

MONOGRAPH OF THE NORTH AND CENTRAL AMERICAN SPECIES OF THE GENUS SENECIO — PART II¹

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SECT. 7. LOBATI Rydb.

§7. LOBATI Rydb. Bull. Torr. Bot. Club **27**: 169. 1900, in part; Greenm. Monogr. Senecio, I. Teil, 22, 24, 29, 30. 1901, and in Engl. Bot. Jahrb. **32**: 18, 20, 25, 26. 1902.

Herbaceous perennials, glabrous or white floccose-tomentulose in the early stages and more or less glabrate, rarely permanently tomentose throughout; stems erect or ascending, 1 to 10 dm. high, one to several from a common base or root-stock; foliage variable but mostly pinnatifid; the earliest leaves obovate or oblanceolate and undivided to lyrate; heads radiate or occasionally discoid; achenes usually striate, glabrous or hirtellous along the angles. Plants of western United States and northern Mexico. Sp. 81-96.

KEY TO THE SPECIES

- A. Heads medium in size, 8 to 10 mm. high, radiate or rarely discoid.
 - a. Achenes usually hirtellous.
 - α. Involucral bracts about 13.
 - I. Stems about 3 dm. or less high; leaf-segments narrow, rather remote.....81. *S. multilobatus*
 - II. Stems 4 to 5 dm. high, leafy; leaf-segments broader82. *S. lapidum*
 - β. Involucral bracts about 21.
 - I. Stems uniformly leafy.....83. *S. millelobatus*
 - II. Stems not uniformly leafy.....84. *S. parrasianus*
 - b. Achenes usually glabrous.
 - α. Involucral bracts 13; heads discoid.....85. *S. leucoreus*
 - β. Involucral bracts usually 21; heads radiate.
 - I. Lower leaves subbipinnate or deeply pinnatisect into numerous small divisions....86. *S. lynceus*
 - II. Lower leaves obovate or oblanceolate and dentate to lyrate pinnatifid, not bipinnate.

¹ Issued March 9, 1917.

NOTE.—The present paper is continued from Ann. Mo. Bot. Gard. **3**: 85-194. 1916.

1. Stems rather slender; neither stem nor leaves glaucous.
 - * Leaves thickish in texture, more or less tomentulose in the early stages.
 - † Upper leaves appressed to the stem; ray-flowers about 13...87. *S. scalaris*
 - †† Upper leaves spreading; ray-flowers 8 to 10.
 - || Radical leaves oblanceolate, dentate, .5 to 1.5 cm. broad88. *S. Thornberi*
 - ||| Radical leaves obovate and dentate to lyrate, .5 to 2.5 cm. broad89. *S. uintahensis*
 - ** Leaves thin in texture, glabrous except at the base of the petioles....90. *S. stygius*
2. Stems stout and, as well as the leaves, glaucous91. *S. quercetorum*
- B. Heads larger, 10 to 20 mm. high, radiate.
 - a. Stems low, 1 dm. or less high; plants of Arizona...92. *S. franciscanus*
 - b. Stems 1 to 8 dm. high; plants of California.
 - a. Leaves relatively large, lyrate pinnatifid with numerous lateral lobes.
 - I. Plants glabrous or with a slight tomentum in the leaf-axils; upper stem-leaves irregularly pinnatisect93. *S. Breweri*
 - II. Plants at first tomentulose, later more or less glabrate; upper stem-leaves regularly pinnatifid94. *S. eurycephalus*
 - β. Leaves merely laciniate-dentate.....95. *S. Austiniae*
 - γ. Leaves relatively small, obovate and undivided to lyrate with few small lateral lobes.....96. *S. ionophyllus*

81. *S. multilobatus* Torr. & Gray, ex Gray in Mem. Am. Acad. 4: 109. 1849; Eaton in Bot. King's Exp. 191. 1871, in part, as to description and plant of Fremont; Gray, Syn. Fl. N. Am. 1²: 394. 1884, and ed. 2, 1886, in part; Rydb. Bull. Torr. Bot. Club 27: 172. 1900, in part; Greenm. Monogr. Senecio, I. Teil, 24. 1901, and in Engl. Bot. Jahrb. 32: 20. 1902; Wootton & Standley, Contr. U. S. Nat. Herb. 19: 747. 1915.

S. aureus var. *multilobatus* Gray in Bot. Calif. 1: 411. 1876, in part.

An herbaceous perennial; stems one to several from a common base, erect, 1.5 to 4 dm. high, simple or branched, glabrous or tomentulose in the axils of the leaves, striate, stramineous or somewhat purplish in the dried state; radical and lower stem-leaves petiolate, oblanceolate to subspatulate in general outline, including the petiole 2 to 10 cm. long, .5 to 2 cm. broad, undivided and merely dentate toward the

apex to sublyrately pinnatifid, lightly floccose-tomentulose to glabrous; upper stem-leaves sessile, pinnately divided into linear-oblong and subentire to obovate-cuneate obtusely or acutely dentate rather remote divisions, occasionally much reduced; inflorescence a terminal few to several-headed corymbose cyme; heads 8 to 10 mm. high, radiate; involucre campanulate, sparingly calyculate, glabrous; bracts of the involucre usually 13, linear-lanceolate, acute, 5 to 8 mm. long; ray-flowers 5 to 8, rays yellow; disk-flowers 20 to 40; achenes hirtellous.

Distribution: southwestern Wyoming to New Mexico, west to Nevada.

Specimens examined:

Utah: "on the Uinta River, in the interior of California," *Fremont* (Gray Herb. and Torrey Herb.), TYPE; Kanab, coll. of 1872, *Mrs. A. P. Thompson* (Gray Herb. and U. S. Nat. Herb.); St. George, coll. of 1875, *E. Palmer* (Gray Herb. and Mo. Bot. Gard. Herb.); "Sierra La Sal Pers," May-Oct., 1899, *Purpus* (U. S. Nat. Herb. No. 505317); near Wilson Mesa, Grand Co., alt. 1600 m., 1 July, 1911, *Rydberg & Garrett* 8393 (U. S. Nat. Herb. and Univ. Calif. Herb.).

Colorado: Naturita, alt. 1645 m., 27 April, 1914, *Payson* 258 (Mo. Bot. Gard. Herb.); dry arroyo sides, Paradox, Montrose Co., alt. 1645 m., June, 1912, *Walker* 99 (U. S. Nat. Herb. and Mo. Bot. Gard. Herb.); in dry fields, Mancos, alt. 2130 m., 8 July, 1898, *Baker, Earle & Tracy* 446 (Mo. Bot. Gard. Herb.), previously included with *S. tridenticulatus*; along Kyser Creek, on the Grand Mesa, Delta Co., *Purpus* 222 (Univ. Chicago Herb. at Field Mus. No. 357369); Grand Junction, May, 1892, *Eastwood* (Univ. Calif. Herb. No. 91435).

Wyoming: sage-brush flats, Henry's Fork, Uinta Co., 26 June, 1902, *Goodding* 1194 (Gray Herb., U. S. Nat. Herb., and Mo. Bot. Gard. Herb.).

Nevada: vicinity of Pioche, Lincoln Co., 9 June, 1909, *Miss Maud Minthorn* 44 (Univ. Calif. Herb.).

Var. **Standleyi** Greenm. var. nov.

Stems several, 1.5 to 2 dm. high, slender, leafy at the base, nearly naked above; leaves oblanceolate and sparingly den-

tate to sublyrate or even subbipinnate, thickish in texture, glabrous or sparingly tomentulose; inflorescence and technical characters of the head like the species.

Specimens examined:

New Mexico: dry hills, vicinity of Farmington, San Juan Co., alt. 1550–1650 m., 19 July, 1911, *Standley 7080* (U. S. Nat. Herb.), TYPE; dry hills, Navajo Indian Reservation, about the north end of Carrizo Mountains, 3 Aug., 1911, *Standley 7513* (U. S. Nat. Herb.); vicinity of Cedar Hill, San Juan Co., alt. about 1900 m., 17 Aug., 1911, *Standley 8032* (U. S. Nat. Herb.); north of Ramah, 25 July, 1906, *Wootton* (U. S. Nat. Herb.).

The variety *Standleyi* resembles certain forms of *S. tridenticulatus* Rydb., through which forms the present group is connected with the section *Aurei*.

82. *S. lapidum* Greenm.¹

An herbaceous perennial; stems one to several from a common base, erect, simple or branched, 3 to 5 dm. high, striate, glabrous; radical and lower stem-leaves petiolate, lyrate-pinnatifid into rather numerous oblong-cuneate dentate lateral lobes, including the petiole 4 to 10 cm. long, 1 to 2.5 cm. broad, white floccose-tomentulose in the early stages, later becoming glabrous or nearly so; inflorescence a terminal corymbose cyme; heads 8 to 10 mm. high, radiate; involucre campanulate, sparingly calyculate, glabrous; bracts of the

¹ *Senecio lapidum* Greenm. sp. nov., herbaceus perennis; caulibus solitariis vel subcaespitosis simplicibus vel parce ramosis erectis 3–5 dm. altis striatis glabris foliaceis; foliis radicalibus et inferioribus petiolatis lyrate-pinnatifidis petiolo incluso 4–10 cm. longis 1–2.5 cm. latis primo parce albo-floccoso-tomentulosis plus minusve glabris, segmentis foliorum oblongo-cuneatis dentatis; foliis superioribus sessilibus pinnatifidis; inflorescentiis terminalibus corymbocymosis; capitulis numerosis 8–10 mm. altis radiatis; involucri campanulatis parce calyculatis glabris; bracteis involucri lineari-lanceolatis 5–7 mm. longis acutis; floribus femineis plerumque 8, ligulis flavibus; floribus disci 25–40; achaeniis hirtellis.—Utah: Silver Reef, alt. 1065–1220 m., 3 May, 1894, *M. E. Jones 5163o* (Mo. Bot. Gard. Herb. and U. S. Nat. Herb.), TYPE, and *5149* (U. S. Nat. Herb. and Univ. Calif. Herb.); Johnson, Kane Co., 23 May, 1894, *M. E. Jones 5289q* (U. S. Nat. Herb.).

This species is closely related to *S. multilobatus* Torr. & Gray to which the specimens here cited have been hitherto referred, but it differs from the Torrey and Gray species in being a somewhat stouter plant, in having a more leafy stem lyrate lower leaves with broader leaf-segments, and in having a thinner leaf-texture.

involucre linear-lanceolate, 5 to 7 mm. long; ray-flowers commonly 8, rays yellow; disk-flowers 25 to 40; achenes hirtellous.

Distribution: southern Utah.

Specimens examined:

Utah: Silver Reef, in Utah Gravel, alt. 1065–1220 m., May, 1894, *M. E. Jones 51630* (Mo. Bot. Gard. Herb. and U. S. Nat. Herb.), TYPE, and *5149* (U. S. Nat. Herb. and Univ. Calif. Herb.); Johnson, Kane Co., 23 May, 1894, *M. E. Jones 5289q* (U. S. Nat. Herb.).

83. *S. millelobatus* Rydb. Bull. Torr. Bot. Club **27**: 171. 1900; Greenm. Monogr. Senecio, I. Teil, 24. 1901, and in Engl. Bot. Jahrb. **32**: 20. 1902.

S. Tampicanus Gray, Pl. Wright., part 1, 125. 1852, and part 2, 99. 1853.

S. multilobatus Gray, Syn. Fl. N. Am. **1**²: 394. 1884, and ed. 2, 1886, in part, not Torr. & Gray.

An herbaceous perennial, glabrous or slightly tomentulose in the early stages and soon glabrate except in the axils of the leaves; stems one to several from a common base, 1.5 to 4 dm. high, simple or branched, leafy to the inflorescence; leaves lanceolate to oblanceolate in general outline, 1.5 to 10 cm. long, .5 to 2 cm. broad, pinnately parted into numerous obovate to cuneate dentate divisions; lower leaves petiolate, the upper sessile; inflorescence a terminal few to many-headed corymbose cyme; heads 7 to 9 mm. high, radiate; involucre campanulate, sparingly calyculate; bracts of the involucre usually about 21, linear-lanceolate, 5 to 6 mm. long, glabrous; ray-flowers 8 to 12, rays yellow; disk-flowers 35 to 50; achenes hirtellous.

Distribution: western Texas to Arizona and northern Mexico.

Specimens examined:

New Mexico: hills on the Limpia, coll. of 1851–52, *Wright 1287* (Torrey Herb., Gray Herb., U. S. Nat. Herb., Phil. Acad. Nat. Sci. Herb., and Mo. Bot. Gard. Herb.), TYPE.

Texas: valley of the Rio Grande, below Doñana, *Parry 658*

(U. S. Nat. Herb.); Limpia Cañon, coll. of 1889, *Neally* 281 [639] (U. S. Nat. Herb.).

Arizona: Fort Whipple, 25 April, 1865, *Coues & Palmer* 309 (Mo. Bot. Gard. Herb.) and in the same locality, May, 1865, *Coues & Palmer* 329 (Gray Herb. and Mo. Bot. Gard. Herb.).

Chihuahua: cool shaded places, Santa Eulalia Mountains, 14 Aug., 1885, *Pringle* 663 (Gray Herb., U. S. Nat. Herb., and Phil. Acad. Nat. Sci. Herb.).

84. *S. parrasianus* Greenm.¹

An herbaceous perennial; stem erect, about 2 dm. high, rather leafy, striate, glabrous or slightly tomentulose; the first or radical leaves not seen; lower stem-leaves petiolate, oblong-ob lanceolate in general outline, including the petiole 3 to 7 cm. long, 1 to 2.5 cm. broad, sublyrately pinnatifid into oblong-cuneate dentate lateral divisions, glabrous or lightly floccose-tomentulose; inflorescence a terminal corymbose cyme; heads 8 to 10 mm. high, radiate; involucre campanulate, calyculate, glabrous; bracts of the involucre usually 21, linear-lanceolate, 5 to 6 mm. long; ray-flowers 10 to 12, rays a rich yellow; disk-flowers about 60; mature achenes 2 to 2.5 mm. long, hirtellous.

Distribution: mountains of northern Mexico.

Specimens examined:

Coahuila: Sierra de Parras, July, 1910, *C. A. Purpus* 4575 (Mo. Bot. Gard. Herb., U. S. Nat. Herb., and Field Mus. Herb.), TYPE.

This species was distributed as "*Senecio lobatus* Gray," under which name it may be found in herbaria.

¹ *Senecio parrasianus* Greenm. sp. nov., herbaceus perennis; caule erecto circiter 2 dm. alto, foliaceo, striato, glabro vel parce tomentuloso; foliis inferioribus caulis petiolatis in circumscriptione oblongo-ob lanceolatis petiolo incluso 3-7 cm. longis 1-2.5 cm. latis sublyrato-pinnatifidis cum segmentis oblongo-cuneatis dentatis lateralibus glabris vel parce floccoso-tomentulosis; inflorescentiis terminalibus corymboso-cymosis; capitulis 8-10 mm. altis, radiatis; involucre campanulato calyculato glabro; bracteis involucri plerumque 21 lineari-lanceolatis 5-6 mm. longis; flosculis liguliferis 10-12, ligulis auranto-flavis; floribus disci circiter 60; achaeniis maturitate 2-2.5 mm. longis, hirtellis.—Collected on the Sierra de Parras, July, 1910, *C. A. Purpus* 4575 (Mo. Bot. Gard. Herb., U. S. Nat. Herb., and Field Mus. Herb.), TYPE.

85. *S. leucoreus* Greenm.¹

An herbaceous perennial; stems .5 to 2.5 dm. high, simple or branched from the base, glabrous except in the axils of the leaves, more or less purplish; leaves mostly pinnatifid, at first white-tomentulose, later glabrate, the lateral divisions obovate and dentate or again divided to linear and entire; the lower leaves petiolate, the uppermost sessile and dentate to entire; inflorescence a terminal corymbose cyme; heads 8 to 10 mm. high, discoid; involucre campanulate, sparingly calyculate, glabrous; bracts of the involucre usually 13, linear-lanceolate, 5 to 7 mm. long, acute; disk-flowers about 30; mature achenes 3 mm. long, glabrous.

Distribution: mountains of Nevada.

Specimens examined:

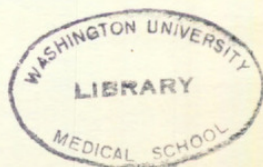
Nevada: on a ridge of limestone formation, south side of Lee Cañon, Charleston Mountains, Clark Co., alt. 2575 m., 26 July, 1913, *A. A. Heller 11003* (Mo. Bot. Gard. Herb. No. 746961, U. S. Nat. Herb. No. 767010, Univ. Calif. Herb. No. 175161, and Field Mus. Herb. No. 411575), TYPE; White Mountains, May-Oct., 1898, *Purpus 5817a* (U. S. Nat. Herb. No. 348096, and Univ. Calif. Herb. No. 131548).

86. *S. lynceus* Greene, *Erythea* 3: 22. 1895; Greenm. Monogr. Senecio, I. Teil, 24. 1901, and in Engl. Bot. Jahrb. 32: 20. 1902. Plate 4.

S. multilobatus Gray, Syn. Fl. N. Am. 12: 394. 1884, and ed. 2, 1886, in part.

An herbaceous perennial; stems one to several from a common base, erect, 2 to 5 dm. high, striate, stramineous to slightly purplish, leafy at the base, nearly naked above,

¹ *S. leucoreus* Greenm. sp. nov., herbaceus perennis; caulibus erectis 1-2.5 dm. altis simplicibus vel ad basin ramosis glabris vel in axillis foliorum paululo albo-tomentosis plus minusve purpurascens; foliis plerumque pinnatifidis primo albo-tomentosis denique glabris, segmentis lateralis obovatis et dentatis vel integris; foliis inferioribus petiolatis, superioribus sessilibus multo reductis et integris; inflorescentiis terminalibus corymboso-cymosis; capitulis circiter 1 cm. altis, discoideis; involucreo campanulato calyculato, glabro; bracteis involucri plerumque 13, lineari-lanceolatis 5-7 mm. longis acutis; floribus disci circiter 30; acheniis 3 mm. longis, glabris.—Collected on a ridge of limestone formation, south side of Lee Cañon, Charleston Mountains, Clark Co., alt. 2575 m., 26 July, 1913, *A. A. Heller 11003* (Mo. Bot. Gard. Herb. No. 746961, U. S. Nat. Herb. No. 767010, Univ. Calif. Herb. No. 175161, and Field Mus. Herb. No. 411575), TYPE.



glabrous or essentially so; radical and lower stem-leaves obovate to oblong-ob lanceolate in general outline, merely dentate to deeply pinnatifid into relatively small toothed divisions, including the petiole 3 to 10 cm. long, .5 to 1.5 cm. broad, at first usually lightly tomentulose, later more or less glabrate, thickish in texture; upper stem-leaves deeply pinnatisect into small divisions, often much reduced; inflorescence a few to several-headed corymbose cyme; heads 8 to 10 mm. high, radiate; involucre campanulate, sparingly calyculate; bracts of the involucre usually 21 (13-21), linear-lanceolate, 5 to 7 mm. long, glabrous; ray-flowers 8 to 10, rays yellow; disk-flowers 30 to 60; achenes usually glabrous.

Distribution: northern Arizona and adjacent Utah.

Specimens examined:

Arizona: Lynx Creek, 31 May, 1883, *Rusby 665* (Gray Herb., U. S. Nat. Herb. in part, and Mo. Bot. Gard. Herb.); northern Arizona, coll. of 1884, *Lemmon 3263, 3263½* (Gray Herb.); Grand Cañon, alt. 2130 m., May, 1903, *Grant 1192* (Univ. Ariz. Herb.); Grand Cañon, 12 June, 1891, *MacDougal 185* (U. S. Nat. Herb.); Williams, Coconino Co., 1-15 June, 1901, *H. S. Barber 67, 93* (U. S. Nat. Herb.); Colorado Plateau, Grand Cañon, 9 June, 1901, *Ward* (U. S. Nat. Herb. No. 410254); Bright Angel Trail, Grand Cañon, 22 Oct., 1905, *Eastwood 7* (U. S. Nat. Herb.); near Kindrick Mountains, alt. 2000 m., 7 July, 1901, *Leiberg 5662* (U. S. Nat. Herb.); without locality, coll. of 1869, *Dr. E. Palmer* (U. S. Nat. Herb.), form with slightly hirtellous achenes; mesa below Buckskin Mountains, alt. 2135 m., 21 Sept., 1894, *M. E. Jones 6063i* (U. S. Nat. Herb.).

87. *S. scalaris* Greene, Pittonia 4: 108. 1900.

An herbaceous perennial; stem simple, erect, 2 to 6 dm. high, glabrous; basal and lower stem-leaves petiolate, oblong-ovate to oblanceolate, including the petiole 2.5 to 9 cm. long, .5 to 2 cm. broad, crenulate to sublyrate, glabrous or with traces of a white flocculent tomentum; upper stem-leaves sessile, frequently appressed to the stem, pinnately parted into rather numerous short oblong-cuneate subentire to obtusely

dentate lateral lobes; inflorescence a terminal few to several-headed corymbose cyme; heads 8 to 10 mm. high, radiate; involucre campanulate, calyculate; bracts of the involucre usually 21, linear-lanceolate, slightly shorter than the flowers of the disk, glabrous or white tomentulose at the base; ray-flowers about 13, rays bright yellow; disk-flowers 60 to 85; achenes glabrous.

Distribution: mountains of northern Mexico.

Specimens examined:

Chihuahua: near Colonia Garcia in the Sierra Madres, alt. 2315 m., 13 July, 1899, *Townsend & Barber 131* (U. S. Nat. Herb. Nos. 383217, 735374, Gray Herb., and Mo. Bot. Gard. Herb.), TYPE; moist meadows, Guachochic, 25 June, 1892-93, *Hartman 521* (Gray Herb.); in the Sierra Madres, 21 June-29 July, 1899, *E. W. Nelson 6106* (U. S. Nat. Herb.); vicinity of Madera, alt. about 2250 m., 27 May-3 June, 1908, *Dr. E. Palmer 305* (U. S. Nat. Herb.).

Durango: in the Sierra Madres, 48 km. north of Guanacevi, alt. 2435-2745 m., 18 Aug., 1898, *E. W. Nelson 4771, 4778* (U. S. Nat. Herb.); El Oro to Guanacevi, 14-16 Aug., 1898, *E. W. Nelson 4746* (U. S. Nat. Herb.).

88. *S. Thornberi* Greenm.¹

An herbaceous perennial; stems solitary or somewhat caespitose, erect, 1.5 to 3.5 dm. high, glabrous or slightly tomentulose; radical and lower stem-leaves narrowly obovate to oblong-ob lanceolate, including the petiole 2.5 to 10 cm. long, .5 to 1.5 cm. broad, crenate-dentate to sublyrate, at first white-

¹ *Senecio Thornberi* Greenm. sp. nov., herbaceus perennis; caulibus solitariis vel caespitosis erectis 1.5-3.5 dm. altis, glabris vel parce tomentulosis; foliis inferioribus anguste obovatis vel oblongo-ob lanceolatis et crenato-dentatis vel sublyratis petiolo incluso 2.5-10 cm. longis primo albo-floccoso-tomentulosis denique plus minusve glabris crassiusculis; foliis superioribus sessilibus et pinatifidis aliquando multo reductis et integris; inflorescentiis terminalibus corymboso-cymosis; capitulis numerosis 8-10 mm. altis, radiatis; involucreo campanulato parce calyculato glabro vel ad basin tomentuloso; bracteis involucri plerumque 21 (13-21) lineari-lanceolatis 5-7 mm. longis; floribus femineis saepe 8, ligulis flavis; floribus disci 30-65; achaeniis glabris.—Arizona: San Francisco Mountains, July, 1883, *Rusby 666* (Gray Herb. and Mo. Bot. Gard. Herb.), TYPE; vicinity of Flagstaff, *Wilson 116* (Univ. Calif. Herb.), *MacDougal 12* (U. S. Nat. Herb., Phil. Acad. Nat. Sci. Herb., Univ. Ariz. Herb., and Gray Herb. in part), *MacDougal 114* (Gray Herb., Phil. Acad. Nat. Sci. Herb., and U. S. Nat. Herb.), *Toumey 706* (U. S. Nat. Herb.), and *Barber 143* (U. S. Nat. Herb.); Mormon Lake, *MacDougal 69* (Gray Herb. and U. S. Nat. Herb.).

floccose-tomentulose, later more or less glabrate, thickish in texture; upper stem-leaves sessile and pinnatifid to entire, often much reduced; inflorescence a terminal corymbose cyme; heads numerous, 8 to 10 mm. high, radiate; involucre campanulate, sparingly calyculate, glabrous or slightly tomentulose at the base; bracts of the involucre usually 21, occasionally fewer (13-21), linear-lanceolate, 5 to 7 mm. long; ray-flowers 8, rays yellow; disk-flowers 35 to 60; achenes glabrous.

Distribution: northern Arizona.

Specimens examined:

Arizona: San Francisco Mountains, July, 1883, *Rusby 666* (Gray Herb. and Mo. Bot. Gard. Herb.), TYPE; Flagstaff, May, 1893, *Wilson 116* (Univ. Calif. Herb.); vicinity of Flagstaff, alt. 1695 m., 31 May, 1898, *MacDougal 12* (U. S. Nat. Herb., Phil. Acad. Nat. Sci. Herb., Univ. Ariz. Herb., and Gray Herb. in part); Mormon Lake, alt. 1825 m., 7 June, 1898, *MacDougal 69* (Gray Herb. and U. S. Nat. Herb.); vicinity of Flagstaff, alt. 2135 m., 15 June, 1898, *MacDougal 114* (Gray Herb., Phil. Acad. Nat. Sci. Herb., and U. S. Nat. Herb.); Flagstaff, 30 June, 1892, *Toumey 706* (U. S. Nat. Herb.); Flagstaff, 6 July, 1901, *H. S. Barber 143* (U. S. Nat. Herb.); Grand Cañon, 12 June, 1891, *MacDougal* (U. S. Nat. Herb. No. 49362, in part).

The specimens here cited have been variously referred to *S. multilobatus* Torr. & Gray, to *S. lynceus* Greene, and to *S. neo-mexicanus* Gray. Habitally it is somewhat intermediate between the two last-mentioned species; and through *S. neo-mexicanus* the present group is connected with the section *Tomentosi*. *S. Thornberi* is named in honor of Professor J. J. Thornber, a distinguished student of the flora of Arizona.

89. *S. uintahensis* (Nelson) Greenm. Monogr. Senecio, I. Teil, 24. 1901, and in Engl. Bot. Jahrb. **32**: 20. 1902; Nelson in Coulter & Nelson, Manual Cent. Rocky Mountains, 581. 1909; Garrett, Spring Fl. Wasatch Region, 101. 1911, and ed. 2, 123. 1912.

S. Nelsonii var. *uintahensis* Nelson, Bull. Torr. Bot. Club **26**: 484. 1899.

S. Nelsonii var. *utahensis* Nelson, Contr. Fl. Rocky Mountains, in index. 1904.

S. utahensis Nelson, Spring Fl. Intermountain States, 175. 1912.

An herbaceous perennial; stems one to several from a common base, erect or nearly so, 1 to 3.5 dm. high, glabrous or slightly tomentulose, striate, stramineous to somewhat purplish; radical and lower stem-leaves obovate to oblong-ob lanceolate in general outline, mostly lyrate-pinnatifid, lightly floccose-tomentulose to glabrous, thickish in texture, including the petiole 2.5 to 10 cm. long, .5 to 2.5 cm. broad; upper stem-leaves sessile, pinnatifid, often much reduced; inflorescence a terminal usually many-headed corymbose cyme; heads 8 to 10 mm. high, radiate; involucre campanulate, sparingly calyculate; bracts of the involucre usually 21 (occasionally two or more bracts more or less coalescent), linear-lanceolate, 5 to 6 mm. long, glabrous; ray-flowers about 8, rays yellow; disk-flowers 30 to 50; achenes glabrous or rarely slightly hirtellous.

Distribution: Wyoming to Arizona, west to Oregon and eastern California.

Specimens examined:

Wyoming: Evanston, 4 June, 1898, *A. Nelson 4511* (Gray Herb., U. S. Nat. Herb., and Mo. Bot. Gard. Herb.), co-TYPE; Evanston, 10 July, 1897, *Williams* (U. S. Nat. Herb.); open slopes, Kemmerer, Uinta Co., 13 June, 1900, *Nelson 7172* (Gray Herb., U. S. Nat. Herb., and Mo. Bot. Gard. Herb.); La Barge, Uinta Co., 7 June, 1894, *Stevenson 208* (U. S. Nat. Herb.); Uinta Mountains, Aug., 1872, *Dr. Joseph Leidy* (Phil. Acad. Nat. Sci. Herb.); dry soil, cañon near Leckie, 23 June, 1901, *Merrill & Wilcox 716* (U. S. Nat. Herb.).

Idaho: Soda Springs, 21 June, 1892, *Mulford* (Gray Herb. and Mo. Bot. Gard. Herb.); near Pocatello, 27 May, 1893, *Dr. E. Palmer 57* (U. S. Nat. Herb.); moist grassy bottom of Port Neuf River, near Pocatello, 23 July, 1897, *Henderson 2998* (Gray Herb.); Pocatello, 27 June, 1902, *Blankinship* (Gray Herb.); on dry slopes, Pocatello, 28 July, 1911, *Nelson &*

Macbride 1401 (U. S. Nat. Herb.); on open sandy hills, M'Cammon, Bannock Co., 15 June, 1899, *A. & E. Nelson 5407* (Gray Herb., U. S. Nat. Herb., and Mo. Bot. Gard. Herb.).

Utah: plains near Ogden, Hayden's U. S. Geol. Survey, 1871-72, *Coulter* (U. S. Nat. Herb. No. 253216, 237113); Salt Lake City, alt. 1160 m., May, 1869, *Watson 674* (U. S. Nat. Herb. No. 49320); hills and mountains north of Salt Lake City, 9 June, 1905, *Rydberg 6003* (U. S. Nat. Herb.); Target Range, 23 May, 1908, *Clemens* (Mo. Bot. Gard. Herb.); dry gravelly "benches," near Salt Lake City, alt. 1400 m., 3 June, 1905, *Garrett 1095a* (U. S. Nat. Herb.), glabrous form; western slope of Wasatch Range, alt. 1340-1525 m., 17 May, 1913, *G. R. Hill Jr.* (Mo. Bot. Gard. Herb.); Alta, Aug., 1879, *M. E. Jones* (U. S. Nat. Herb.); Parley's Park, alt. 1830 m., June, 1869, *Watson 674* (U. S. Nat. Herb. No. 49315); Antelope Island, alt. 1210 m., June, 1869, *Watson 675* (U. S. Nat. Herb.); in rocky places, north of Ephraim, alt. 1650 m., 15 May, 1909, *Tidestrom 2073* (U. S. Nat. Herb.); Thistle, alt. 1615 m., 29 June, 1894, *M. E. Jones 5537k* (U. S. Nat. Herb.); Thistle Creek Junction, alt. 1370 m., 9 June, 1900 *Stokes* (U. S. Nat. Herb.); Simpson's Creek, 26 May, 1859, *H. Engelmann* (Mo. Bot. Gard. Herb.); Salina Cañon, alt. 2435 m., 15 June, 1894, *M. E. Jones 5441w* (U. S. Nat. Herb.); foothills near Glenwood, alt. 1645 m., 22 May, 1875, *Ward 81* (U. S. Nat. Herb. and Mo. Bot. Gard. Herb.); in gravel, Marysvale, alt. 2130 m., coll. of 1894, *M. E. Jones 5405l* (U. S. Nat. Herb.); rocky ridges, Diamond Valley, 16 May, 1902, *Goodding 818* (Gray Herb., U. S. Nat. Herb., and Mo. Bot. Gard. Herb.), form with slightly hirtellous achenes.

Arizona: Grand Cañon, 12 July, 1892, *Wooton* (U. S. Nat. Herb.); Grand Cañon, alt. 1500-2100 m., 30 June, 1913, *Hitchcock 84½* (U. S. Nat. Herb.).

Nevada: Mormon Mountains, Lincoln Co., alt. 900-1825 m., July, 1906, *Kennedy & Goodding 106* (U. S. Nat. Herb.); Palisade, alt. 1525 m., 17 June, 1903, *Stokes* (U. S. Nat. Herb.); dry hills between Austin and Carter's Ranch, alt. 1950 m., 27 July, 1913, *Hitchcock 762* (U. S. Nat. Herb.); East Humboldt Mountains, alt. 2740 m., Aug., 1868, *Watson 674* (Gray

Herb.); Pilot Range, *Shockley* (Univ. Calif. Herb.); White Mountains near Sunland, alt. 2285 m., 25 June, 1912, *Heller 10505* (U. S. Nat. Herb. and Field Mus. Herb.); dry stony ground, Verdi, May, 1889, *Sonne 472* (Mo. Bot. Gard. Herb.); near Verdi, May, 1897, *Sonne* (Univ. Calif. Herb.); log railroad north of Verdi, alt. 1625 m., 24 June, 1913, *Heller 10878* (Mo. Bot. Gard. Herb., U. S. Nat. Herb., Univ. Calif. Herb., and Field Mus. Herb.); Charleston Mountains, alt. 1525–1825 m., May–Oct., *Purpus 6103* (U. S. Nat. Herb.); summit between Austin and Birch Creek, Toiyabe Range, Lander Co., 31 July, 1913, *Kennedy 4588* (Univ. Calif. Herb.).

Oregon: on road east of Bly, alt. 1520 m., 1–5 Aug., 1896, *Coville & Leiberg 245* (U. S. Nat. Herb.).

California: Goose Lake Valley, July, 1895, *Mrs. R. M. Austin 560a* (U. S. Nat. Herb.); on dry rocks at Madeline Plains, Lassen Co., 3 June, 1897, *Applegate 867* (U. S. Nat. Herb.); Sierra Nevada Mountains, coll. of 1875, *Lemmon* (U. S. Nat. Herb.); northeastern California, coll. of 1879, *Lemmon 11* (Gray Herb.); Mono National Forest, alt. 2435 m., *King* (U. S. Nat. Herb.).

90. *S. stygius* Greene, Leaf. Bot. Obs. & Crit. 2: 21. 1909.

S. diffusus Greenm. Monogr. Senecio, I. Teil, 24. 1901, and Engl. Bot. Jahrb. 32: 20. 1902, name only, not L.

S. prolixus Greenm. Ann. Mo. Bot. Gard. 1: 264. 1914.

An herbaceous perennial, glabrous or white tomentulose in the axils of the leaves and at the base of the stem; stems solitary or several from a common base, 2 to 5 dm. high, terete, striate; radical and lower stem-leaves petiolate, lyrate-pinnatifid into oblong-cuneate coarsely dentate lobes which in well-developed specimens are separated by deep rounded sinuses, including the petiole 3 to 5 cm. long, 1 to 5 cm. broad, glabrous on both surfaces; inflorescence a loose corymbose cyme, 1 to 2.5 dm. in diameter; heads about 1 cm. high, radiate; involucre campanulate, sparingly calyculate, glabrous; bracts of the involucre usually 21, linear-lanceolate, 5 to 6 mm. long; ray-flowers about 13, ligules yellow; disk-flowers numerous, 50 to 60; achenes glabrous.

Distribution: along streams, western Arizona to south-eastern California.

Specimens examined:

Arizona: Grand Cañon of the Colorado River, May, 1884, *Lemmon* (U. S. Nat. Herb. No. 47166; fragments and photograph in Mo. Bot. Gard. Herb.); "Mohave region," April-May, 1884, *Lemmon 3130* (Gray Herb.), probably a duplicate of the preceding; Wickenburg, valley of the Hassayampa River, April, 1876, *Dr. E. Palmer 614* (Gray Herb., Phil. Acad. Nat. Sci. Herb., and Mo. Bot. Gard. Herb.); Pogumpá, 21 April, 1894, *M. E. Jones 5095n* (U. S. Nat. Herb.); without locality or date of collection, *Orcutt* (Univ. Calif. Herb. No. 131578).

Nevada: "Meadow Valley Wash, mile 16," alt. 1125 m., 28 April, 1904, *M. E. Jones* (U. S. Nat. Herb. No. 856543); without locality, coll. of 1891, *R. J. Jones* (Mo. Bot. Gard. Herb.).

California: Providence Mountains, 26 May, 1902, *Bran-degee* (Univ. Calif. Herb. No. 102018, and U. S. Nat. Herb. No. 735424).

91. *S. quercetorum* Greene, Leaf. Bot. Obs. & Crit. 2: 20. 1909.

S. Arizonicus Gray, Syn. Fl. N. Am. 1²: 392. 1884, and ed. 2, 1886, in part, as to plant of Rusby.

S. macropus Greenm. Monogr. Senecio, I. Teil, 24. 1901, and in Engl. Bot. Jahrb. 32: 20. 1902; Ann. Mo. Bot. Gard. 1: 267. 1914.

A stout herbaceous perennial; stems erect, 7.5 to 10 dm. high, glabrous or white tomentulose in the axils of the leaves, striate, more or less purplish, often hollow; radical and lower stem-leaves petiolate, lyrate-pinnatifid into few and relatively small unequal cuneate dentate to linear and entire lateral lobes and a large 5 to 8 cm.-long oblong-ovate coarsely dentate terminal segment, glabrous on both surfaces and, as well as the stem, more or less glaucous; upper stem-leaves sessile, pinnately lobed and conspicuously amplexicaul, gradually reduced towards the terminal open corymbose cyme; heads

about 1 cm. high, radiate; involucre campanulate, sparingly calyculate, glabrous; bracts of the involucre usually about 21, linear-lanceolate, 6.5 to 8 mm. long; disk-flowers numerous; achenes glabrous.

Distribution: known only from Arizona.

Specimens examined:

Arizona: "Oak Creek," 23 June, 1883, *Rusby 672* (U. S. Nat. Herb. and Phil. Acad. Nat. Sci. Herb.; fragments and photographs in Mo. Bot. Gard. Herb.), TYPE; without locality, coll. of 1883, *Rusby 175* (Gray Herb.), type of *S. macropus* Greenm.

92. *S. franciscanus* Greene, *Pittonia* 2: 19. 1889; Greenm. *Monogr. Senecio*, I. Teil, 24. 1901, and in *Engl. Bot. Jahrb.* 32: 20. 1902.

A low herbaceous subcespitose perennial, 1 dm. or less high from an ascending or suberect rootstock, at first somewhat tomentulose, later glabrate, more or less tinged with purple; leaves mostly pinnately divided, including the petiole 1–5 cm. long, .5 to 1.5 cm. broad, thickish in texture; the lowermost leaves sometimes undivided and subrotund, about 1 cm. long and broad, crenate-dentate; heads solitary or few, 10 to 12 mm. high, radiate; involucre campanulate, sparingly calyculate; bracts of the involucre 13 to 21, linear-lanceolate, 7 to 10 mm. long, tomentulose at the base, glabrous and purplish above; rays yellow; disk-flowers numerous; achenes glabrous.

Distribution: known only from the high mountains of northern Arizona.

Specimens examined:

Arizona: volcanic rocky soil near the summit of San Francisco Mountains, 10 July, 1889, *Greene* (U. S. Nat. Herb.), TYPE; summit of Mt. Agassiz, in volcanic scoria, Aug., 1884, *Lemmon* (Gray Herb. and U. S. Nat. Herb.); peak of San Francisco Mountains, alt. 3050 m., 30 Aug., 1884, *M. E. Jones 15* (Gray Herb.); San Francisco Mountains, 23 Aug., 1889, *Knowlton 95* (U. S. Nat. Herb.); Humphrey's Peak, San Francisco Mountains, alt. 2740–3050 m., 7–10 Aug., 1898, *Mac-*

Dougal 401 (Gray Herb., Phil. Acad. Nat. Sci. Herb., U. S. Nat. Herb., and Univ. Ariz. Herb.); near Flagstaff, May–Oct., 1900, *Purpus* (Mo. Bot. Gard. Herb. and U. S. Nat. Herb.).

93. S. Breweri Davy, *Erythea* **3**: 116. 1895; Greene, *Fl. Franciscana*, 471. 1897; Greenm. Monogr. *Senecio*, I. Teil, 24. 1902, and in *Engl. Bot. Jahrb.* **32**: 20. 1902.

S. eurycephalus Gray, *Syn. Fl. N. Am.* **12**: 392. 1884, and ed. 2, 1886, in part; Jepson, *Fl. West. Mid. Calif.* 512. 1901, in part; Hall, *Univ. Calif. Pub. Bot.* **3**: 233. 1907, in part, not Torr. & Gray.

An herbaceous perennial, glabrous throughout; stems erect, 4 to 8 dm. high, striate or furrowed; radical and lower stem-leaves petiolate, including the petiole 5 to 30 cm. long, 1.5 to 9 cm. broad, lyrate pinnatifid with obovate-cuneate coarsely and unequally toothed to sublobate segments, frequently bearing intermediate smaller lobes; the terminal segment oblong-ovate, much larger than the lateral ones; upper stem-leaves sessile and more or less amplexicaul, pinnatisect with slender unequally laciniate-lobed to entire segments, often much attenuated; inflorescence a terminal loose corymbose cyme; heads 12 to 15 mm. high, radiate; involucre campanulate, sparingly calyculate with short bracteoles; bracts of the involucre 15 to 17, lanceolate, 8 to 10 mm. long, 1.5 to 3 mm. broad, thickish in texture along the median line but with scarious margins; ray-flowers 8 to 10, rays yellow, conspicuous, 10 to 15 mm. long, 2.5 to 4 mm. broad; disk-flowers 45 to 60; mature achenes strongly ribbed, glabrous, about 5 mm. long.

Distribution: central western California and southward.

Specimens examined:

California: Atascadero, Geol. Surv. Calif., coll. of 1860–62, *Brewer 512* (Gray Herb. and U. S. Nat. Herb.), TYPE; Mt. Diablo, 30 April, 1868, *Brewer 538* (Gray Herb. and U. S. Nat. Herb.); Lemmon's Ranch, Cholame, June, 1887, *Lemmon 4585* (Gray Herb.); near Paso Robles, 23 April, 1899, *J. H. Barber* (Gray Herb.); Paso Robles, April, 1907, *Cobb* (U. S. Nat. Herb.); back of San Mateo on the Half Moon Bay road,

23 May, 1907, *Heller 8565* (Phil. Acad. Nat. Sci. Herb., Mo. Bot. Gard. Herb., U. S. Nat. Herb., and C. C. Deam Herb.); foothills near Stanford University, Santa Clara Co., May, 1902, *C. F. Baker 1711* (Gray Herb., U. S. Nat. Herb., and Mo. Bot. Gard. Herb.); Stanford University, 8 May, 1902, *Abrams 2432* (Mo. Bot. Gard. Herb.); Black Mountain, near Stanford University, 19 May, 1895, *Rutter 13* (U. S. Nat. Herb.); Stanford University, June, 1903, *Elmer 4418* (Mo. Bot. Gard. Herb. and U. S. Nat. Herb.); Blue Mountain, Greenhorn Range, Kern Co., 2-10 June, 1904, *Hall & Babcock 5000* (Gray Herb.); Tehachapi Valley, Kern Co., alt. 1200 m., 25 June, 1891, *Coville & Funston 1122* (U. S. Nat. Herb.); in Owens Valley and at Fort Tejon, Geol. Surv. Calif., 1862-64, *Horn* (U. S. Nat. Herb. No. 323752); hillsides at Bitterwater, San Benito Co., May, 1915, *Hall 9912* (Mo. Bot. Gard. Herb.); Carisa Plain, McDonald's Ranch, 3 May, 1896, *Eastwood* (Gray Herb. and U. S. Nat. Herb.); hillsides among scrub oak, Gorman Station, Los Angeles Co., *Davidson* (Gray Herb.); without locality, *Coulter 336* (Kew Herb.).

Var. **contractus** Greenm. var. nov.

Stem about 8 dm. high; leaf-characters similar to the species; inflorescence strongly contracted into a round-topped cyme; heads somewhat smaller than in typical forms of the species.

Distribution: known only from the type locality.

Specimen examined:

California: San Rafael Mountain, *John Spence* (Gray Herb.), TYPE.

94. *S. eurycephalus* Torr. & Gray, ex Gray in Mem. Am. Acad. [Pl. Fendl.] **4**: 109. 1849; Pac. Rail. Rept. **4**: 111. 1856, excl. var. *major*; Bot. Calif. **1**: 411. 1876; Syn. Fl. N. Am. **1**²: 392. 1884, and ed. 2, 1886; Greene, Fl. Franciscana, 471. 1897; Greenm. Monogr. Senecio, I. Teil, 24. 1901, and in Engl. Bot. Jahrb. **32**: 20. 1902; Hall, Univ. Calif. Pub. Bot. **3**: 233. 1907, excl. synonymy and plant of Barber; Jepson, Fl. West. Mid. Calif. 512. 1901, in part, and ed. 2, 428. 1911.

S. Tidestromii Greene, Fl. Franciscana, 472. 1897.

An herbaceous perennial, at first tomentose or at least tomentulose, later more or less glabrate; stems one to many from a perennial base, erect or nearly so, 3 to 5 dm. high, striate; radical and lower stem-leaves petiolate, including the petiole 3 to 18 cm. long, 1 to 3 cm. broad, sublyrately pinnatifid with rather remote oblong-cuneate coarsely and unequally toothed lateral divisions and somewhat confluent terminal segments; uppermost leaves pinnatifid, sessile; inflorescence a terminal loose subcorymbose cyme; heads relatively large, 12 to 18 mm. high, radiate; involucre campanulate, sparingly calyculate; bracts of the involucre usually 21, narrowly lanceolate, about 1 cm. long, tomentulose or glabrous; ray-flowers 10 to 12, rays yellow; disk-flowers numerous; mature achenes about 5 mm. long, conspicuously ribbed, glabrous.

Distribution: usually in moist ground in the Coast Ranges of central California to southern Oregon.

Specimens examined:

California: without definite locality, *Fremont* (Gray Herb.), TYPE; without definite locality, *Hartweg* (Gray Herb.); on alkaline soil at the Geysers, Sonoma Co., 26 April, 1864, *Bolander 3963* (Gray Herb., U. S. Nat. Herb., and Mo. Bot. Gard. Herb.); dry plains in the oak belt, Lake Co., 8 June, 1916, *Heller 12384* (Mo. Bot. Gard. Herb.); near Pit River Ferry, Shasta Co., 15-28 May, 1897, alt. 210-275 m., *H. E. Brown 234½* (Mo. Bot. Gard. Herb. and U. S. Nat. Herb.); Knoxville, Napa Co., 8 May, 1903, *C. F. Baker 3080* (Gray Herb., U. S. Nat. Herb., and Mo. Bot. Gard. Herb.); in gravel and sand, at the river bridge near Redding, Shasta Co., 26 May, 1905, *Heller 7871* (Phil. Acad. Nat. Sci. Herb., Mo. Bot. Gard. Herb., U. S. Nat. Herb., and C. C. Deam Herb.); lava beds of northeastern Shasta Co., June, 1903, alt. 1220 m., *Hall & Babcock 4232* (Gray Herb.); Red Bluff, Tehama Co., 6 April, 1913, *Wootton* (U. S. Nat. Herb.).

Oregon: dry soil near Sprague River, 16 Aug., 1901, *Cusick 2763* (Gray Herb., U. S. Nat. Herb., and Mo. Bot. Gard. Herb.).

95. *S. Austinae* Greene, Bull. Calif. Acad. Sci. 1: 93. 1885; Greenm. Monogr. Senecio, I. Teil, 24. 1901, and in Engl. Bot. Jahrb. 32: 20. 1902.

S. Neo-Mexicanus Gray, Syn. Fl. N. Am. 1²: 454. 1885, not Gray, Proc. Am. Acad. 19: 55. 1883.

An herbaceous perennial; stem simple, erect, 3 to 4 dm. high, nearly naked above, striate, glabrous; lower leaves petiolate, oblong-ob lanceolate, 2 to 8 cm. long, .5 to 1.5 cm. broad, sharply and unequally callous-mucronate-dentate, thickish in texture, inconspicuously tomentulose to glabrous; uppermost leaves reduced to entire bracts; inflorescence a terminal few-headed corymbose cyme; heads 10 to 12 mm. high, radiate; involucre campanulate, sparingly calyculate; bracts of the involucre about 21, linear-lanceolate, acute, 7 to 8 mm. long, glabrous; ray-flowers 8 to 10, rays light yellow; disk-flowers numerous; achenes glabrous.

Distribution: northeastern California.

Specimens examined:

California: Alturas, Modoc Co., July, 1884, *Mrs. R. M. Austin* (Greene Herb., Univ. of Notre Dame, and Gray Herb.). The specimen in the Gray Herbarium, although incompletely labeled, is taken to be a part of the original material on which the species was founded.

This species is closely related to *S. eurycephalus* Torr. & Gray, but it differs in having the upper portion of the stem nearly naked, and in having merely laciniate-toothed leaves without the deep rounded sinuses which are characteristic of the Torrey and Gray species.

96. *S. ionophyllus* Greene, Pittonia 2: 20. 1889; Fl. Franciscana, 472. 1897; Greenm. Monogr. Senecio, I. Teil, 24. 1901, and in Engl. Bot. Jahrb. 32: 20. 1902; Hall, Univ. Calif. Pub. Bot. 3: 231. 1907.

An herbaceous perennial; stems one to several from a common base, 2 to 3.5 dm. high, simple or branched, leafy at the base, sparingly leafy above; lower leaves including the long slender petiole 2.5 to 8 cm. long, .5 to 2 cm. broad, obovate-

cuneate and few-toothed to lyrate pinnatifid, thickish in texture, glabrous or at first tomentulose and more or less glabrate and, as well as the stem, often purplish; uppermost leaves reduced to sessile lanceolate entire bracts; heads 1 to 3, relatively large, 1.5 to 2 cm. high, radiate; involucre campanulate, calyculate, glabrous or tomentulose at the base; bracts of the involucre 13 to 21, narrowly lanceolate; rays light yellow; disk-flowers numerous; mature achenes 5 mm. long, strongly ribbed, glabrous.

Distribution: southern California.

Specimens examined:

California: precipitous sides of Bear Creek, above Corkscrew Falls, San Bernardino Mountains, 22 June, 1895, *Parish 3604* (Gray Herb.); dry woods, San Bernardino Mountains, alt. 1675 m., Aug., 1904, *Williamson* (Phil. Acad. Nat. Sci. Herb. and C. S. Williamson Herb.); Wilson's Peak, Los Angeles Co., coll. of 1893, *Davidson* (Greene Herb., Univ. of Notre Dame); hillside, under pines, South Fork of Santa Ana River, alt. 1920 m., 27 June, 1906, *Grinnell 256* (U. S. Nat. Herb.); Swartout Cañon, desert slopes of the San Gabriel Mountains, 5 July, 1908, *Abrams & McGregor 647* (U. S. Nat. Herb.).

Var. **sparsilobatus** (Parish) Hall, Univ. Calif. Pub. Bot. 3: 232. 1907.

S. sparsilobatus Parish, Bot. Gaz. 38: 462. 1904.

S. intrepidus Greenm. in herb.

Stems one to several from a stout or stoutish rootstock, 1 to 2 dm. high; leaves chiefly basal, obovate-cuneate and subentire to lyrate pinnatifid into few rounded or obtusely dentate lateral lobes, including the petiole 1.5 to 5 cm. long, .5 to 1.5 cm. broad, thick and firm in texture; heads few, smaller than in the species, 1 to 1.5 cm. high.

Specimens examined:

California: trail to South Fork of Santa Ana River via Barton Falls, alt. 2285 m., 28 Aug., 1905, *Charlotte N. Wilder 244* (U. S. Nat. Herb.); Lytle Creek Cañon, San Antonio Mountains, alt. 1830 m., 1-3 June, 1900, *Hall 1456* (Field Mus.

Herb. and Gray Herb.; photograph in Mo. Bot. Gard. Herb.);
Upper Santa Ana Cañon, Transition Zone, alt. 2285-2430 m.,
26 July, 1906, *Hall 7575* (Mo. Bot. Gard. Herb.).

(To be continued.)

EXPLANATION OF PLATE

PLATE 4

Senecio lynceus Greene
United States

From Lemmon's Nos. 3263, 3263½ in the Gray Herbarium of Harvard University.



Greenman, J. M. 1917. "Monograph of the North and Central American Species of the Genus *Senecio*- Part II." *Annals of the Missouri Botanical Garden* 4, 15–36. <https://doi.org/10.2307/2990060>.

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