated: corolla-tube not exerted, very short: nutlets only $1\frac{1}{2}$ lines long, ovate, obtuse, acutely-margined, dorsally rather sharply but interruptedly rugosa.

Very common on stony hills in southern Wyoming about Cheyenne, Laramie, &c., thence to middle Colorado.

OREOCARYA INTERRUPTA. Perennial, tufted, $1\frac{1}{2}$ to 3 feet high, canescently tomentulose throughout, the stems and stem-leaves, also the calyx, hispidly hirsute: radical leaves oblanceolate, acute, tapering to a broad hispid-ciliate petiole: stem leafy below, above the middle interruptedly floriferous, the inflorescence uninterrupted and thyrsoïd only at summit: calyx elongated, the segments 4 or 5 lines long: corolla smaller than in allied species: nutlets elongated-ovoid, obtuse, dorsally marked by a distinct but little raised median ridge and many low tuberculations seldom approximating the transversely rugose.

This I have not seen in any herbarium; but it was collected by myself in the mountains of eastern Nevada, in July last. It abounds in open woods some miles east of Wells.

OREOCARYA FULVOCANESCENS (Gray), Greene, Pitt. i. 58. The type is Fendler's 632, from the mountains of New Mexico. It has a densely silky-tomentose herbage, only the inflorescence displaying a yellow hispid hairiness; the leaves are linear-spatulate and acute. With this type the plant of Nevada and eastern California, called *Erित्रichium fulvocanescens*, Gray, is not to be confounded. That may be named and characterized as follows:

OREOCARYA HUMILIS. *Eritrichium glomeratum*, var. *humile*, Gray, in part. Perennial, caespitose, 6 to 10 inches high, strigosely hirsute and hispid, with some tomentose pubescence on the lowest leaves, these obovate, obtuse, tapering spatulately to a long slender petiole: flowering stems rather slender, equably floriferous from near the base to the summit, the flowers solitary or few in the axils of leaves and bracts, the whole forming a narrow spiciform thyrsus: corolla-tube scarcely exceeding the long calyx, the hairs of the latter not yellow: nutlets ovate, abruptly narrowed at summit, with an indistinct dorsal ridge, rather densely tuberculate but not rugose.

Frequent in the mountains of Nevada and adjacent eastern California; the Californian plant, as collected by Mr. Sonne, having nutlets nearly twice as large as in the more typical form of eastern Nevada, yet otherwise quite the same.

OREOCARYA NUBIGENA. Apparently perennial and caespitose like the last, with similar foliage and the same harsh bristly pubescence: stems as low, slender, but floriferous only near the summit, and the glomerate inflorescence interrupted: corolla-tube little or not at all exserted: nutlets elongated-ovate, not in the least rugose or granulate but smooth or slightly wrinkled.

On Cloud's Rest, Mariposa Co., California, 10 July, 1889, Messrs. Chesnut & Drew. This has heretofore been listed as *O. leucophæa*, on account of its having smooth nutlets; though in habit, pubescence and form of the corolla, it is as distinct as need be; and, as belonging to the eastern slope of the Sierra Nevada, it is quite outside of the territory of *M. leucophæa*, and under very different climatic influences. The species is much nearer *O. humilis* notwithstanding that its nutlets are so different from those of that group.

OREOCARYA CONFERTIFLORA. Perennial, tufted, the numerous stems from an almost ligneous branching caudex, a foot high or more, leafy up to the strictly terminal dense

and subcapitate cluster of flowers: leaves all lanceolate, acutish, cinereous or subsericeous with a short appressed pubescence, the upper portion of the stem hirsute: corollas very large, the tube much exerted: nutlets sharply ovate-trigonal, smooth and polished.

At Cushenberry Springs, on the north side of the San Bernardino Mountains, southern California, S. B. Parish: specimens distributed for *O. leucophæa*, from which the species is abundantly distinct not only by its short almost capitate inflorescence, but much more by the entirely different achenes; these in *O. leucophæa* forming collectively a conical fruit, while in the present species the nutlet is as broad as high, and the four of them combine to form a depressed-globose or almost hemispherical fruit. It is indeed quite such a fruit as that of the succeeding group of species, and very far from that of *O. leucophæa* and its near relatives.

O. suffruticosa (Torr.), Greene, Pitt. i. 57. Low, much-branched perennial, with rigid and brittle stems decumbent at base or to the middle; leaves small, linear-lanceolate: terminal and subterminal geminate spikes with fruiting calyces very distinctly biserial: calyx-lobes ovate-lanceolate: nutlets rather narrowly ovate-trigonal, not strongly depressed or incurved, the polished surface red-brown dotted with many white spots, these slightly elevated and suggestive of tuberculation.

Species peculiar to the elevated plains of the Platte—including the whole region of high country intervening between the various branches of that river—throughout southeastern Wyoming, and to middle Colorado east of the mountains. On passing from middle to southern Colorado, one meets in the valley of the Arkansas with the following:

OREOCARYA CINEREA. Perennial, tufted, but the slender and flexible stems erect, simple, 8 or 10 inches high, leafy throughout, floriferous only near the summit: leaves elongated, linear-lanceolate, obtuse, cinereous on both sides with

a minute short, straight and closely appressed pubescence; the stem and inflorescence hirsute: calyx short, its lobes broadly ovate-lanceolate: nutlets as in the last as to form, but wholly light-gray, smooth.

Confined, as far as I know, to the Arkansas Valley, in southern Colorado, where it occupies low subsaline clayey soils, being associated with such local species as *Frankenia Jamesii*, *Oenopsis foliosa* and certain shrubby chenopodiaceous plants.

OREOCARYA MULTICAULIS. *Eritrichium multicaule*, Torr. Marcy's Report, 262 (as a synonym under *E. Jamesii*). Tufted perennial, twice or thrice as tall as the preceding, far less leafy, the stems stout and rigid, bearing more numerous and elongated spikes at and near the summit: leaves rather broadly oblanceolate; pubescence dense and somewhat tomentose: spikes appearing uniserial and unilateral: nutlets as in the last very smooth and shining.

Frequent in the mountains of northern New Mexico and Arizona; the type Fendler's n. 636, forming a part of Dr. Gray's *Eritrichium* and *Krynitzkia Jamesii*. A similar plant of western Texas may or may not be specifically identical with it.

OREOCARYA ABORTIVA. Perennial, freely branching from the base, the short rather flaccid branches almost prostrate, 3 to 5 inches long, leafy and floriferous throughout: herbage somewhat silvery-silky, altogether destitute of other pubescence, except that the calyces and pedicels are finely and densely tomentose: leaves oblanceolate: calyx short, its lobes ovate-lanceolate: corolla-tube not exerted: nutlets usually solitary (3 of the ovaries abortive), strongly inflexed, the lateral outline subreniform with a stout stipe-like projection from near the middle of the ventral edge, the dorsal side polished and shining, smooth up and down the middle, but granulate along the very acute margins.

Bear Valley, San Bernardino Mountains, California, S. B. Parish; the specimens distributed as "*Krynitzkia Jamesii*," but representing a most distinct new *Oreocarya* with very peculiar fruit; in habit also decidedly unlike any other species at present known.

ALISMA VALIDUM. Annual, stout and low, the scape and inflorescence seldom a foot high and little surpassing the leaves; root a dense tuft of almost filiform fibres: leaves narrowly elliptic-lanceolate, very acute, 5-nerved, 2 to 3 inches long, firm and firmly erect on the stout elongated petioles: branches of the panicle short: petals very small, pale rose-color: achenes about 15 in the whorl, very broadly semi-obcordate, rather thick, the short style appearing as if lateral, being about midway between the base and the apparent summit of the achene.

Muddy margins of pools near Palisade, Nevada, July, 1893 and 1896. The only *Alisma* seen by me in any part of the Humboldt River region; and entirely unlike *A. Plantago aquatica* both in vegetative and fruit characters.

RIBES COGNATUM. Shrub evidently large, and the branches not rigid; younger branches stiffly and densely setose-hispid, the 1 to 3 subaxillary spines short, not very stout: leaves, and especially the long and slender petioles, villous-pubescent: flowers 3 to 5, at the ends of long and slender pendulous peduncles: calyx salverform, the long cylindrical tube villous-pubescent, twice the length of the oblong segments, the whole apparently pale flesh-color: petals spatulate-obovate, truncate or retuse, not equalling the calyx-segments: bracts of the raceme rounded or subreniform, glandular-ciliolate: ovaries glabrous.

River banks at Pendleton, Oregon, 17 May, 1896, Mr. Thomas Howell. *R. leptanthum* is the nearest relative of this.