

RANGE: Washington and Idaho to California and Nevada.

SPECIMENS EXAMINED: Wenache, *Whited* 1156; Ellensburg, *Whited* 665; North Yakima *Watt*, August, 1895; Pasco, *Elmer* 1057; *Piper*, July 11, 1897; Waitsburg, *Horner* 584; Wawawai, *Piper* 1546; without locality, *Vasey* in 1889; Prosser, *Cotton* 807.

ZONAL DISTRIBUTION: Upper Sonoran.

12. *Eriogonum baileyi* S. Wats. Proc. Am. Acad. 10: 348. 1875.

TYPE LOCALITY: Northwestern Nevada. Collected by W. W. Bailey.

RANGE: Washington to Arizona and Utah.

SPECIMENS EXAMINED: Yakima, *Howell* in 1877; *Vasey* 147.

ZONAL DISTRIBUTION: Upper Sonoran.

13. *Eriogonum minimum* Small, Bull. Torr. Club 25: 47. 1898.

TYPE LOCALITY: Cascade Mountains, Washington. Collected by Brandegee, probably on Mount Stuart.

RANGE: Known only by the type specimen.

SPECIMENS EXAMINED: Cascade Mountains, *Brandegee* 372.

14. *Eriogonum douglasii* Benth. in DC. Prod. 14: 9. 1856.

TYPE LOCALITY: "In montibus Coeruleis. Gairdner! Douglas!"

RANGE: Washington to California.

SPECIMENS EXAMINED: Wenache Mountains, *Elmer* 461; *Whited* 101; Ellensburg, *Whited* 355, 642, 100; *Piper* 2706; North Yakima, *Steinweg* in 1894; Tampico, *Flett* 1051; mountains between Ellensburg and Wenache, *Whited* 725; without locality, *Vasey* in 1889; Wenache Mountains, *Griffiths & Cotton* 118; *Cotton* 1297.

ZONAL DISTRIBUTION: Arid Transition.

14a. *Eriogonum douglasii ramosum* subsp. nov.

Differs from the typical form in that the umbel is compound.

Foothills east of Ellensburg, *Whited* 643.

15. *Eriogonum sphaerocephalum* Dougl.; Benth. Trans. Linn. Soc. 17: 407. 1837.

TYPE LOCALITY: "Columbia River." Collected by Douglas.

RANGE: Eastern Washington to California and Nevada.

SPECIMENS EXAMINED: Ellensburg, *Elmer* 1083; Wenache, *Whited* 724, 1278; Yakima River, *Wilkes Expedition* 936; Tampico, *Flett* 1054; Simcoe Valley, *Lyall* in 1860; Crab Creek, *Suksdorf* 435; Wilson and Crab creeks, *Sandberg & Leiberg* 319; without locality, *Douglas*; Coulee City, *Piper* 3842; Rattlesnake Mountains, *Cotton* 704; Umtanum Creek, *Cotton* 814.

ZONAL DISTRIBUTION: Upper Sonoran.

15a. *Eriogonum sphaerocephalum tenue* (Small).

Eriogonum tenue Small, Bull. Torr. Club 25: 41. 1898.

TYPE LOCALITY: West Klickitat County, Washington. Collected by *Suksdorf*.

RANGE: Eastern Washington and perhaps eastern Oregon.

SPECIMENS EXAMINED: West Klickitat County, *Suksdorf* 433, 307, 434, 694; eastern Washington, *Hilgard* in 1882; Coulee City, *Henderson*, July 11, 1892; Wilson Creek, *Lake & Hull* 672.

ZONAL DISTRIBUTION: Upper Sonoran.

16. *Eriogonum thymoides* Benth. in DC. Prod. 14: 9. 1856-7.

TYPE LOCALITY: "Ad fl. Spokane in regione Oregon superioris." Collected by the *Wilkes Expedition*.

RANGE: Washington and Oregon.

SPECIMENS EXAMINED: Wenache, *Whited* 76, 33, 1091; Ellensburg, *Whited* 648; *Piper* 2710; North Yakima, *Henderson*, May 2 and 26, 1892; *Steinweg* in 1894; Rattlesnake Mountains, *Cotton* 361, 362; Pasco, *Hindshaw* 10; Bickleton, *Suksdorf* 432; Goldendale,

1. *Delphinium scopulorum stachydeum* A. Gray, Bot. Gaz. 12: 52. 1887.
 TYPE LOCALITY: "Interior of Oregon." Collected by Cusick.
 RANGE: Washington to New Mexico and Arizona.
 SPECIMENS EXAMINED: Wenache Mountains, *Whited* 1264.
- 1a. *Delphinium scopulorum subalpinum* A. Gray, Bot. Gaz. 12: 52. 1887.
 TYPE LOCALITY: "Headwaters of Clear Creek, Colorado."
 RANGE: Blue Mountains to Colorado and New Mexico.
 SPECIMENS EXAMINED: Blue Mountains, *Horner* 267; *Piper* 2442.
 ZONAL DISTRIBUTION: Hudsonian.
- 1b. *Delphinium scopulorum glaucum* A. Gray, Bot. Gaz. 12: 52. 1887.
Delphinium glaucum Wats. Bot. Cal. 2: 427. 1880.
 TYPE LOCALITY: "Big Tree Road," California. Collected by Brewer.
 RANGE: Alaska to California.
 SPECIMENS EXAMINED: Olympic Mountains, *Piper*, August, 1895; *Elmer* 2677; Mount
 Rainier, *Piper*, August, 1888; Nisqually Valley, *Allen* 248; Yakima County, *Brandegee* 615.
 ZONAL DISTRIBUTION: Hudsonian.
2. *Delphinium viridescens* Leiberg, Proc. Biol. Soc. Wash. 11: 39. 1897.
 TYPE LOCALITY: Near Peshastin, Washington.
 RANGE: Chelan County, Washington.
 SPECIMENS EXAMINED: Wenache Valley, *Sandberg & Leiberg* 563; Leavenworth, *Whited*
 2556.
 ZONAL DISTRIBUTION: Canadian.
3. *Delphinium bicolor* Nutt. Journ. Acad. Phila. 7: 10. 1834.
Delphinium glareosum Greene, Pittonia 3: 257. 1896.
Delphinium bicolor glareosum Davis, Minn. Bot. Studies, 2: 439. 1900.
 TYPE LOCALITY: "On dry hills, near Flathead or Sailish River, toward the south sources
 of the Columbia." Collected by Wyeth.
 RANGE: British Columbia to Utah and Montana.
 SPECIMENS EXAMINED: Goat Mountain, *Allen* 146; Olympic Mountains, *Piper*, August,
 1895; *Elmer* 2665; *Flett* 81.
4. *Delphinium xantholeucum* sp. nov.
 Perennial from thick elongate black roots 5 to 10 cm. long; stems 60 to 80 cm. high,
 glabrous and glaucous up to the inflorescence; leaf blades orbicular in outline, thickish,
 glabrous and glaucous, 2 to 8 cm. broad, parted nearly to the base into 5 cuneate segments,
 these deeply 2 to 3-cleft into linear lobes; petioles glabrous and glaucous, 2 to 3 times as
 long as the blades; bracts narrowly linear, or the lowest cuneate and 2 or 3-cleft; inflore-
 scence viscid-pubescent, very loose, 15 to 40 cm. long; pedicels curved, spreading, the lower
 5 cm. or more long; flowers pale yellow, the sepals greenish and viscid pubescent outside;
 sepals and petals 10 to 12 mm. long, the stout straight spur 15 mm. long; lateral petals
 white-bearded; filaments blue-veined; follicles 3, straight, erect, reticulate-veined, hairy,
 10 to 15 mm. long; seeds dark-colored, the angles produced into white scarios wings.
 Related to *D. bicolor* Nutt., but a larger plant, with constantly pale yellowish flowers,
 and the whole inflorescence viscid-pubescent even to the pods.
 Collected by Kirk *Whited* at Wenache, Wash., May 14, 1899, in flower; May 24, 1899, in
 fruit; also by G. R. Vasey in 1889, no locality indicated.
5. *Delphinium menziesii* DC. Syst. 1: 355. 1818.
Delphinium pauperculum Greene, Pittonia 1: 284. 1889.
 TYPE LOCALITY: "Hab. in Nova-Georgia." Collected by Menzies.
 RANGE: British Columbia to California and Idaho.
 SPECIMENS EXAMINED: Whidby Island, *Gardner* 9; Drayton Harbor, *Lyall*, May 3, 1858;
 Cascade Mountains, latitude 49°, *Lyall* in 1859; Kickitat River, *Flett* 1269; Falcon Valley,

RANGE: Washington to Montana and Colorado.

SPECIMENS EXAMINED: Mount Rainier, *Allen*, August 20, 1895.

6. *Saxifraga mertensiana* Bong. Mem. Acad. St. Petersb. VI. 2: 141. 1832.

Saxifraga heterantha Hook. Fl. Bor. Am. 1: 252. 1833.

TYPE LOCALITY: "Sitcha," Alaska.

RANGE: Alaska to Idaho and the Blue Mountains; north California.

SPECIMENS EXAMINED: Clallam County, *Elmer* 2643; Chehalis County, *Lamb* 1348; Cascade Mountains, latitude 49°, *Lyall* in 1859; Mount Rainier, *Allen* 17; Goat Mountain, *Allen* 241; Falcon Valley, *Suksdorf* 14; rocks of the Columbia, *Nuttall*; Blue Mountains, *Horner*; Cape Disappointment, *Scouler*.

ZONAL DISTRIBUTION: Canadian.

Small α considers that two species have been confused under the above, which he distinguishes as *Heterisia mertensiana* and *H. eastwoodiae*, the former with bulblets in the inflorescence, the latter without. Both occur in Washington, and careful field study is needed to determine if the character relied upon is really specific.

7. *Saxifraga odontophylla* sp. nov.

Perennial by stout rootstocks, not bulbous, entirely glabrous up to the inflorescence; leaves all basal, reniform-orbicular, somewhat fleshy, coarsely and evenly dentate with 15 to 25 teeth, 2 to 8 cm. broad; petioles usually 2 to 3 times as long as the blade; scapes 10 to 40 cm. high; inflorescence a loose, erect panicle, glandular; bracts linear, the lower more or less dentate or occasionally foliaceous; pedicels slender; calyx 5-parted, the lobes oval, obtuse, 2 mm. long, reflexed in anthesis; petals white, orbicular and unguiculate, longer than the calyx; filaments spatulate, acuminate; ovary free; capsules usually purple, somewhat inflated, 7 to 8 mm. long, cleft to the middle, the beaks becoming divaricate.

This species has long passed in American herbaria as *S. punctata* L., a rare European species. Among American species it can only be confused with *S. nelsoniana* Don, which is a smaller plant with lobed rather than dentate leaves, pubescent stems and inflorescence, elliptical unclawed petals, and a more or less condensed flower cluster. *S. odontophylla* ranges from British Columbia to New Mexico and California.

SPECIMENS EXAMINED: Olympic Mountains, *Piper* 2213; *Elmer* 2639; Mount Rainier, *Piper* 2025; *Flett* 236, 278; Cascade Mountains, latitude 49°, *Lyall*; Cascade Mountains above Stampede Tunnel, *Henderson* in 1892; Mount Adams, *Suksdorf* 544; Wenache Mountains, *Whited* 255; Silverton, *Bouck* 72a; Mount Stuart, *Sandberg & Leiberg* 570 (type); Stevens Pass, *Sandberg & Leiberg*, August, 1893; Blue Mountains, *Piper*, July 17, 1896; above Lake Chelan, *Wilcox* in 1883; without locality, *Vasey* in 1889.

ZONAL DISTRIBUTION: Arctic and Hudsonian.

The type is in the National Herbarium, sheet no. 289646.

8. *Saxifraga nelsoniana* D. Don, Trans. Linn. Soc. 13: 355. 1822.

Saxifraga punctata nelsoniana Engler, Verh. Zool. Bot. Ges. Vienna 19: 548. 1869.

TYPE LOCALITY: Cape Newnham, Alaska.

RANGE: Alaska to Washington.

SPECIMENS EXAMINED: Olympic Mountains, *Piper* 2214; *Elmer* 2640; Mount Rainier, *Allen* 16; *Piper* 2040; *Smith*, August, 1890; Cascade Mountains, latitude 49°, *Lyall* in 1859; Stevens Pass, *Piper*, July 7, 1895; Horseshoe Basin, *Lake & Hull*, August 24, 1892; Bridge Creek, *Elmer* 716.

The *Lyall* specimen is peculiar and is referred here with doubt. It has the leaves doubly dentate, scarcely cordate, pubescent on each side, perhaps viscid. It may be referable perhaps to *S. mertensiana*.

ZONAL DISTRIBUTION: Arctic.

10. *Lupinus subsericeus* Robinson, sp. nov. (§ SERICEI).

Root stout, bearing a well-developed leafy crown; stems 15 to 25 cm. high, decumbent or curved-ascending, 2 or 3-leaved; petioles of the radical leaves slender, 7 to 10 cm. long; leaflets oblanceolate, obtusish, finely sericeous, but green on both surfaces, 16 to 24 mm. long, 3 to 6 mm. broad; peduncles short, 2 to 5 cm. in length; bracts lanceolate, rather promptly deciduous; racemes at length 10 to 13 cm. long, becoming rather loose; bractlets unusually large, oblong, 4 mm. in length; flowers 12 to 14 mm. long, on slender pedicels 4 to 6 mm. in length; upper calyx lobe cleft four-fifths of the way to the base, the lower distinctly and sharply 3-toothed; corolla indigo-blue with a spot of lighter color on the glabrous obovate standard; keel ciliated; ovules about 5; pod densely sericeous.

SPECIMENS EXAMINED: Ellensburg, *Whited* 602, May 5, 1898; Badger Mountain, *Whited* 1220.

11. *Lupinus albicaulis* Dougl.; Hook. Fl. Bor. Am. 1: 165. 1830.

TYPE LOCALITY: "About Fort Vancouver on the Columbia."

RANGE: Washington and Oregon in the coast region.

SPECIMENS EXAMINED: Whidby Island, *Gardner* 427; near Olympia, *Heller* 4039; McAlister Lake, *Henderson*, June, 1892; Fourth Plain, *Piper*, July 14, 1899; Union City, *Piper*, July 20, 1890.

Specimens collected by *Suksdorf* in Falcon Valley, nos. 345, 346, are closely allied to *L. albicaulis*, but probably represent a new species.

ZONAL DISTRIBUTION: Humid Transition.

12. *Lupinus leucophyllus* Dougl.; Lindl. Bot. Reg. 13: pl. 1124. 1827.

TYPE LOCALITY: "From the Great Falls of the Columbia in North America to the sources of the Missouri among the Rocky Mountains."

RANGE: Washington to Nevada and New Mexico.

SPECIMENS EXAMINED: Ellensburg, *Whited* 551; upper Wenas River, *Henderson* 2336; Rock Lake, *Lake & Hull* 432; Spokane, *Piper* 1901, 2270; *Dewart* in 1900; *Henderson* 2335; Pullman, *Piper*, July, 1893; July 28, 1894, and 1902; *Hull* 755; Waitsburg, *Horne* 86; Blue Mountains, *Piper*, July 15, 1896; Conconully Creek, *Griffiths & Cotton* 286; Colville Reservation, *Griffiths & Cotton* 398.

ZONAL DISTRIBUTION: Arid Transition.

12a. *Lupinus leucophyllus plumosus* (Dougl.) Robinson.

Lupinus plumosus Dougl. Bot. Reg. 15: pl. 1217; Hook. Fl. Bor. Am. 1: 165.

Bracts very long and narrow, plumose-ciliate, much exceeding the buds. Sometimes well marked, but in other cases vague and confluent with the typical form.

TYPE LOCALITY: "Common in northern California in 45° north, growing in gravelly soil; it is also found at the sources of the Wallawallah River, near the Blue Mountains." Collected by Douglas.

Specimens referable to this are included in the preceding.

13. *Lupinus canescens* Howell, Erythea 1: 110. 1893.

TYPE LOCALITY: "At the western base of Buck's Mountain, a spur of the Blue Mountains of Oregon."

RANGE: Washington and Oregon.

SPECIMENS EXAMINED: Klickitat Valley, *J. Howell*, June, 1879.

13a. *Lupinus canescens amblyophyllus* Robinson, subsp. nov.

Leaflets elliptic-lanceolate, broader than in the typical form, rounded and mucronulate at the apex; seeds red.

SPECIMENS EXAMINED: Near Egbert Springs, Douglas County, Washington, *Sandberg & Leiberg* 402 (type), July 5, 1893.

14. *Lupinus suksdorfii* Robinson, sp. nov. (§ SERICEI).

Erect or nearly so, about 60 cm. high; stem stoutish, subsimple, terete, finely subappressed-pubescent or somewhat spreading-villous, leafy, especially near the middle; leaflets about 9, oblanceolate, acute, the larger 5 to 6 cm. long, 8 to 12 mm. wide, covered on both surfaces by a short dense sericeous appressed pubescence; petioles 4 to 11 cm. long; peduncles terminal and commonly solitary, 4 to 8 cm. long; racemes 20 cm. in length, 4 to 5 cm. in diameter; pedicels slender, 8 mm. long, scattered or subverticillate, tomentulose; upper calyx lobe 2-toothed, the lower entire; petals rich purplish blue, about 12 mm. long; standard glabrous; keel ciliolate; ovary 5 to 7-ovuled; pods spreading-pubescent, 3 to 4 cm. long, 9 mm. wide, about 4-seeded.—Dry grounds.

SPECIMENS EXAMINED: Columbia River, west Klickitat County, *Suksdorf* 110, May 3 (in flower), June (in fruit), 1883; same locality, mountain sides, *Suksdorf* 109, May 2 (in flower), June (in fruit), 1883; same region and collector, April 24 (in flower), June (in fruit), 1886; Wenache, *Whited* 1032, April 23, 1899; sandy hillsides west of Wenache, *Whited* 1033, May 2, 1899.

15. *Lupinus sericeus* Pursh, Fl. 2: 463. 1814.

TYPE LOCALITY: "On the banks of the Kooskoosky." Collected by Lewis.

RANGE: Washington, Oregon, and Idaho.

SPECIMENS EXAMINED: Wenache, *Whited* 1061; June, 1895; Klickitat, *Howell*, June, 1879; Spokane, *Henderson* 2338 in part; Walla Walla region, *Brandegge* 696; Waitsburg, *Hornor* 90; Almota, *Piper* 2011; Kamiak, *Piper* 3087; without locality, *Vasey* 262.

ZONAL DISTRIBUTION: Upper Sonoran and Arid Transition.

The following specimens are not typical but for the present are referred here: Wenache, *Whited* 1061, 155; July 9, 1896; Ellensburg, *Whited* 662; Twisp River, *Whited* 36; Douglas City, *Lake & Hull* 757; Coulee City, *Spillman*, May 27, 1896 in part.

16. *Lupinus ornatus* Dougl. Bot. Reg. 14: pl. 1216. 1828.

• PLATE XXII.

TYPE LOCALITY: "In mountain valleys, on the banks of the Spokane River, near Kettle Falls, on the River Columbia; and also near the chain of lakes of the last mentioned stream."

RANGE: Washington, Oregon and Idaho.

SPECIMENS EXAMINED: Pasco, *Henderson* 2334; Yakima County, *Henderson* 2332, 2340, 2342; Ellensburg, *Whited* 23; Ainsworth, *Brandegge* 700; Spokane, *Piper* 1903; Spokane County, *Suksdorf* 267; Conconully, *Whited* 1308; Steamboat Rock, *McKay* 22; Pullman, *Henderson* 2339; *Piper* 3037; without locality, *Vasey* in 1889; Wenas Creek, *Cotton* 1149; Kittitas Valley, *Cotton* 1337.

ZONAL DISTRIBUTION: Arid Transition and Upper Sonoran.

16a. *Lupinus ornatus bracteatus* Robinson, subsp. nov.

Bracts much exceeding the buds, often recurved, somewhat persistent, much more conspicuous than in the typical form.—Gravelly prairies. Bearing much the same relation to the typical form of *Lupinus ornatus* Dougl. as subspecies *plumosus* Robinson does to *L. leucophyllus* Lindl., and no more constant.

SPECIMENS EXAMINED: Spokane, *Henderson* 2338 in part; *Piper* 2728, 2823, 2947; Almota, *Piper* 2939.

17. *Lupinus alpicola* L. F. Henderson in herb.

Stems several from a thickish caudex, scaly at the base, erect, 30 to 50 cm. high, simple or nearly so, leafy, covered by a fine short closely appressed pubescence; petioles slender, erect, all but the upper exceeding the 7 or 8 leaflets; these linear-oblanceolate, acute, finely sericeous-pubescent on both surfaces, 2.6 to 3.6 cm. long, 2 to 5 mm. broad; racemes mostly terminal on the stems, shortly peduncled, loosely flowered, 7 to 10 cm. long; bracts lanceolate, sericeous-pubescent, rather short, when persisting not equaling the tomentulose pedicels; petals purplish blue; standard suborbicular, sparingly villous near the middle

dorsally; keel strongly ciliated; pods lance-oblong, acute, silky, 2.4 to 3 cm. long, 4 or 5-seeded.—Flowering in August.

SPECIMENS EXAMINED: Washington, Mount Adams, *Henderson* 1387; *Suksdorf* 111; Oregon, north side of Mount Hood, *Howell*.

18. *Lupinus littoralis* Dougl.; Lindl. Bot. Reg. 14: pl. 1198. 1828.

TYPE LOCALITY: "On the seashore from Cape Mendocino to Puget's Sound. Collected by Douglas.

RANGE: Seacoast of Washington, Oregon, and northern California.

SPECIMENS EXAMINED: Clallam County, *Elmer* 2537; Westport, *Henderson*, June 25, 1892; *Lamb* 1110; Coupeville, *Gardner* 65; Ilwaco, *Piper* 4597.

ZONAL DISTRIBUTION: Humid Transition.

This is the "liquorice root" mentioned by Lewis and Clark and formerly used as food by the natives.

19. *Lupinus volcanicus* Greene, Pittonia 3: 308. 1898.

TYPE LOCALITY: Mount Rainier, Washington.

RANGE: Known only from Mount Rainier.

SPECIMENS EXAMINED: Mount Rainier, *Piper* 2120 and in 1889; *Flett* 296.

ZONAL DISTRIBUTION: Arctic.

20. *Lupinus saxosus* Howell, Erythra 1: 110, 1893.

TYPE LOCALITY: "On high stony ridges, from near the Dalles eastward, in Oregon and Washington." Collected by Howell.

RANGE: Eastern Washington and Eastern Oregon.

SPECIMENS EXAMINED: Kittitas Mountains, *Whited*, May 27, 1896; Wenache, *Whited* 20, 98, 38.

ZONAL DISTRIBUTION: Arid Transition.

21. *Lupinus subalpinus* Piper & Robinson, sp. nov. (§ SAXOSI).

Lupinus arcticus S. Wats. Proc. Am. Acad. 8: 526. 1873, as to plant of Lyall, not as to arctic elements.

Erect or somewhat decumbent, spreading-villous; stems simple, 25 to 40 cm. high, leafy; leaflets spatulate-oblanceolate, rounded or obtuse at the apex, villous beneath, sparsely so or rarely quite glabrous above, 3 to 4.2 cm. long; raceme terminal, 10 to 15 cm. long, many-flowered, borne on a stoutish peduncle 3 to 5 cm. in length; pedicels slender, 4 to 8 mm. long, spreading-pubescent; flowers large and showy; petals 12 to 16 mm. long; the standard glabrous; the keel entirely glabrous or with traces of ciliation; pods linear-oblong, about 3.5 cm. in length, obliquely sharp-pointed, 7 to 9-seeded.

SPECIMENS EXAMINED: Cascade Mountains to Fort Colville, *Lyall* 1860; dry slopes on Mount Rainier, *Piper* 463, 4114; *E. C. Smith* 463; Wenache, Washington, *Whited*.

This species differs from *L. saxosus*, Howell, in its greater stature, larger leaflets, and only obsoletely ciliate keel; from *L. wyethii* S. Wats., in the form of the leaflets, as well as in the sparse pubescence usually present on their upper surface.

Other specimens referable here are the following: Horseshoe Basin, *Lake & Hull*: Mount Adams, *Flett* 1254; *Henderson* 15; *Suksdorf* 2561, 108, 1787; Olympic Mountains, *Piper*, August, 1895; Mount Stuart, *Brandegee* 699; *Elmer* 1205; Goat Mountains, *Allen* 30.

22. *Lupinus wyethii* S. Wats. Proc. Am. Acad. 8: 525. 1873.

TYPE LOCALITY: "Flat-Head River." Collected by Wyeth.

RANGE: Washington and Idaho.

SPECIMENS EXAMINED: Waitsburg, *Horner* 89; Walla Walla region, *Brandegee* 702; Spangle, *Suksdorf* 266; *Piper* 3551; Pullman, *Piper*, June 13, 1896; Union Flat, *Piper* 1900; Wawawai, *Elmer* 764; Harrington, *Sandberg & Leiberg* 200.

ZONAL DISTRIBUTION: Arid Transition.

RANGE: Washington to California in the coast region.

SPECIMENS EXAMINED: Sinclair Inlet, *Piper*, July, 1895; Steilacoom, *Suckley*; Skamania County, *Suksdorf* 2129; Chambers Prairie, *Henderson*, August, 1892; Johns Island, *Lawrence* 189; Klickitat County, *Suksdorf*, May 27, July 1881 and 23.

ZONAL DISTRIBUTION: Humid Transition.

4. *Godetia caurina* Abrams, sp. nov.

Stems erect, simple below, more or less branched above, 30 to 60 cm. high; herbage minutely and rather sparsely puberulent throughout; leaves linear-lanceolate, entire; flower heads mainly erect, oblong, obtuse at apex, 12 to 14 mm. long; calyx tube 2 mm. long; petals obovate, 15 to 18 mm. long, purple with a blotch of deeper color near the center; anthers 3 mm. long, fertile to the tip, glabrous; stigmas linear-oblong, 3 mm. long, yellow; capsule 8-ribbed, stoutly beaked at apex, 25 mm. long, tapering at base into a pedicel fully half as long.

Nearest *G. amoena* (Lehm.) Lilja from which it is best distinguished by its much smaller glabrous anthers, which are not sterile at tip, and oblong obtuse flower buds.

TYPE LOCALITY: Olympic Mountains, Clallam County, collected by *Elmer* 2565, June, 1900 (type, United States National Herbarium, no. 401890).

SPECIMENS EXAMINED: Mount Finlayson, Vancouver Island, *Macoun*, June 28, 1887; Beacon Hill, Vancouver Island, *Macoun*, May 25, 1887.

GODETIA VIMINEA (Dougl.) Spach, GODETIA LEPIDA Lindl. Both these names appear in *Suksdorf's* list, but there are no specimens to indicate that these species occur in Washington. The species of this genus are very poorly understood.

BOISDUVALIA.

- Upper leaves much broader than the lower ones; capsule septifragal in dehiscence..... 1. *B. densiflora*.
 Upper leaves not broader than the lower ones; capsule loculicidal in dehiscence.
 Leaves narrowly lanceolate, pubescent..... 2. *B. stricta*.
 Leaves ovate-lanceolate, often glabrous..... 3. *B. glabella*.

1. *Boisduvalia densiflora* (Lindl.) S. Wats. in Brewer & Wats. Bot. Cal. 1: 233. 1876.

Boisduvalia douglasii Spach, Hist. Veg. 4: 385. 1835.

Oenothera densiflora Lindl. Bot. Reg. 19: pl. 1593. 1833.

TYPE LOCALITY: Northern California.

RANGE: British Columbia to California and Nevada.

SPECIMENS EXAMINED: Seattle, *Piper*, July, 1897; Ellensburg, *Whited* 573; west Klickitat County, *Suksdorf* 2254; Leavenworth, *Whited* 248; Falcon Valley, *Suksdorf* 557; Peshastin, *Sandberg & Leiber* 588; Spokane, *Piper*, October 1, 1900; Pullman, *Hull*, July 16, 1892; *Piper*, 1839; Ellensburg, *Cotton* 866.

ZONAL DISTRIBUTION: Transition and Upper Sonoran.

1a. *Boisduvalia densiflora pallescens* *Suksdorf*, Deutsch. Bot. Monatss. 18: 88. 1900.

TYPE LOCALITY: Near Bingen, Klickitat County, Washington.

SPECIMENS EXAMINED: Near Bingen, *Suksdorf*.

Distinguished by having white flowers and somewhat larger seeds.

2. *Boisduvalia stricta* (A. Gray) Greene, Fl. Fran. 225. 1891.

Gayophytum strictum A. Gray, Proc. Am. Acad. 7: 340. 1867.

Boisduvalia torreyi S. Wats. in Brewer & Wats. Bot. Cal. 1: 233. 1876.

Oenothera torreyi S. Wats. Proc. Am. Acad. 8: 384. 1873.

TYPE LOCALITY: Cloverdale, California.

RANGE: Washington and Idaho to California.

CYNOGLOSSUM.

1. *Cynoglossum grande* Dougl.; Lohm. Pug. 2: 25. 1830.

TYPE LOCALITY: "Shady Woods, N. W. Coast." Collected by Douglas.

RANGE: Washington to California in the coast region.

SPECIMENS EXAMINED: West Klickitat County, *Suksdorf* 92; Fort Vancouver, *Tolmie*.

ASPERUGO.

1. *Asperugo procumbens* L. Sp. Pl. 1: 138. 1753.

TYPE LOCALITY: European.

SPECIMENS EXAMINED: Spokane, *Piper* 2721.

MERTENSIA.

Plants tall and leafy, 50 to 100 cm. high, the leaves thin and broad.

Leaves glabrous on both sides or merely papillose above; calyx smooth on the back.

Calyx lobes elongate, acute, much longer than the fruit.

Leaves few, green, oblong-lanceolate, obtuse or acutish

1. *M. infirma*.

Leaves many, pallid, ovate, acuminate

2. *M. laevigata*.

Calyx lobes short and obtuse, or triangular and acute, not longer than the fruit.

Leaves acute, mostly sessile; calyx lobes obtuse ...

3. *M. ambigua*.

Leaves acuminate, short-petioled; calyx lobes acute. ...

4. *M. brachycalyx*.

Leaves pilose beneath.

Upper leaf surface strigose.

Calyx lobes canescent

5. *M. membranacea*.

Calyx lobes not canescent.

Dorsal surface of calyx lobes glabrous

6. *M. paniculata*.

Dorsal surface of calyx lobes pubescent

7. *M. platyphylla*.

Upper leaf surface smooth or merely papillose.

Calyx lobes pubescent on back

8. *M. subcordata*.

Calyx lobes glabrous on back

9. *M. leptophylla*.

Plants low, 15 to 40 cm. high, the leaves narrow or thickish.

Roots tuberous or fasciculate-tuberous, shallow-seated; basal leaves, none.

Leaves glabrous or merely papillose above.

Herbage not glaucous

10. *M. pulchella*.

Herbage glaucous

10a. *M. pulchella glauca*.

Leaves strigose above.

Corolla tube 3 or 4 times as long as the limb.

11. *M. oblongifolia*.

Corolla tube once or twice as long as the limb.

12. *M. horneri*.

Roots not tuberous, vertical; basal leaves numerous, their dry bases persistent on the crown.

Leaves pubescent on both sides

13. *M. pubescens*.

Leaves not pubescent on both sides.

Leaves glabrous on both sides

14. *M. nutans*.

Leaves strigillose above

14a. *M. nutans subcalva*.1. *Mertensia infirma* sp. nov.

Glabrous throughout except the ciliate margins of the leaves and calyx lobes; stems weak, erect or nearly so, 50 to 60 cm. high; basal and lower cauline leaves oblanceolate,

obtuse, the blades 5 to 7 cm. long, shorter than the margined petioles; middle and upper cauline leaves lanceolate, acute or acutish, 5 to 10 cm. long, narrowed toward the base, sessile or short-petioled; inflorescence rather open, the bracts foliaceous; petioles slender, papillate near the calyx; calyx divided nearly to the base, the lance-oblong lobes smooth excepting the appressed-ciliate margin, about one-third as long as the corolla-tube; corolla bright blue, about 18 mm. long, the ampliate limb distinctly shorter than the tube; filaments dilated, longer than the anthers; fruit not seen.

In damp thickets, Ellensburg, April 25, 1897, *Kirk Whited* 307.

This species is allied to *M. intermedia* Rydberg, but is at once distinguished by the larger corolla with relatively longer tube. The type is in the U. S. National Herbarium (sheet no. 366088).

2. *Mertensia laevigata* sp. nov.

Stems stout, erect, more or less glaucous, 40 to 90 cm. high; leaves pale or glaucescent, numerous, the cauline ovate, acuminate, glabrous or somewhat papillate above, glabrous beneath, ciliate on the margin, 5 to 7 cm. long, short-petioled; inflorescence loose, the pedicels appressed-pubescent or muriculate; calyx divided nearly to the base, its lobes lance-oblong, acute, ciliate, smooth on the back, over half as long as the corolla tube; corolla blue, 14 mm. long, the somewhat ampliate limb as long as the tube; filaments dilated, shorter than the anthers; nutlets finely muriculate, pale, the scar of attachment central.

The following specimens are referred here: Goat Mountains, *O. D. Allen*, no. 231, July 22, 1896; Mount Rainier, *Piper* 2116, altitude 2,000 m., August 15, 1895; type sheet no. 33691 in U. S. National Herbarium; Klickitat River, *Flett* 1199, June 27, 1899; Mount Stuart, *Elmer* 1195, August, 1898; "California Bob" Peak, Olympic Mountains, *Lamb* 1383, August 4, 1897; Simcoe Mountains, *Howell*, June 6, 1899; Mount Rainier, *Piper* 2116.

3. *Mertensia ambigua* sp. nov.

Stems glabrous and leafy, about 60 cm. high; leaves thin, acute, more or less papillose above, sparsely scabrous-ciliate on the margins, the lower cauline lanceolate or lance-ovate, 8 or 10 cm. long, on petioles of nearly equal length, the middle and upper cauline oblong or oblong-ovate, or the uppermost ovate and sessile; inflorescence loose and open; pedicels muriculate; calyx short, its lobes oblong, scarcely broader at base, mostly obtuse, smooth on the back, ciliate, only one-fifth as long as the corolla tube, and in fruit exceeded by the nutlets; corolla blue, 12 mm. long, the tube about twice as long as the slightly enlarged throat; filaments dilated, shorter than the anthers; nutlets pale, distinctly keeled on the back, slightly tuberculate, the triangular scar central.

Collected by G. R. Vasey in the Cascade Mountains of central Washington in 1889. The type sheet is in the U. S. National Herbarium, no. 296759.

4. *Mertensia brachycalyx* sp. nov.

Whole plant glabrous except the ciliate margins of the leaves and calyx lobes; stems stout, erect, leafy, a meter or more high; leaves bright green, lance-ovate, or the lower cauline lanceolate, smooth beneath, usually papillose above, 5 to 10 cm. long, the lower ones petioled; inflorescence leafy and open, the flowers in small clusters subtended by a pair of leafy bracts on slender branches; calyx small, glabrous, the short triangular acute lobes often unequal; corolla blue, about 12 mm. long, the tube as long as the strongly ampliate throat; filaments dilated, much shorter than the anthers; fruit whitish, nearly smooth, convex on back.

Collected near Nason Creek, Chelan County, at an altitude of 1,400 meters by Sandberg & Leiberg, no. 678, August 14, 1893, the type in the U. S. National Herbarium.

5. *Mertensia membranacea* Rydberg, Bull. Torr. Club 28: 33. 1901.

TYPE LOCALITY: Priest River, Idaho.

RANGE: Idaho and adjacent Washington and Oregon.

SPECIMENS EXAMINED: Davis Ranch near Mount Carlton, *Kreager* 202, 216.

10a. *Mertensia pulchella glauca* subsp. nov.

Herbage slightly glaucous throughout; leaves narrower, usually elliptic, mostly narrowed at base; stems often 2 to 4 from the same tuber; corolla tube more slender.

SPECIMENS EXAMINED: Hills west of Wenache, *Whited* 1010, March 31, 1899; type sheet no. 366511 in the U. S. National Herbarium; Badger Mountain, *Whited*, May 24, 1900.

This may well prove a distinct species, but in the light of rather scanty material is considered too close to *M. pulchella*.

11. *Mertensia oblongifolia* (Nutt.) G. Don, Hist. Dichl. Pl. 4: 372. 1838.

Pulmonaria oblongifolia Nutt. Journ. Acad. Phila. 7: 43. 1834.

Mertensia longiflora Greene, Pittonia 3: 261. 1898.

TYPE LOCALITY: "Towards the sources of the Columbia River." Collected by Wyeth.

RANGE: Washington, Idaho, Montana.

SPECIMENS EXAMINED: Fort Colville, *Lyll* in 1861; Upper Columbia, *Geyer* 316; Cheney, Mrs. *Susan Tucker* in 1890; Hangman Creek, *Sandberg & Leiberg* 48; Spokane, *Lyll* in 1861; *Henderson* in 1892; Wenache, *Whited* 1010; Pullman, *Piper* 1875; Almota, *Piper*, April 7, 1894; without locality, *Vasey* in 1883.

12. *Mertensia horneri* sp. nov.

Stems 8 to 15 cm. high, glabrous, solitary or rarely 2 or 3, erect from a shallow-seated oblong, black tuber; basal leaves none; cauline 2 to 5, oblong, obtuse, pale and somewhat glaucous, appressed puberulent above, glabrous beneath, sessile, or the lower ones short-petioled, 2 to 3 cm. long; lowest leaves reduced and scarious; inflorescence close; calyx glaucous, parted nearly to the base, its lobes oblong-lanceolate, very acute, denticulate-ciliate on the margin; corolla blue, 10 to 12 mm. long, its tube about twice as long as the calyx; filaments dilated, as long as the anthers.

SPECIMENS EXAMINED: Waitsburg, Washington, *Prof. R. M. Horner* 366, April 3, 1897, the type in the U. S. National Herbarium, sheet no. 318875; Union County, Oregon, *Cusick*, 1830, April 13, 1898.

13. *Mertensia pubescens* sp. nov.

Tufted from a stout vertical caudex covered with the dead bases of old leaves; stems 10 to 15 cm. high, leafy to the top; leaves numerous, the cauline inclined to be secund, linear or linear-lanceolate, obtuse or acutish, only the midrib evident, 3 to 6 cm. long, mostly about 5 mm. wide, pubescent on both surfaces, the basal ones attenuate into margined petioles about as long as the blades, the cauline sessile and but little reduced upwards; panicle short, dense, nodding; calyx lobes lanceolate, acute, coarsely ciliate, glabrous on the back, a third to a fourth as long as the corolla tube; corolla blue, the narrow tube 6 to 8 mm. long, one-half longer than the campanulate limb; filaments dilated, as long as the anthers.

Collected near Waterville, Douglas County, by *Kirk Whited*, 1214, April 23, 1900, the type sheet in the U. S. National Herbarium no. 370326.

Closely allied to *M. amoena* A. Nelson and *M. bakeri* Greene, but distinguished by its narrow more pubescent leaves and longer corollas.

14. *Mertensia nutans* Howell, Fl. N. W. Am. 491. 1901.

TYPE LOCALITY: "On the north side of high ridges, eastern Oregon and Washington." The type specimen is from Klickitat County, Washington.

RANGE: Washington and Oregon to Idaho and ? Colorado.

SPECIMENS EXAMINED: Near Granddalles, *Gorman*, April 20, 1892; Klickitat County, *Howell*, May, 1880; Wenache, *Whited* 1034; Ellensburg, *Whited*, April 18, 1897.

ZONAL DISTRIBUTION: Arid Transition.

14a. *Mertensia nutans subcalva* subsp. nov.

Leaves minutely strigose above; otherwise as in *M. nutans*.

SPECIMENS EXAMINED: Rattlesnake Mountains, *J. S. Cotton*, 328, April 29, 1901.

RANGE: Washington, Oregon, Missouri, Tennessee.

SPECIMENS EXAMINED: White Salmon, *Suksdorf* 189; Wawawai, *Piper* 1593.

ZONAL DISTRIBUTION: Humid Transition.

3. *Xanthium oligacanthum* sp. nov.

Stem erect or spreading, 30 to 60 cm. high, sparsely hispid; leaves reniform-orbicular, obscurely lobed and crenate, harshly scabrous, hispid on both faces, the petioles as long or longer than the blades; fruiting involucre oblong, the body 1.5 cm. long, 5 to 7 mm. thick, the stout beaks somewhat incurved; prickles 15 to 25, uncinatè-tipped, about as long as the diameter of the fruit; surface of the fruit and base of prickles pubescent.

Bolles, Walla Walla County, *Piper*, September 18, 1893; also found at Waitsburg by *Horner* (no. B 272). The type is in the National Herbarium. This differs from any other American species in the small size of the fruit and the relatively few prickles.

4. *Xanthium affine* Greene, *Pittonia* 4: 60. 1899.

TYPE LOCALITY: "Sandy banks of the Columbia River, Klickitat County, Washington." Collected by *Suksdorf*.

RANGE: Washington.

SPECIMENS EXAMINED: West Klickitat County, *Suksdorf* 1583; Spokane, *Kreager* 537; *Piper* September 1, 1899.

5. *Xanthium varians* Greene, *Pittonia* 4: 59. 1899.

TYPE LOCALITY: "Sandy banks of the Columbia River, Klickitat County, Washington." Collected by *Suksdorf*.

RANGE: Washington.

SPECIMENS EXAMINED: West Klickitat County, *Suksdorf* 1583; Waitsburg, *Horner* 273 B.

XANTHIUM ECHINATUM Murr. and XANTHIUM STRUMARIUM L. are names which appear in *Suksdorf's* list, but they are erroneous determinations of some of the above species.

AMBROSIA. RAGWEED.

Leaves all opposite; receptacle without chaff..... 1. *A. trifida*.

Leaves opposite and alternate; receptacle chaffy.

Fruiting involucre spiny; leaves thin..... 2. *A. artemisiaefolia*.

Fruiting involucre tubercled; leaves thick..... 3. *A. psilostachya*.

1. *Ambrosia trifida* L. Sp. Pl. 2: 987. 1753.

TYPE LOCALITY: "In Virginia, Canada."

RANGE: Saskatchewan and Canada to Texas and Florida.

SPECIMENS EXAMINED: Walla Walla, *Piper*, August 13, 1897 (introduced).

2. *Ambrosia artemisiaefolia* L. Sp. Pl. 2: 988. 1753.

TYPE LOCALITY: "Habitat in Virginia; Pennsylvania."

RANGE: British Columbia to Nova Scotia, south to Texas.

SPECIMENS EXAMINED: Mission, *Kreager* 495.

2a. *Ambrosia artemisiaefolia diversifolia* subsp. nov.

Leaves becoming progressively less deeply lobed upward, those of the upper third of the plant mostly entire, these ovate-lanceolate or lanceolate, acute, narrowed abruptly to a sessile base, 3-nerved.

On the gravelly banks of Almota Creek at Almota, *Piper*, August 26, 1894 (no. 1837). At this place it seems unquestionably to be native. The entire or subentire upper leaves present a peculiar characteristic which does not seem to be approached in any eastern specimens. The plant may represent a distinct species, but in the absence of more abundant material it seems best to treat it as above.

The type is in the National Herbarium.

Helianthus hookerianus DC. Prod. 5: 590. 1836.

Wyethia robusta Nutt. Trans. Am. Phil. Soc. 7: 352. 1840.

TYPE LOCALITY: "In California." Collected by Douglas.

RANGE: Washington to California.

SPECIMENS EXAMINED: West Klickitat County, *Suksdorf* 129.

ZONAL DISTRIBUTION: Humid Transition.

HELIANTHELLA.

1. *Helianthella douglasii* Torr. & Gr. Fl. N. Am. 2: 334. 1842.

TYPE LOCALITY: "Common on the subalpine ranges of the Blue Mountains." Collected by Douglas.

RANGE: British Columbia to Idaho and Oregon.

SPECIMENS EXAMINED: Ellensburg, *Whited* 663; Wenache, *Whited* 154, 1138; Yakima Region, *Brandegee* 894; Peshastin, *Sandberg & Leiberg* 486; without locality, *Vasey* 502; Spokane County, *Suksdorf* 367; Pullman, *Piper* 1598; Lake & Hull 751; Moxee, *Griffiths & Cotton* 30.

ZONAL DISTRIBUTION: Arid Transition.

HELIANTHELLA UNIFLORA Torr. & Gr. is not known definitely from Washington, but specimens of *H. douglasii* have sometimes been mistaken for it.

HELIANTHUS. SUNFLOWER.

Annual; disk flowers dark..... 1. *H. annuus*.
Perennial; disk flowers yellow; involucre bracts ciliate..... 2. *H. cusickii*.

1. *Helianthus annuus* L. Sp. Pl. 2: 904. 1753.

Helianthus lenticularis Dougl.; Lindl. Bot. Reg. 15: t. 1265. 1829.

TYPE LOCALITY: "In Peru, Mexico."

RANGE: Washington to Saskatchewan south to Texas and California. Mexico.

SPECIMENS EXAMINED: Wenache, *Whited* 1088; Rock Island, *Sandberg & Leiberg* 462; Coulee City, *Henderson*, July 11, 1892; without locality, *Vasey* 499; Frosh Lake, *McKay* 14; Wawawai, *Piper* 1597; Almota, *Piper*, August 26, 1894; Marcus, *Kreager* 462.

ZONAL DISTRIBUTION: Upper Sonoran.

2. *Helianthus cusickii* A. Gray, Proc. Am. Acad. 21: 413. 1886.

TYPE LOCALITY: Malheur River, Oregon. Collected by Cusick.

RANGE: Eastern Washington and Eastern Oregon.

SPECIMENS EXAMINED: Morgans Ferry, *Suksdorf* 368, Columbia River, *Howell*; Tampico, *Flett* 1182; Snipes Mountain, *Cotton* 378; North Yakima, *Brandegee*; *Henderson* in 1892; *Steinweg*; *Watt* in 1895; Yakima, *Piper* 1825; *Leckenby*.

ZONAL DISTRIBUTION: Upper Sonoran.

HELIANTHUS NUTTALLII Torr. & Gr. in *Suksdorf's* list is based on specimens that are really *H. cusickii*.

JAUMEA.

1. *Jaumea carnosa* (Less.) A. Gray in Torr. Bot. Wilkes Exped 360. 1874.

Coinogyne carnosa Less. Linnæa 6: 521. 1831.

TYPE LOCALITY: California.

RANGE: Seacoasts, Washington to California.

SPECIMENS EXAMINED: Shoalwater Bay, *Cooper*; *Henderson*; Whidby Island, *Gardner* 425, 152; Port Townsend, *Edwards* in 1896; Tacoma, *Flett* 102, Union City, *Piper* in 1890.

ZONAL DISTRIBUTION: Humid Transition.

SPECIMENS EXAMINED: Near Mount Adams, *Henderson* 2308; Yakima region, *Brandegee* 915; Chiquash Mountains, *Suksdorf* 2167.

ZONAL DISTRIBUTION: Hudsonian.

6. *Senecio ovinus* Greene, *Pittonia* 4: 110. 1900.

TYPE LOCALITY: "On Sheep Mountain, Alberta."

RANGE: Washington, Montana, and Alberta.

SPECIMENS EXAMINED: North Fork of Bridge Creek, *Elmer*, August, 1897; Horseshoe Basin, *Lake & Hull*, August 24, 1892.

ZONAL DISTRIBUTION: Arctic.

7. *Senecio pseud aureus* Rydberg, *Bull. Torr. Club* 24: 298. 1897.

TYPE LOCALITY: Little Belt Mountains, Montana.

RANGE: Washington to Nevada and Colorado.

SPECIMENS EXAMINED: Cascade Mountains, 49°, *Lyll* in 1860, Mount Adams, *Suksdorf* 570; Falcon Valley, *Suksdorf* 571, without locality. *Brandegee* 917; Ellensburg, *Elmer* 431; *Whited* 442; Lake Keechelus, *Henderson* in 1892; without locality, *Vasey* in 1889; Fort Okanogan, *Wilkes Expedition* 971

ZONAL DISTRIBUTION: Canadian.

8. *Senecio adamsi* Howell, *Fl. N. W. Am.* 379. 1900.

TYPE LOCALITY: Mount Adams, Washington.

RANGE. KNOWN only from Mount Adams

SPECIMENS EXAMINED: Mount Adams, *Suksdorf* 73, *Henderson* 2309; *Flett* 1093.

ZONAL DISTRIBUTION: Arctic

9. *Senecio cymbalarioides* Nutt. *Trans. Am. Phil. Soc.* 7: 412. 1841.

TYPE LOCALITY. "In Oregon"

RANGE. Washington to Athabasca and Utah

SPECIMENS EXAMINED. Cascade Mountains, 49°, *Lyll* in 1860; Mount Chapaca, *Elmer* 592; Pinyon Creek, *Gorman* 809, Twenty-five Mile Creek, *Gorman* 810.

10. *Senecio fraternus* sp. nov.

Perennial, glabrous throughout, the several more or less flexuous stems erect or nearly so, arising from a stout caudex, stems about 30 cm high, somewhat coarsely striate, basal leaves thickish, somewhat quadrangular, subentire or with 7 to 11 coarse sinuations, 2 to 3 cm. long, the blade abruptly contracted to a narrowly-margined petiole about twice as long; cauline leaves about 6 spatulate-oblongate to oblong, becoming smaller and lobed upward, sessile or nearly so, the lateral lobes 4 to 8, oblong-linear, obtuse; heads 8 to 12 in a rather close or convex cymose cluster, only the lower elongated rays branched, involucre somewhat turbinate, of from 11 to 13 linear-lanceolate acutish bracts 6 to 7 mm. long, with a few calyculate ones at base, rays few, bright yellow, oblong. 7 mm. long; florets 15 to 20, akenes glabrous

Collected on Mount Stuart, Kittitas County, Washington, by Sandberg & Leiberg, no. 553, July 24, 1893, at an altitude of 1,060 meters. The type specimen is in the United States National Herbarium, numbered 285758

The species is somewhat intermediate between *S. cymbalarioides* Nutt and *S. adamsi* Howell.

11. *Senecio balsamitae* Muhl, *Willd. Sp. Pl.* 3: 1998. 1803.

TYPE LOCALITY: "In America boreali"

RANGE: British Columbia and Washington to Quebec and Pennsylvania.

SPECIMENS EXAMINED. Colville Reservation, *Griffiths & Cotton* 366, Republic, *Beattie & Chapman* 2256, Wenache, *Whued* 1096, Pasco, *Hindshaw* 8.

ZONAL DISTRIBUTION: Transition.

white; corolla lobes shorter than the throat; pappus bristles somewhat clavellate at tip; anther tips acute.

This species was erroneously referred to *C. breweri* (Gray) Greene in the Flora of the Palouse region.

Specimens have been examined as follows: Silver Lake, *Henderson* 2277; Ellensburg, *Whited* 558, 857; Pullman, *Elmer* 99; *Piper* 1589 (type); without locality, *Vasey* 477, 478, *Waitsburg*, *Horner* 303.

ARCTIUM.

1. *Arctium minus* Schk. Bot. Handb. 3: 49. 1803.

BURDOCK.

TYPE LOCALITY: Germany.

SPECIMENS EXAMINED: Seattle, *Piper*.

SAUSSUREA.

1. *Saussurea americana* D. C. Eaton, Bot. Gaz. 6: 283. 1881.

TYPE LOCALITY: "Mountains of Union Co., Oregon." Collected by Cusick.

RANGE: Washington, Oregon, and Idaho.

SPECIMENS EXAMINED: Olympic Mountains, *Piper* 2188, 930; Mount Rainier, *Piper* 2141; Mount Adams, *Suksdorf* 573; Simcoe Mountains, *Howell*; Monte Cristo, *Misses Coffin & Goodspeed*; without locality, *Vasey* 550.

ZONAL DISTRIBUTION: Canadian and Hudsonian