

9 **Anagallis** Corolla completely rotate, 5-parted.

10 **Centunculus** Corolla with a globular tube and 4-5-lobed limb, shorter than the calyx.

TRIBE II. Ovary connate at base with the base of the calyx.

11 **Samolus** Leaves alternate: flowers 5-merous: corolla nearly campanulate: capsule 5-valved at the apex.

Tribe 1 Primulæ Endl. Gen. 730. Ovary wholly free: ovules fixed by the middle amphitropous or half anatropous.

§ *Scapigerous or tufted. Flowers chiefly 5-merous, umbellate or solitary: lobes of the corolla imbricated in bud. Capsule dehiscent by valves sometimes obscurely so.*

* *Stamens connivent in a cone around the style, monadelphous*

1 DODECATHEON L. Gen. n, 200.

Low acaulescent perennial herbs with entire leaves and few or numerous flowers in an umbel terminating a naked scape. Calyx deeply 5-lobed, the lobes reflexed in flower, erect in fruit. Corolla 5-parted, with very short tube and dilated thickened throat, the long and narrow divisions reflexed. Stamens inserted on the throat of the corolla: filaments short and flat, monadelphous, but separable in age. Style filiform, exserted: stigma small. Placenta columnar, many-ovuled.

* Filaments distinct.

D. dentatum Hook. Fl. ii, 119. Glabrous throughout: leaves ovate, the blade 2-4 inches long by 1-2 inches broad, irregularly dentate, usually abruptly contracted below to a margined petiole nearly as long as the blade: scapes 4-8 inches long, few-flowered: involucre bracts linear, acuminate: calyx lobes triangular, acuminate, a line or more long: lobes of the corolla white with two purple spots at the base of each, linear-oblong, obtuse, 4-6 lines long: filaments very short; anthers linear-lanceolate, 2-toothed at the apex, brownish-red: capsule but little longer than the calyx, early opening from the apex by valves: seeds flat. In wet places on the bluffs of the Columbia river, and in Idaho.

D. campestrum. Glabrous throughout: leaves oblong, obtuse or acutish, 1-2 inches long, tapering below to a broad petiole: scapes 3-6 inches high, 1-3-flowered: involucre bracts lanceolate, acuminate, 1-3 lines long: pedicels 4-6 lines long: calyx-lobes lanceolate, acute, 2 lines long: lobes of the corolla narrowly oblong, abruptly narrowed near the apex, 6-7 lines long, a line or more broad, pink above, with blue centre and white base: filaments very short, anthers linear-oblong, obtuse, pink with dark purple base: capsule oblong, opening by persistent valves. In prairies on the Klickitat hills, Klickitat Co. Washington.

* * Filaments more or less joined together into a tube:

+ Capsule opening by an operculate tip.

D. viviparum Greene Eryth. iii, 38. "Rootstock stout, horizontal or ascending short, simple or with a few branches, bearing coarse white fibrous roots beneath, and rather large bulblets above: leaves 6-10 inches long, oblong-lanceolate, tapering to a winged petiole, acute or obtuse at apex, the whole margin coarsely and regularly but not deeply crenate,

with a callous point in each sinus, or the crenation reduced to the callous point only: scapes 10-20 inches high, stout, bearing a many-flowered umbel: the stoutish pedicels and deeply parted calyx somewhat glandular-pubescent: flowers deep purple throughout: stamens distinct to the very base: capsule ovate-oblong, coriaceous, circumscissile near the apex, afterwards parting into 10 valves whose tips are closely recurved. At and a little below the limit of trees on Mount Rainier Washington."

D. tetrandrum Suksdorf, Greene l. c. 40. Glabrous, or the inflorescence minutely glandular: leaves spatulate to lanceolate or oblanceolate, 3-12 inches long by 1-2 inches broad, tapering below to a winged petiole: scapes stout, 6-20 inches high: umbel few to many-flowered: involucre bracts setaceous: pedicels 1-3 inches long, enlarging at the summit: flowers mostly 4-merous: calyx-lobes lanceolate, acuminate, 3 lines long: corolla purplish with a yellow ring near the base, its lobes lanceolate, acute, 6-8 lines long: staminal tube very short; anthers linear-oblong, obtuse, dark purple: capsule surpassing the calyx, circumscissile very near the apex, then splitting into 10 short recurving valves: seeds oblong, flat, with a marginal wing all around. In wet places in the Cascade Mountains.

D. Jeffreyi Moore in Van Houtte Fl. des Serres xvi, 99, t. 1662. Glabrous except the hirsute and glandular inflorescence: leaves oblanceolate, erect, 5-10 inches long, entire, acutish, mucronate: scapes 12-18 inches high: umbel many-flowered: segments of the corolla ample, deep red-purple: stamens dark purple, usually only 4; anthers emarginate: style very distinctly hispidulous: capsule not surpassing the calyx, opening by valves from the very apex. In wet places in the mountains of eastern Oregon and California.

D. alpinum Greene l. c. *D. meadia* var. *alpina* Gray. Glabrous throughout: leaves oblong-lanceolate to spatulate, obtuse, 1-3 inches long, tapering below to a short petiole: scape 4-10 inches high 1 to several-flowered: involucre bracts lanceolate, acute, 1-2 lines long: lobes of the calyx about as long as the tube, narrowly lanceolate: corolla-lobes narrowly oblong abruptly contracted near the apex, 6-8 lines long, purple with brownish-yellow base: staminal tube very dark, a line long: anthers oblong, often apiculate. On wet banks and margin of lakes, Washington to California.

D. conjugens Greene Eryth. iii, 40. "Short crown with a dense fascicle of fleshy fibrous roots that are deciduous from it after the flowering: whole plant glabrous: leaves obovoid and elliptic, 2 to 5 inches long including the distinct petiole, obtuse, entire: scape stoutish 3 to 8 inches high: umbel few-flowered; flowers large, 4-merous, rarely 6-merous: corolla deep purple, varying to rose-red and to white: anthers distinct, obtuse, the connective lanceolate, acuminate to a linear point, delicately rugulose throughout all but the linear tip: fruit unknown. Dry hills, southeastern Oregon and Montana.

D. Hendersoni Gray Bot. Gaz. xi, 235. Glabrous throughout or the inflorescence minutely glandular: leaves elliptical to obovate, 1 inch or more long narrowed below to a short petiole: scape 4-16 inches high, rather few-flowered: involucre bracts triangular, acuminate: calyx-lobes triangular, acuminate, twice as long as the short tube: corolla-lobes dark purple with yellowish base: staminal tube a line long, dark purple: anthers oblong, obtuse, short-apiculate: capsule ovoid, much longer than the calyx, opening by a flat operculum and splitting downward into 10 valves: seeds globular, minutely tuberculate. Common throughout the Willamette Valley and into California.

+ + Capsule dehiscing by valves from the apex.

D. paniculatum Greene Pitt. ii, 72. Glabrous throughout: leaves

$\frac{1}{4}$ – $\frac{1}{3}$ as long as the scape: involucre bracts lanceolate: segments of the corolla rich lilac-purple the undivided part yellow, with a scalloped ring of deep purple midway between the base of the segments and the stamen tube: stamen-tube often nearly as long as the anthers, yellow: anthers purple: capsule crustaceous, 6 lines long, nearly cylindrical, acute, opening by 5 short teeth. At middle elevations, eastern Oregon to the Rocky Mountains and New Mexico.

D. Cusickii Greene l. c. More or less pubescent and glandular: leaves broadly to narrowly lanceolate, entire, or dentate toward the apex, usually obtuse, 1–2 inches long, narrowed below to a winged petiole: scapes 3–4 inches high, few-flowered: bracts of the involucre narrowly lanceolate, 1–2 lines long: lobes of the calyx lanceolate, acute, but little longer than the tube: corolla-lobes dark purple with yellow base and a dark purple line at the mouth of the tube: stamen tube less than a line long, almost black: anthers yellow with a black stripe through the centre: capsule ovoid, acute, scarcely surpassing the calyx, 5-valved from the apex. Dry hillsides, eastern Oregon and Brit. Columbia.

* * *Corolla salverform or funnelform: stamens included, distinct, with short filaments and short blunt anthers.*

2 PRIMULA L. Gen. n. 197.

Perennial scapose herbs with all radical leaves and large or small flowers umbellate or in involucre or bracted racemose whorls at the summit of a scape. Calyx tubular, funnelform or campanulate, persistent, often angled, 5-lobed, the lobes imbricated. Corolla funnelform or salverform, the tube longer than or at least equalling the calyx. Stamens 5, distinct, inserted on the tube or at the throat of the corolla. Style filiform: stigma capitate. Capsule 5-valved at the summit, many-seeded. Seeds peltate: the testa punctate.

P. Broadheadæ Jones Zoe iii, 306. “2 to 4 inches high; 1 to 4 flowered; scape 2 to 4 inches long; leaves 1 to 4 inches long, narrowly elliptical rounded at apex, glabrous, rather thick, smooth, entire, narrowed at base to a winged petiole an inch or less long; flowers purple, about 5 lines wide, lobes orbicular or nearly so, notched, with a very short claw 2 lines long, tube exceeding the calyx by 2 lines; funnelform above the calyx; calyx-lobes $1\frac{1}{2}$ lines long and subulate lanceolate, barely acute, equalling the tube of the calyx; pod nearly spherical; pedicels of the lateral flowers about a line long, the terminal one 2 to 6 lines long; bracts oblong to ovate lanceolate, entire or toothed at apex, 1 to 6 lines long; base of plant covered with the dead sheaths of former leaves. Marshy places at Ketchum Idaho.”

Var. minor Jones l. c. “Leaves an inch long or less, elliptical oblanceolate and acute, thin: lobes of the corolla as large as the type, but obovate; lobes of the calyx longer than the tube; flowers 1 to 2 on the scape; bracts long; plant 2 inches high. Bayhorse Idaho.

P. Cusickiana Gray Syn. Fl. Supp. 399. Leaves oblong-spatulate or narrower, 2 inches long, entire, or rarely denticulate: scapes 2–6 inches high, 1–4-flowered: involucre of 2 or 3 conspicuous unequal bracts: calyx green with a whitish line down from the sinuses of the campanulate tube; its lobes from lanceolate to subulate, about the length of the tube and nearly equalling the tube of the corolla: lobes of the corolla retuse. On rocky hillsides, Union Co. Oregon.