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NEW SELAGINELLAS FROM THE  
WESTERN UNITED STATES

(WITH SIX PLATES)

BY  
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NEW SELAGINELLAS FROM THE WESTERN  
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Within the past twenty years a considerable number of species have been proposed in the group of *Selaginella rupestris*, nearly all of which, judged by a critical comparison of their essential though minute characters, are undoubtedly well founded. In all, about twenty-five species have been described from the United States. These are so various in gross form and habit, and under a dissecting microscope or even by use of a good hand lens show such remarkably diverse and constant leaf and sporophyll characters, that it is hard to conceive of their ever having been regarded as, for the most part, "forms" of a single species. Extensive collecting, especially in the Rocky Mountain region, is still necessary in order to clear up the relationship of a few doubtful forms, and it is likely that exploration in the Southwest will yield additional new species, since the plants as a group are decidedly xerophilous or, at least, are able to withstand long periods of drought, and so may be sought in those arid out-of-the-way places that appeal chiefly to the natural history collector. Specimens from any part of the southern and western United States will, indeed, be gratefully received by the writer.

Of the six species here described the first is one of the interesting assemblage of species growing together, often intimately associated, in the Organ Mountains of New Mexico; the second is a plant of the desert region of southern California, confused by Underwood with a similar species from Zacatecas, Mexico; the third, long known to the writer as distinct, is a related plant from Arizona; the fourth and fifth are species of southern California, brought to light by the energetic field work of a small group of enthusiastic botanists; and the sixth is a strongly marked plant, not uncommon in the Glacier National Park, recently discovered during the course of intensive botanical collecting in that region. In the lack of a monograph or a synoptical account of the group as represented in the United States, it has seemed especially desirable to accompany the descriptions by illustrations. These, besides assisting in identification, will serve to

show very well some of the more diverse forms assumed by members of this group. All the illustrations are at natural size and represent the type specimens in each instance, excepting only that of *S. arizonica* which is of *Thornber* 315.

**SELAGINELLA NEOMEXICANA** Maxon, sp. nov.

(Pl. 1)

Plants strongly assurgent, 10 to 20 cm. long, the main stem rooting sparingly at the extreme base, freely ramose, all the branches erect or ascending, several times pinnate, subequal; stems (leaves excluded) mostly 0.2 to 0.5 mm. in diameter, the older ones readily defoliate. Leaves uniform, rigidly ascending on all sides, subdistant in attachment, imbricate but not wholly concealing the axis, 2 to 2.75 mm. long (seta included), the blades subulate-attenuate, 1.7 to 2.5 mm. long, 0.37 to 0.5 mm. broad at the base, setigerous (the seta 0.3 to 0.47 mm. long, whitish-hyaline from a greenish-lutescent base, straight, sparingly serrulate), thin-herbaceous, spongiose at the base, subglaucous, flat above, dorsally convex toward the narrowly obtuse apex, sparingly pilose at the base of the deep narrow median groove, ciliate, the cilia 12 to 20 on each side, slender, rigid, nearly straight, mostly 0.06 to 0.125 mm. long, spreading or slightly ascending, the apical ones reduced and more oblique. Spikes numerous, terminating the main branches, 1 to 2 cm. long, about 1.5 mm. thick, recurved, sharply quadrangular; sporophylls glaucous, yellowish brown with age, readily detached, 2.4 to 2.7 mm. long (seta included), the blade 2.2 to 2.4 mm. long, 0.9 to 1.2 mm. broad, ovate, evenly long-acuminate, setigerous (the seta 0.2 to 0.47 mm. long, greenish-lutescent with a white tip, slightly scabrous), strongly concave, with a deep dorsal groove throughout, freely short-ciliate, the cilia 25 to 32 on each side, close, stout, rigidly ascending, mostly 0.045 to 0.075 mm. long, the upper ones reduced. Megasporangia abortive or wanting. Microsporangia very numerous; microspores yellow, about 0.022 mm. in diameter.

Type in the U. S. National Herbarium, No. 591262, collected in the Organ Mountains, Dona Ana County, New Mexico, at an altitude of about 1,800 meters, January 9, 1909, by E. O. Wooton. There are at hand three additional sheets of specimens collected in the same range of mountains by Mr. Wooton on September 28, 1902, September 11, 1904, and March 3, 1907, the last mentioned associated with *S. rupicola* Underw.

The present species has hitherto been referred doubtfully to *S. bigelovii* Underw., of southern California, and this is clearly its

relationship. *Selaginella bigelovii* differs, however, in its more compact habit and rigid, funiform branches, and more particularly in details of leaf structure, the cilia being strongly oblique, very rigid, short (mostly 0.03 to 0.04 mm. long), and pointed, often incurved; also, the setae are strongly scabrous throughout. Similar differences are found in the sporophylls, those of *S. bigelovii* being coriaceous, distinctly carinate, and tipped with a strongly scabrous seta.

**SELAGINELLA EREMOPHILA** Maxon, sp. nov.

(Pl. 2)

Plants wholly prostrate, the main stems up to 10 or 12 cm. long, coarsely radicate at intervals throughout, freely branched, forming a close mat, the principal basal divisions subequal, divaricate, 2 or 3 times pinnate, the ultimate sterile branches very short, mostly 2 to 4 mm. long, about 2 mm. broad, involute upon drying; stems, branches, and minor divisions all densely leafy, of pronounced dorso-ventral aspect. Leaves crowded, in six ranks, those of the under side the largest, about 2 mm. long, 0.5 mm. broad, exactly lanceolate, acutish, not setigerous, ciliate (the cilia about 25 on each side, white, spreading, mostly 0.075 to 0.125 mm. long), yellowish brown, imbricate, oblique-spreading, strongly secund upon drying; leaves of the upper side close-set, subimbricate, *nearly vertical*, straight or slightly curved, deltoid-subulate, acutish, not setigerous, 1 to 1.4 mm. long, 0.4 to 0.47 mm. broad at the base, at first bright green and subglaucous, soon turning yellowish brown, flat above, broadly convex beneath and sulcate in a median line nearly or quite to the tip, ciliate, the cilia 6 to 12 on each side, weak, mostly spreading, about 0.1 mm. long, similar minute hairs tufted at the base of the midrib and extending sparingly along the dorsal groove. Spikes numerous, arcuately ascending, 6 to 10 mm. long, 1 mm. thick or less; sporophylls deltoid, acute or acutish, not setigerous, mostly 1.2 to 1.4 mm. long, 0.9 to 1 mm. broad, convex, subcarinate and sulcate dorsally, ciliate, the cilia 12 to 18 on each side, spreading or weakly ascending, mostly 0.09 to 0.125 mm. long, rarely reaching the apex. Megasporangia few, inferior, mostly basal; megaspores light yellow, 0.36 to 0.4 mm. in greatest diameter, the commissural faces finely and deeply reticulate, the outer face coarsely but sharply and deeply reticulate, the ridges about 0.016 mm. broad; commissural costae prominent, long. Microsporangia numerous; microspores dull yellow, about 0.039 mm. in diameter, long remaining associated in tetrads.

Type in the U. S. National Herbarium, No. 867484, collected in Palm Canyon, Riverside County, California, April 4, 1917, by Ivan M. Johnston (No. 1047); distributed as *Selaginella parishii* Underw.

Mr. Johnston's notes accompanying the specimen read, "Very common in rock crevices and in their shade; Lower Sonoran Zone. It is very hard to find a rock which hasn't a large colony of this at its foot. It grows with *Selaginella bigelovii*."

The following additional specimens of *S. eremophila*, all from the Colorado Desert region, are in the National Herbarium:

CALIFORNIA: Mountain Spring, San Diego County, alt. 900 meters, May 14, 1894, *Mearns* 3162. Top of Granite Mountain, seven miles east of Julian, April 17, 1918, *Bethel*. Base of San Jacinto Mountain, March, 1908, *Saunders*. Palm Canyon, eastern base of San Jacinto Mountain, March, 1919, *Hall*. West Canyon, Riverside County, alt. 200 meters, April 18, 1907, *Parish* 6111. Tahquitz, near Palm Springs, December 25, 1903, *Dudley*.

*Selaginella eremophila* is the plant of southern California (rare in herbaria) which has been called *S. parishii*. Underwood in describing *S. parishii*,<sup>1</sup> however, cited three collections, two of these from the Colorado Desert (*Parish* 1200; *Saunders*), and the third from Zacatecas, Mexico (*Palmer* 306). The California plant is specifically distinct from the Mexican element, which, having been designated by Underwood as the type, must bear the name *S. parishii*. The dissociation of Mr. Parish's name from so characteristic a species of the Colorado Desert flora is especially regrettable.

Of the species hitherto described, *S. eremophila* is closely related only to *S. parishii*, of Zacatecas, and *S. landii* Greenm. & Pfeiffer,<sup>2</sup> of Jalisco, both of which have a very similar dorso-ventral aspect. *Selaginella parishii* is a more lax plant, with the ultimate branches 2 to 3 mm. broad, and larger, narrower leaves, whose characters may be summarized as follows: Leaves of the under side 2.2 to 2.5 mm. long, with about 18 cilia upon each side, these *oblique*, 0.078 to 0.125 mm. long; leaves of the upper side 1.3 to 1.6 mm. long, 0.35 to 0.43 mm. broad, with 4 to 8 cilia on each side, these *oblique*, 0.06 to 0.09 mm. long. The sporophylls, moreover, are broadly cordate-deltoid, 1.5 to 1.7 mm. long, 1.3 to 1.4 mm. broad, with 25 to 30 very oblique, close-set cilia on each side, those of the lower two-thirds 0.1 to 0.17 mm. long, forming a conspicuous fimbriate border. The megaspores are pale yellow, about 0.42 mm. in diameter, and delicately reticulate.

*Selaginella landii* is represented in the National Herbarium by a portion of the type, *Barnes & Land* 2024 (San Esteban Mountains, 32 kilometers from Guadalajara, Jalisco) and by another collection

<sup>1</sup> Bull. Torrey Club **33**: 202. 1906.

<sup>2</sup> Ann. Mo. Bot. Gard. **5**: 205. pl. 11, 12. 1918.

(*Rose & Painter* 7499) from the same locality. The essential characters are as follows: Stems very firm, stiff, the branches rigid, not intricate; leaves of lower side closely appressed-imbricate, lance-attenuate, 2.7 to 3.2 mm. long, 0.6 to 0.7 mm. broad, with about 15 to 20 slender, mostly ascending cilia on each side in the lower half or two-thirds (these 0.06 to 0.12 mm. long), the apical third with pungent serratures; leaves of the upper side crowded, rigidly vertical or recurved, narrowly deltoid, evenly acuminate, 1 to 1.2 mm. long, 0.4 to 0.5 mm. broad, with about 13 to 16 cilia on each side, these mostly oblique and incurved, 0.055 to 0.085 mm. long, the upper ones passing into broad pungent serratures; sporophylls deltoid-ovate, narrowly long-acuminate, 1.7 to 2 mm. long, 0.85 to 1 mm. broad, variable in ciliation, sometimes with as many as 20 stiff, rigidly ascending, mostly incurved cilia in the basal half (these 0.03 to 0.06 mm. long) and elsewhere serrate, or with short ascending teeth along the whole margin above the extreme base (here with a few cilia). Megaspores yellow, subglobose, about 0.33 mm. in diameter, rugulose-reticulate, the ridges projecting sharply, less than 0.008 mm. broad.

These three species, *S. eremophila*, *S. parishii*, and *S. landii*, while readily distinguished specifically, are by no means typical members of the group of *S. rupestris*, and together with the next species (*S. arizonica*) form a fairly well-defined subgroup. The pronounced dorso-ventral habit and subdimorphous leaves are doubtless to be associated with their strongly xerophilous habitat.

**SELAGINELLA ARIZONICA** Maxon, sp. nov.

(Pl. 3)

Plants wholly prostrate, the main stems up to 20 cm. long, rooting at intervals throughout, pinnately branched, the branches 1 to 1.5 cm. apart on each side, the lower and middle ones 2.5 to 6 cm. long, twice pinnate, the ultimate branches broadly subclavate, short, subdistant, all the parts densely leafy, dorso-ventral, involute. Leaves crowded, in six ranks, those of the under side the largest, appressed-imbricate, oblique laterally, linear-lanceolate, acuminate, not setigerous, 2.5 to 2.8 mm. long, 0.5 to 0.6 mm. broad, thin-herbaceous, yellowish brown, evenly ciliate, the cilia 18 to 22 on each side, oblique, up to 0.11 mm. long, the apical ones reduced; leaves of the upper side subulate, 1.8 to 2.2 mm. long, 0.3 to 0.44 mm. broad, evenly attenuate to the acutish, whitish-marginate, short-setigerous apex (the seta dirty white, stout, 0.15 to 0.28 mm. long, serrate, often reflexed, present only in the

young leaves, caducous), ciliate (the cilia 4 to 8 on each side, ascending, pungent, 0.04 to 0.09 mm. long, passing into short serratures at the apex), at first bright green, grayish with age, rigidly herbaceous from a thick spongy base, rigidly ascending, with age nearly vertical in the older branches, flat above, slightly convex dorsally and deeply sulcate nearly to the tip. Spikes ascending, terminating the short ultimate divisions of the larger branches (or the divisions wholly fertile), sometimes numerous, 2 to 5 mm. long; sporophylls narrowly ovate-deltoid, 1.5 to 1.95 mm. long, 0.75 to 0.85 mm. broad, evenly long-acuminate, at first barely setigerous (the seta 0.15 to 0.25 mm. long, broad, pointed, serrulate, dirty white), subcarinate, ciliate, the cilia 18 to 22 on each side, stout, rigidly ascending, mostly 0.03 to 0.06 mm. long, the upper ones greatly reduced, dentiform. Megasporangia numerous, basal, or sometimes interspersed among the microsporangia; megaspores pale yellow, subglobose, 0.36 mm. in greatest diameter, coarsely reticulate on the outer face (the ridges sharp and narrow), finely reticulate on the commissural faces; commissural costae long, delicate. Microsporangia numerous; microspores orange, about 0.035 mm. in diameter.

Type in the U. S. National Herbarium, no. 694327, collected at the foot of Soldier Trail, Santa Catalina Mountains, Arizona, altitude about 960 meters, July 28, 1914, by Forrest Shreve. Other specimens in the National Herbarium are as follows:

ARIZONA: Sabino Canyon, Santa Catalina Mountains, alt. 870 meters, June 15, 1903, *Thornber* 315. Ventana Canyon, near Tucson, 1913, *Cook*. Pimo Canyon, near Tucson, February, 1913, *Parish* 8513. Arivipa Canyon, April, 1873, *P. F. Mohr*. Santa Catalina Mountains, April 3, 1894, *Toumey*. Roosevelt Dam, on steep rocky slopes, August 3, 1910, *Goodding* 722. Salt River Mountains, alt. 600 meters, November 9, 1913, *Bailey*. Ray, 1913, *Bailey*.

*Selaginella arizonica* is related to *S. eremophila*, and to *S. landii* and *S. parishii*, whose characters are given in detail under the last preceding species. The disparity in size between the leaves of the under and upper sides is far less in *S. arizonica* than in the others, and it alone of the four species has the leaves and sporophylls at all setigerous. It is a much larger and coarser plant than *S. eremophila* and differs in nearly all technical leaf characters.

**SELAGINELLA ASPRELLA** Maxon, sp. nov.

(Pl. 4)

Plants forming a loose mat, the main stems 3 to 6 cm. long, creeping but not prostrate, rooting at intervals throughout, with a few



laxly ascending branches, these close, usually intricate, 1 to 2.5 cm. long, twice pinnate, the ultimate divisions 3 to 7 mm. long, oblique, slender, all the parts scantily leafy; main branches (leaves excluded) about 0.6 mm. thick, tardily defoliate. Leaves uniform, rigidly ascending on all sides, subdistant, decurrent, subimbricate, 2.75 to 3.2 mm. long (seta included), the blades narrowly deltoid-subulate, 1.85 to 2.3 mm. long, 0.55 to 0.7 mm. broad at the base, long-setigerous (the seta 0.7 to 0.9 mm. long, white-hyaline, slender, subflexuous, serrulate-ciliate throughout, the cilia up to 0.04 mm. long), chartaceous, inflated, concave above, broadly convex beneath, with a deep median groove, very strongly glaucous, with a more or less well-defined whitish-hyaline border (0.045 to 0.075 mm. broad at the middle of the leaf), ciliate, the cilia 16 to 23 on each side, spreading, straight or often curved, mostly 0.05 to 0.09 mm. long, the upper ones distant, shorter, oblique. Spikes numerous, loosely aggregate at the ends of the short apical branches, 1 to 2 cm. long, 1.5 to 2 mm. broad, arcuate, sharply quadrangular; sporophylls laxly imbricate, strongly glaucous, yellowish brown with age, 2.5 to 3 mm. long (seta included), the blade narrowly ovate-deltoid, evenly long-acuminate, 1.9 to 2.2 mm. long, 0.85 to 1 mm. broad at the base, long-setigerous (the seta stiff, straight, 0.6 to 0.8 mm. long, whitish, strongly scabrous), carinate, with a deep dorsal groove, strongly whitish-marginate, ciliate, the cilia 25 to 35 on each side, slightly oblique, mostly 0.03 to 0.06 mm. long, the apical ones few and reduced. Megasporangia few, mostly basal; megaspores pale to bright yellow, subglobose, about 0.375 mm. in diameter, lightly reticulate on all faces, the meshes broad, with low ridges; commissural costae prominent. Microsporangia very numerous; microspores bright orange, about 0.033 mm. in diameter.

Type in the U. S. National Herbarium, No. 867507, collected at the west end of Ontario Peak, San Antonio Mountains, southern California, altitude about 1,800 meters, in rocky ground, March 25, 1918, by Ivan T. Johnston (No. 1815). Other material, all from the same range of mountains, has been examined, as follows: San Antonio Canyon, in shelter of rock on the dry, open canyon floor, alt. 1,725 meters, July 28, 1917, *Johnston* 1595; Ontario Peak, in crevices of a sunny, exposed granite cliff, alt. 2,475 meters, December 22, 1917, *Johnston* 1807. The last-mentioned specimen is dwarfed, and the leaf parts scarcely attain the size given in the description.

*Selaginella asprella* is a strongly marked species, without any very close relatives. Of western United States species it is related only to *S. bigelovii* Underw., *S. rupincola* Underw., and *S. neo-*

*mexicana* Maxon, all of which are much larger plants of essentially erect growth and differ, besides, in numerous technical characters. The very slender, rigid branches and spaced, half-appressed, strongly setigerous leaves give the plant a scant, harsh aspect, which has suggested the specific name.

**SELAGINELLA LEUCOBRYOIDES** Maxon, sp. nov.

(Pl. 5)

Plants very closely prostrate, the stems short-creeping, 1 to 2 cm. long or less, closely aggregate, simply pinnate, the divisions thick, strongly cespitose, erect, only 2 to 7 mm. long, or the terminal ones bearing erect elongate spikes, all the parts densely leafy. Leaves crowded, closely appressed-imbricate, mostly incurved, glaucous, linear-subulate, uniform as to shape, variable in size, the basal ones 2.8 to 3.25 mm. long (seta included), 0.44 to 0.53 mm. broad, the upper ones mostly 2 to 2.8 mm. long (seta included), 0.42 to 0.5 mm. broad, all short-setigerous at the acutish whitish thickened apex (the seta stout, white, not translucent, subflexuous, 0.125 to 0.28 mm. long, strongly scabrous, often reflexed), ciliate (the cilia 8 to 16 on each side, those of the basal half spreading, 0.6 to 0.13 mm. long, the upper ones shorter, distant, ascending), thick, rigidly herbaceous, flat or broadly concave above, convex beneath (strongly so toward the apex), the median groove deep, broad, nearly percurrent. Spikes relatively numerous, aggregate, 5 to 10 mm. long, about 1.5 mm. thick, erect, nearly straight; sporophylls rigidly appressed-imbricate, deeply concave, narrowly to broadly deltoid-ovate, evenly long-acuminate, about 2 mm. long, 0.8 to 1 mm. broad, short-setigerous (the seta white, rigid, pointed, subentire, about 0.15 mm. long or less), ciliate-serrulate; cilia or teeth 20 to 25 on each side, the basal cilia not more than 0.046 mm. long, pungent, oblique, passing gradually into oblique hyaline teeth toward the apex. Megasporangia few, basal; megaspores subglobose, bright yellow, about 0.47 mm. in diameter, the outer face obscurely reticulate, the commissural faces manifestly so; commissural costae short, elevated. Microsporangia numerous; microspores orange, about 0.039 mm. in diameter.

Type in the U. S. National Herbarium, No. 982453, collected at Bonanza Mine, Providence Mountains, southeastern California, alt. 840 meters, in crevices, rocky mountain side, March 30, 1920, by P. A. Munz and R. D. Harwood (No. 3789). The following additional material is at hand:

CALIFORNIA: Surprise Canyon, Panamint Mountains, Inyo County, alt. 1,400 meters, April 14, 1891, *Coville & Funston* 628. Vicinity of Bonanza King Mine, east slope of Providence Mountains, Mojave Desert, alt. 960 meters, May 11-24, 1920, *Munz, Johnston & Harwood* 4226.

The relationship of *Selaginella leucobryoides* is difficult to determine, since the plant differs not only in megaspores but in most foliage characters from all other species of the Pacific Coast region. The most striking characteristics are the extremely short, pure white but opaque seta of the leaves and the condensed, rosette-like arrangement of the very short branches. In habit and color there is a strong suggestion of the tufted growth of some of the smaller species of *Leucobryum*.

The Panamint Mountains plant collected by Coville and Funston (No. 628) was mentioned as a critical form by Underwood in his initial work upon the United States species allied to *S. rupestris*. It is clearly a reduced state of the present species, differing from the type only in its lesser size. The leaves are only 1.65 to 2 mm. long and 0.35 to 0.44 mm. broad; the seta and cilia characters are identical. The plant collected by Munz, Johnston, and Harwood (No. 4226) also comes from a higher elevation than the type collection and is somewhat smaller.

**SELAGINELLA STANDLEYI** Maxon, sp. nov.

(Pl. 6)

Plants closely prostrate, the main stems up to 6 cm. long, finely radice, pinnately branched, the larger basal branches up to 2.5 cm. long and with a few short alternate divisions, the upper branches simple or once dichotomous, all the divisions cespitose, rigidly arcuate-ascending. Leaves crowded, imbricate, rigidly appressed, those of the older stems of a characteristic bronze color, relatively large, the blades broadly acicular, acutish, up to 2.5 mm. long and 0.6 mm. broad, with a short lutescent seta; leaves of the branches mostly dull green, oblong-linear, 2.1 to 2.5 mm. long (seta included), 0.35 to 0.45 mm. broad, setigerous at the narrowly obtuse apex (the seta 0.6 to 0.78 mm. long, lutescent throughout, coarsely serrulate-scabrous), ciliate (the cilia 10 to 14 on each side, hyaline, stiff, oblique, mostly 0.05 to 0.06 mm. long, passing into pungent serratures toward the apex), rigidly herbaceous, flat above, convex beneath and reddish along the deep median groove, especially toward the cymbiform apex. Spikes numerous, mostly geminate, erect from a curved base, 7 to 11 mm. long, about 1.5 mm. thick; sporophylls deltoid to

ovate-deltoid, 1.8 to 2 mm. long, 0.9 to 1 mm. broad, acuminate, setigerous at the acutish tip (the seta 0.2 to 0.4 mm. long, stout, rigid, scabrous, lutescent from a darker base), ciliate, the cilia close, 16 to 21 on each side, stiff, rigidly ascending, up to 0.08 mm. long. Megasporangia few, basal; megaspores orange-yellow, 0.46 to 0.5 mm. in diameter, oblate-spheroidal, rugose in all aspects, the commissural costae short and prominent. Microsporangia very numerous; microspores dull orange, about 0.032 mm. in diameter.

Type in the U. S. National Herbarium, No. 1028638, collected in the vicinity of Sexton Glacier, Glacier National Park, Montana, altitude 1,950 to 2,220 meters, on a moist rocky slope, August 7, 1919, by Paul C. Standley (No. 17228). Other material studied is as follows:

MONTANA (Glacier National Park): Gunsight Pass and vicinity, alt. 1,775 to 2,100 meters, August 25, 1919, *Standley* 18136; August 25, 1917, *Ulke*. Along the trail from Many Glacier Hotel to Piegan Pass, alt. 1,500 to 2,160 meters, August 11, 1919, *Standley* 17483. Vicinity of Iceberg Lake, alt. 1,740 to 1,950 meters, July 11, 1919, *Standley* 15363. Ptarmigan Lake, alt. 1,800 to 1,900 meters, August 3, 1919, *Standley* 16970.

ALBERTA: Tunnel Mountain, alt. 1,650 meters, June 11, 1906, *Brown* 95.

The writer takes pleasure in dedicating this excellent species to Mr. Paul C. Standley, who, in the course of his botanical exploration of Glacier National Park, assembled an extraordinarily rich collection of material in this group, the specimens comprising (besides *S. standleyi*) *S. montanensis* Hieron., *S. densa* Rydb., and *S. wallacei* Hieron., all in ample series.

Superficially *S. standleyi* most resembles *S. watsoni* Underw., of the high mountains of Utah, Nevada, and California, in which also the leaves have lutescent setae. It is at once distinguished from *S. watsoni*, however, by the fact that the setae (which are even darker) are not only 2 to 3 times as long but are strongly serrulate-scabrous nearly throughout, those of *S. watsoni* being smooth or nearly so. The sporophylls also have longer and scabrous setae, and the blades are much more freely ciliate, the cilia being stiff, very oblique, and subsistent nearly to the apex, in marked contrast to *S. watsoni*.



SELAGINELLA NEOMEXICANA Maxon



SELAGINELLA EREMOPHILA Maxon



SELAGINELLA ARIZONICA Maxon



SELAGINELLA ASPRELLA Maxon





SELAGINELLA LEUCOBRYOIDES Maxon



SELAGINELLA STANDLEYI Maxon