

tis); corolla subtrotata cærulescente, appendicibus brevibus obtusissimis; capsula in exemplo abortu monosperma oblonga acutiuscula (lineam longa) calycem haud superante; semine subrugoso.—California, in Fresno Co., 1881, *Parry*. The species of this group are not very clearly defined; but no one has a foliaceous calyx of this fashion. The expanded corolla is barely 4 lines in diameter. The fruiting calyx does not exceed 2 lines in length; and the one or two quasi-petiolate lobes are a line in breadth.

*ERIODICTYON ANGUSTIFOLIUM*, Nutt., var. *PUBENS*. Foliis sæpe latiuscule lanceolatis haud lucidis supra puberulis subtus tomentulosi; ramulis pube brevi et calycibus villo denso indutis. — San Bernardino Co., California, 1881, *S. B. & W. F. Parish, Parry*. With the foliage of *E. glutinosum* as to shape, and a pubescence which makes some approach to that of *E. tomentosum*, this has the short and nearly campanulate corolla of *E. angustifolium*, to which it is accordingly referred.\*

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\* *Revision of the Racemose Basi-bracteate Species of ECHINOSPERMUM, in Correction of the Syn. Flora of N. America, ii. p. 189.*

1. Very loosely and small-flowered biennials, or perhaps sometimes annuals: corolla and nutlets not over 2 lines broad or long; leaves thin and green.

*E. VIRGINICUM*, Lehm. Nutlets of the globose fruit equally short-glochidiate over the whole back.

*E. PINETORUM*, E. L. Greene, in herb. Cauline leaves small, narrowly oblong, mostly obtuse: racemes erect and simple: nutlets only marginally glochidiate with flattened prickles, but the flat or concave ovate dorsal disk glochidiate muriculate. — New Mexico, on the Pinos Altos Mountains, July & Sept. 1880, *E. L. Greene*.

*E. DEFLEXUM*, Lehm. Nutlets only marginally glochidiate, with the dorsal disk minutely scabrous: in var. *AMERICANUM* (which makes some approach to *E. Virginicum*) the somewhat more granulate dorsal disk not rarely bears two or three small glochidiate prickles on an obscure midnerve!

2. More or less larger- and less loosely-flowered: racemes usually paniculate: tube of the corolla not at all or only slightly surpassing the calyx: glochidiate prickles either wanting on the back of the nutlets or shorter and smaller than those of the margin.

\* Biennials: dorsal disk of the nutlets wholly unarmed, granulate-scabrous.

*E. URSINUM*, E. L. Greene, in herb. Hispidulous or hispid on the stem and leaves, stout: nutlets small (2 lines long), with broadly ovate dorsal disk plane or nearly so, the subulate flattened marginal prickles short. — New Mexico, on gravel beds of Bear Cañon in the Bear Mountains, New Mexico, 1880, *E. L. Greene*. To this, in flower only, evidently belongs no. 633, *Fendler*, N. Mexican Coll., which had been referred to the next species.

*E. FLORIBUNDUM*, Lehm. Pubescent, rather strict: nutlets larger, with

ERITRICHIMUM INTERMEDIUM. *E. Krynitzkia*, *E. muriculato* affine, admodum varians; nuculis ovato-lanceolatis (ex ovata sursum sensim

ovate-deltoid dorsal disk more or less carinately one-nerved, margined by a series of long flat subulate prickles. — The syn. "*E. subdecurvens*, Parry, &c," to be excluded, as it belongs, along with many of the specimens referred here, to the next species. Corolla commonly 3 lines in diameter.

\* \* Perennials, larger-flowered (corolla usually 5 lines in diameter): dorsal disk of the nutlets sparsely armed with much shorter and smaller glochidiate prickles than the flattened and basally dilated marginal ones.

*E. DIFFUSUM*, Lehm. Pubescent and often canescent with soft hairs or with leaves hispidulous, branched from the base: pedicels usually slender: nutlets with broadly ovate dorsal disk; the ventral face roughish and dull; the marginal prickles as in *E. floribundum*: but mature fruit not seen. — Lehm. Pug. ii. 23; Hook, Fl. Bor.-Am. ii. 83, not Gray, Syn. Fl., in which this species is mixed with *E. floribundum*. *Rochelia patens*, Nutt. Jour. Acad. Philad. vii. 41. *Echinosperrnum subdecumbens*, Parry in Proc. Davenport Acad. i. 48. Douglas's plant, on which the species was founded by Lehmann, is a low and leafy form, quite cinereous, with altogether immature fruit. When well known it may give characters specifically to distinguish the following:

Var. *HISPIDUM*. Stem and leaves truly hispid: nutlets broadly ovate (3 lines long), with marginal prickles completely confluent for more than half their length into a wing, the ventral face very smooth and lucid. — Eastern Oregon, on rocky hills and gravelly banks, *Cusick*, 1880 and 1881; and near Boise City, Idaho, *Dr. T. E. Wilcox*, 1881.

\* \* \* Perennial, with simple stems from a multicapital caudex, comparatively large-flowered (limb of the nearly rotate corolla half an inch in diameter), linear-leaved, sericeous: fruit wholly unknown; probably of this genus.

*E. CILIATUM*. *Cynoglossum ciliatum*, Dougl. in herb. Hook.; Lehm. Pug. & Hook. Fl. l. c. 85. — Douglas's station noted in herb. Hook. is "On the gravelly banks of mountain streams near the head-springs of the Columbia; in herb. Benth. Kettle Falls and Spokane River, 1826." The fruit is a great desideratum. *Cynoglossum Howardi*, with which it was rightly associated in the Syn. Flora, p. 188, is evidently only a dwarf and probably alpine variety of the same species, in which the sericeous hirsute pubescence is all still appressed. In the plant of Douglas spreading and more bristly hairs fringe the margins of the leaves with a kind of ciliation, and there are similar spreading or reflexed bristles on the lower part of the stem. This is a foot or so in height.

3. Comparatively large-flowered, perennial, with tube of the corolla surpassing the calyx and about the length of the lobes: nutlets of the globose fruit equably armed over the whole surface and margins with long and slender but flattish minutely glochidiate prickles.

*E. CALIFORNICUM*. *E. diffusum*, Gray, Syn. Fl. l. c. (excluding small-flowered specimens which belong to the true *E. diffusum*, and excl. syn. Kellogg?) not of Lehm. — Sierra Nevada, California, from Mount Shasta southward. This was

ad apicem attenuatis nunc valde papilloso-muricatis; ab *E. barbiger* differt calyce sæpius dimidio minore haud villosa; nuculis sæpius 4 fertilibus. — Southern part of California (from Los Angeles, *Nevin*, &c.) to adjacent Arizona. Not uncommon in collections, has been confounded at times with both of the two species mentioned: if it should pass into *E. muriculatum*, the character of that species would require much extension. It has been collected by *Parry*, *Lemmon*, *Parish*, *Cleveland*, &c.

ERITRICHIMUM RACEMOSUM, Watson in herb. *Krynitzkia*, *Pseudo-Myosotis*, e basi lignescente perenne, ramosissimum, setis rigidis subsparis hispidum; foliis linearibus parvulis; floribus racemoso-paniculatis sparsis, nonnullis folioso-bracteatis; pedicellis flori subæquilongis; calyce setis rectis patentissimis rigidis instructo, segmentis lanceolatis acutis tubo corollæ albæ breviter hypocateriformis brevioribus; nucula fertili sæpius unica (fere lineam longa) e basi lata sursum angustata dorso parce muriculata intus sulco sursum angustato tota longitudine gynobasi subulata in stylum sat gracilem producta adnato. — Mesquite Cañon, San Bernardino Co., California, March, 1881, *S. B. & W. F. Parish*. The calyx and pedicel appear to be persistent.\*

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taken for Lehmann's *E. diffusum*, because of his description of the corolla ("Corolla alba? magna, tubus calyce paullo longior sensim ampliatus"); and Californian specimens of the real *E. diffusum* were mixed with it. The original specimens of the latter do not have the exerted tube of the corolla which marks the present species when in blossom, as does the fruit at maturity. It is the *E. nervosum* of Kellogg; but neither the leaves nor the sepals are perceptibly nervose (the former not "3-5-nerved" nor the latter "3-nerved"), so that the name would be a false one.

\*.\* *E. Mexicanum*, Hemsl. (*Cynoglossum Mexicanum*, Schlecht, in Linnæa, & DC. Prodr. x. 156), is an apparently biennial species with slender prickles covering the whole surface of the fruit, but with corolla-tube not exceeding the calyx.

#### \* ERITRICHIMUM, § PLAGIOBOTHRYIS.

Good specimens and careful notes, kindly communicated by the Rev. J. C. Nevin of Los Angeles, and a consequent re-examination, enable me to distinguish the species of the first subdivision in the Syn. Fl. N. Amer. (p. 192) more clearly than is done in that work. It will be seen that one of them requires a change of name.

*E. FULVUM*, A. DC., the *Myosotis fulva*, Hook. & Arn. Bot. Beechey, p. 38, and I suppose *Plagiobothrys rufescens*, Fischer & Meyer, as appears from the habitat, were all founded on the Chilian plant. My specimens of this, from Bertero's

**LITHOSPERMUM (RHYTISPERMUM) GLABRUM.** Humile, e radice annua ramosum, læve, præter pube parca adpressa minuta glaberrimum; foliis spathulato-linearibus; bracteis inflorescentiæ spiciformis densifloræ demum elongatæ nullis; floribus fere sessilibus; calycis segmentis subspathulato-linearibus foliaceis corollæ albæ æquilongis, fructiferis costa inferne valde incrassata indurata; nuculis oblongo-ovatis subtriquetris fere lævibus opacis, areola basilari haud magna. — Apache Pass, S. Arizona, *Lemmon*, 1881. A singular species of Old-World type, somewhat like *L. incrassatum* of Gussone; the base of the calyx and its exceedingly short pedicel similarly thickened and indurated after flowering; but the flowers are not accompanied by bracts, the nutlets are narrower, slightly contracted at base and with less dilated areola of insertion, and quite inclosed in the indurated base of the calyx.

**JACQUEMONTIA PRINGLEI.** *J. abutiloidei* affinis, facie *Abutili*, erecto-diffusa e basi frutescente, haud volubilis; foliis cordatis breviter acuteque acuminatis integerrimis utrinque cum ramis canescenti-

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and from C. Gay's collection, although destitute of good fruit, plainly differ from the North American species. The calyx is 5-parted all but to the base into linear lobes. There is no evidence that it connives over the fruit, and it seems that it cannot be circumscissile.

**E. NOTROFULVUM**, of California and Oregon, the *Myosotis fulva*, Hook. Bot. Beechey, Suppl. p. 369 (that of Hook. Fl. Bor.-Am. is probably *E. tenellum*, Gray), *E. fulvum*, A. DC. as to Calif. plant; Gray, Proc. Am. Acad. x. 57, &c. Erect from a rosulate tuft of thinnish radical leaves; the slender comparatively simple stems reaching a foot or two in height: spikes ebracteate except sometimes at base: calyx 5-cleft barely to the middle into oblong-lanceolate and hardly at all accrescent lobes, closely connivent over the fruit, promptly circumscissile above the base. The pubescence of the calyx, although generally rufous, is often whitish.

**E. CANESCENS**, Gray, l. c. Diffusely spreading or depressed, or sometimes ascending, more canescently hirsute, but the tips of the calyx at first not rarely rufous: leaves of firmer texture: spikes bracteate below and sometimes throughout: calyx 5-parted (fully two thirds to the base); the lobes broadly triangular-lanceolate or broader, accrescent, open in fruit, tardily when at all circumscissile close to the base.

**Var. ARIZONICUM**, Greener, more hirsute or hispid, with somewhat the aspect but not the fruit of *E. Torreyi*: corolla smaller, sometimes with a tinge of rose-color: calyx less accrescent: rugæ of the nutlets rather sharper and towards the sides rising sometimes into elevated points or tubercles. — Arizona, *Greene*, *Pringle* S. Utah, *Marcus Jones*. An intermediate form, collected on the Mesas near San Bernardino by the *Brothers Parish*, has soft-hirsute pubescence, softer leaves, the upper ones forming conspicuous bracts to the loose spikes, and very accrescent mostly wide-open calyx.