IX.—*A Revision of the North American Species of the
Genus Scleria.*

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The genus *SCLERIA* contains, according to Bentham and Hooker, about one hundred species, distributed throughout the warmer regions of the globe, in North America alone extending into the higher temperate zone—one species reaching even into Canada. The materials on which the present arrangement of our forms is based comprise the specimens in the Philadelphia Academy of Natural Sciences; in Dr. Gray's Herbarium; in the Torrey, Meisner, and Chapman Herbaria, of Columbia College; those of the Torrey Botanical Club; of the private herbaria of Judge Addison Brown, Mr. I. C. Martindale, and Mr. J. H. Redfield, and my own collection for the Geological Survey of New Jersey.

***Scleria*.**—Berg. in K. Vetensk. Acad. Handl., Stockholm, xxvi (1765), 142, t. 4, 5. Flowers unisexual, the fertile solitary, in androgynous spikelets below the sterile, or in distinct spikelets; the sterile indefinite in number in androgynous or distinct spikelets. Glumes imbricated on all sides, the 1—3 lower and sometimes 1—3 above the fertile flowers empty. Bristles of the hypogynium none. Stamens 1, 2, or rarely 3. Style continuous with the ovary, terete, or somewhat swollen at the base; divisions of the stigma 3, filiform. Achenium globose or ovoid, often white, obtuse and erostrate, or mucronate by the short, persistent base of the style, the gynophore often supported by a simple or double cartilaginous dilated disk, which is rarely obsolete.—Herbs. Leaves either flaccid and grasslike, or long, broad, and plicate-nervose. Spikelets small, in terminal, or terminal and axillary, or glomerate-spicate fascicles. Bracts leaflike or setaceous. (Vide Bentham and Hooker, Gen. Plant., iii, pt. ii, 1070.)

(A) INFLORESCENCE A SINGLE TERMINAL CLUSTER; ACHENIUM SMOOTH AND EVEN, OR LONGITUDINALLY RIBBED.

1. *S. gracilis*, Ell. Culms, very slender and sometimes filiform, ten to fourteen inches high, smooth; leaves filiform, smooth; bracts and scales glabrous; achenium ovate, obtusely triangular, obtuse, shining or dull, distinctly longitudinally ribbed, about $1\frac{1}{2}$ lines long, with two pits on each side of the triangular base; perigynium none. Sketch, ii, 557; Kunth, Enum., ii, 859; Eaton and Wright, 419; Steud., Syn., 175; Dietrich, Syn. Plant., v, 254; Chapman, 533; Darby, 564; Wood, Class-book, 747; Bot. and Flor., 308; Bæckeler, Linnæa, xxxviii, 450; Grisebach, Cat. Flor. Cûben., 240.

Hypoporum gracile, Torr., Ann. N. Y. Lyc., iii, 381.

Habitat, South Carolina and Florida to Texas. Also in Cuba (Plantæ Cubenses Wrightianæ, No. 3420).

2. *S. Baldwinii*, Steud. Culms triangular, smooth, or somewhat rough above, one to three feet high; leaves linear, smooth, or slightly scabrous; achenium ovate, dull, smooth and even, about two lines long, obscurely triangular, apiculate, destitute of pits, the base triangular, pointed; perigynium none; bracts and scales glabrous. Syn., 175; Wood, Class-book, 747; Bot. and Flor., 308; Bæckeler, Linnæa, xxxviii, 450.

S. dioica, LeConte, in Herb. Acad. Nat. Sci. Phila.

Hypoporum Baldwinii, Torr., Ann. Lyc., iii, 382.

In a specimen collected in Western Florida by Dr. Chapman, and now in the Short Herbarium, Acad. Nat. Sci. Phila., there is an additional lateral cluster of spikelets.

Habitat, Florida to Texas.

Var. *costata*, n. var., Achenium longitudinally ribbed; otherwise as in the type.

S. Baldwinii, Chapman, 532.

Habitat, Géorgia, Florida, Texas.

(B) INFLORESCENCE IN TERMINAL, OR IN TERMINAL AND LATERAL, MORE OR LESS PEDUNCLED CLUSTERS.

* *Achenium smooth*.

3. *S. triglomerata*, Michx. Culms triangular, 18 inches to 3 feet high, scabrous or nearly smooth; leaves broadly linear, smooth or slightly hairy, roughish on the margins; sheaths smooth; clusters near the summit of the culm, with or without additional smaller pedunculate ones from the lower

axils, the upper one somewhat triglomerate; bracts naked or slightly ciliate, cuspidate; achenium varying from depressed to ovate-globose, generally obtuse but pointed, obscurely triangular, shining; perigynium narrow, very obtusely triangular, covered with a white rough crust.

Fl. N. A., ii, 163; Muhl., Gram., 209; Ell., Sketch, ii, 558; Pursh, Flor. Amer. Sept., i, 46 (?); Eaton and Wright, 418; Beck, 430; Darlington, Flor. Cestr., 2d Ed., 26; 3d Ed., 343; Torrey, Compend., 349; Ann. Lyc., iii, 380; Flor. N. Y., ii, 303; Steud., Syn., 173; Eaton, 454; Dawsey, Planta Mass., 260; Chapman, 531; Darby, 564; Gray, Manual, 570; Wood, Class-book, 746; Bot. and Flor., 367; Bœckeler, Linnæa, xxxviii, 464.

S. nitida, Willd., Herb., *vide* Kunth. Enum, ii, 350; Darby, 564; Steud., Syn., 174; Dietrich, Syn. Plant., v, 252.

S. flaccida, Steud., Syn., 174.

Cladium triglomeratum, Nees, Linnæa, ix, 301; Kunth, Enum, ii, 304.

Trachylomus triglomerata, Nees, Mart., Flor. Bras., ii, Pt. i, 174.

Pursh describes the nut as rugose, but he must have confounded this with some other species.

Habitat, Massachusetts and Vermont to Wisconsin, and southward to Florida and Texas.

Var. **gracilis**, n. var. Culms slender, 15 inches to two feet long; fascicles few-flowered, small, the lower of but two or three flowers on very long, filiform peduncles; achenium not more than one-half the size of that of the type, ovate, acutish.

Habitat, Leeds Point, N. J., Dr. Gray's Herbarium;—near Haddonfield, N. J., A. H. Smith;—Quaker Bridge, N. J., W. H. Leggett.

4. *S. oligantha*, Ell. Culms about two feet high, slender, triangular, the angles somewhat winged; leaves linear, about two lines wide, smooth except their scabrous apices; lateral fascicles one or two, mostly on long exserted peduncles; bracts somewhat ciliate, scales ovate, cuspidate; achenium ovate, obtuse but generally pointed; perigynium a narrow obtusely triangular border, supporting eight or nine small tubercles. Sketch, ii, 557; Michx., Fl. N. A., ii, 167 (?); Eaton and Wright, 419; Torrey, Ann. Lyc., iii, 377; Steud., Syn., 173; Chapman, 531; Bœckeler, Linnæa, xxxviii, 462.

S. leptoculmi Wood, Class-book, 746; Bot. and Flor., 367.

Scleria, No. 4, Muhl., Gram., 268.

Habitat, Virginia to Florida, and through the Gulf States to Texas.

Very distinct from *S. pauciflora*, Muhl., to which it has been referred by Willdonow and Pursh.

5. *S. lithosperma*, Willd., Sp. Pl., iv, 316; Var. *filiformis*. Culms slender, smooth, one to two feet long; leaves narrowly linear, somewhat scabrous on the margins and keel; sheaths ciliate at the throat; clusters 2-8, distant, erect, each interruptedly spicate; the upper with setaceous bracts, the lowest remote and leafy-bracted; scales lanceolate, acuminate, with rough points; achenium smooth and glossy, oblong or obovate, destitute of pores; base small, triangular; perigynium none. Whole plant somewhat glaucous.

S. lithosperma, Willd., (emend.) Var. 2, Bæckeler, Linnæa, xxxviii, 452.

S. gracilis, Richard, Act. Soc. Hist. Nat. Paris, i, 118, (Willd. *ide*)

S. purpurea, Polret, Encycl., vii, 4; Sprengel, Syst. Veg., iii, 882.

S. filiformis, Swartz, Fl. Ind. Occ., i, 91; Sprengel, Syst. Veg., iii, 882; Steud., Syn., 172; Kunth, Enum., ii, 848; Willd., Sp. Pl., iv, 316; Chapman, 532; Grisebach, Fl. Br. W. I., 579; Dietrich, Syn. Plant., v, 251.

Hypoporum purpurascens, Nees, Linnæa, ix, 303.

Habitat, Southern Florida. Also in Cuba and throughout the West Indies.

The type is native to Australia, the East Indies and Southern Asia; our plant differs from it mainly in its more slender habit.

* * *Achenium reticulated or irregularly rugose.*

6. *S. reticularis*, Michx. Culms slender, erect, triangular, scabrous, particularly below, or nearly smooth, one to two and a half feet high; leaves linear, one to one and a half lines wide, smooth; lateral fascicles of spikelets one to three, remote, nearly erect, on short, often included peduncles, loosely flowered; bracts and scales glabrous, the latter mucronate; achenium globose, distinctly reticulated, its reticulations quadrangular-oblong, pitted; perigynium conspicuous, 3 lobed, its lobes acute or somewhat obtuse, appressed to the base of the achenium.

Fl. N. A., ii, 167; Sprengel, Syst. Veg., iii, 881; Willd., Sp. Pl., iv, 314; Eaton and Wright, 419; Torrey, Ann. Lyc., iii, 375; Flor. N. Y., ii, 367; Gray, Manual, 570; Chapman, 531; Wood, Class-book, 747; Bot. and Flor., 368; Bœckeler, Linnœa, xxxviii, 467.

S. dictyocarpa, Griseb., Cat. Plant. Cuben., 249.

Habitat, Eastern Massachusetts and Rhode Island to Florida. Also in Cuba (Plante Cubenses Wrightianæ, No. 3416 n).

Var. **pubescens**, n. var. Edges of the reticulations more or less hairy, especially towards the apex of the achenium; lateral fascicles generally on longer peduncles.

S. trichopoda, C. Wright, Plante Cubenses, No. 3803. Name not in Griseb., Cat. Plant. Cuben.

Habitat, New Jersey Pine Barrens to Florida. Also in Cuba, (C. Wright No. 3800.) Often distributed as *S. laxa*, Torr., (*S. Torreyana*, Walpers), from forms of which species it can generally be distinguished by the absence of transverse or spiral ridges on the achenium.

Var. **obscura**, n. var. Achenium bony its surface marked with very obscure reticulations, nearly even at the summit.

Habitat, Salem, North Carolina, Schweinitz; Rhode Island, Thurber and Calder. All the specimens of this well-marked form which have come under my notice are in the herbarium of the Philadelphia Academy of Natural Sciences.

Var. **pumila**, n. var. Culms only 4 to 6 inches high, smooth; leaves linear, short, smooth; fascicles of but a single fertile and two or three sterile flowers, sessile or very short-peduncled; achenium very nearly as in the type.

Habitat, Orizaba, Mexico, Botter, No. 774.

This species, as Dr. Torrey has already pointed out,* is closely allied to *S. tessellata*, Willd., of the East Indies, tropical Asia and Australia, differing mainly in its smaller size, more slender habit, and its fewer, smaller, nearly sessile lateral clusters. The achenium is practically the same in each.

* Ann. Lyc., iii, 376.

7. ***S. Torreyana***, Walpers. Culms weak, diffuse, slightly scabrous or smooth; leaves linear, two to four lines wide, smooth; lateral fascicles on more or less elongated filiform peduncles, loosely flowered; scales and bracts smooth; achenium globose, somewhat pointed, irregularly rugose with ridges arranged in a somewhat spiral manner, or by the anastomosing of these with shorter longitudinal ridges, somewhat or even distinctly reticulated, its ridges more or less hairy, or sometimes smooth; perigynium three-lobed, the lobes acutish and appressed. Ann., III, 800; Bäckeler, Linnæa, xxxviii, 468.

S. reticularis Muhl., Gram., 266; Pursh, Flor. Amer. Sept., I, 45; Ell., Sketch, II, 560; Kunth, Enum., II, 848; Dietrich, Syn. Plant., v, 252.

S. laza, Torrey, Ann. Lyc., III, 376; Flor. N. Y., II, 868; Gray, Manual, 370; Chapman, 531; Wood, Class-book, 747; Bot. and Flor., 868. (Not of R. Brown).

S. Muhlenbergii, Steud., Syn., 173.

S. hemilaphra, Steud., Syn., 169.

S. debilis, Wright, Plantæ Cubenses, No. 3416 pp., a form with smooth achenia.

S. bracteata, Cav.; var. *angusta*, Griseb., Flor. Br. W. I., 579.

Habitat, Pine-Barrens of New Jersey to Florida, and through the Gulf States to Mexico. Also in Cuba (Plantæ Cubenses Wrightianæ, Nos. 3802, 3416, 720).

* * * *Achenium papillose or warty.*

8. ***S. ciliata***, Michx. Culms one to two feet high, slender, smooth, or more usually scabrous or hairy above; leaves narrowly linear, smooth or pubescent; sheaths hairy; inflorescence generally a single terminal cluster; sterile spikes large; bracts conspicuously ciliate; achenia globose or globose-ovoid, pointed, roughened with scattered unequal warty projections or ridges, those at the base larger and deflexed; perigynium a narrow obtusely triangular border, supporting three hemispherical entire tubercles.

Flor. N. A., II, 167; Willd., Sp. Pl., IV, 818; Pursh, Fl. Amer. Sept., I, 46; Ell., Sketch, II, 559; Torrey, Ann. Lyc., III, 378; Dietrich, Syn. Plant., v, 252; Kunth, Enum., II, 850; Eaton and Wright, 419; Steud., Syn., 173; Wood, Class-book, 746; Bot. and Flor., 867; Chapman, 531; Darby, 564; Bäckeler, Linnæa, xxxviii, 468.

Habitat, South Carolina to Florida.

S. ciliata is in its fruit-characters very similar to *S. pauciflora*, especially resembling the var. *Elliottii* of the latter species. It

may generally be distinguished by its solitary terminal inflorescence and by the three distinct and entire tubercles above the perigynium. In all the forms of *S. pauciflora* there are either six, or three two-lobed, tubercles.

***S. pauciflora*, Muhl.** Culm slender, erect, 9—24 inches high, smoothish or hairy; leaves narrowly linear, smoothish; sheaths more or less pubescent; fascicles few-flowered, the lateral sessile or pedunculate or sometimes absent; bracts more or less ciliate, glumes acute or acuminate, naked; achenium globose-ovate, the papillæ toward the base elongated and depressed; perigynium a narrow obtusely-triangular border, supporting six small globose tubercles somewhat approximated in pairs.

In Willd., Sp. Pl., iv, 818; Gram., 267; Pursh, Flor. Amer. Sept., i, 46; Ell., Sketch, ii, 559; Darlingt., Flor. Austr., 2nd Ed., 26; 3d Ed., 844; Spreng., Syst. Veg., iii, 832; Eaton and Wright, 419; Torrey, Ann. Lyc., iii, 877; Compend., 849; Flor. N. Y., ii, 869; Kunth., Enum., ii, 349; Dietrich, Syn. Plant., v, 262; Beck, 430; Eaton, 454; Gray, Manual, 571; Chapman, 531; Steud., Syn., 173; Wood, Class-book, 746; Bot. and Flor., 367; Bäckeler, Linnæa, xxxviii, 461.

S. Oakesiana, Robbins in Gray Herbarium.

Habitat, New Hampshire to Ohio, and southward to Florida and Texas. Also in Cuba (*Plantæ Cubenses Wrightianæ*, No. 3799).

Var. *Caroliniana*, Wood. Stems very slender, pubescent, as also the sheaths and leaves; achenium wrinkled or papillose.

Bot. and Flor., 368.

S. Caroliniana, Willd., Sp. Pl., iv, 318; Torrey, Ann. Lyc., iii, 879; Steud., Syn., 179; Kunth., Enum., ii, 359; Darby, 584; Dietrich, Syn. Plant., v, 254.

Spermodon, sp., Endlicher, Gen. Pl., 114.

S. hirtella, Michx., Fl. N. A., ii, 168(?) ; Eaton and Wright, 419; Ell., Sketch, ii, 560.

S. pauciflora, var. *hirtella*, Chapin. in Herb.

Habitat, South Carolina and Florida.

Var. *Elliottii*, Wood. Culms stout, erect, densely rough-pubescent on the angles, leaves broader than in the type, hairy; sheaths pubescent; lobes of the perigynium three, each two-lobed.

Bot. and Flor., 368.

S. Elliottii, Chapman, 581.

S. hirtella, Michx., Fl. N. A., ii, 168(?).

S. hirtella, Michx., var. *strigosa*, Ell., Sketch, ii, 560; Eaton and Wright, 419.

Habitat, North Carolina to Florida, and through the Gulf States to Texas and the Indian Territory. Also in Cuba (Planter Wrightianre. No. 3798).

Var. **glabra**, Chapman. Smooth throughout, or the leaves and bracts somewhat scabrous at the summit; processes of the perigynium three, each two lobed; achenium wrinkled or papillose.

Flor. South. States, 532; Wood, Bot. and Flor., 366.

Var. B. Torrey, Ann. Lyc., iii, 378.

Habitat, North Carolina to Florida.

Var. **elongata**, n. var. Smooth throughout; stems very slender, two to two and a half feet long, diffuse; achenium as in the last variety.

Habitat, Georgia, Florida.

(C.) INFLORESCENCE INTERRUPTEDLY GLOMERATE-SPICATE.

* *Achenium smooth; pistillate scales bristly.*

10. S. hirtella, Swartz. Culms 6—19 inches high, slender, smooth or nearly so; leaves linear and, with their sheaths, hairy; clusters of flowers 4—8, sessile, erect or nodding; scales of the fertile flowers oval or lanceolate, cuspidate; those of the sterile flowers lanceolate or linear, pointless, glabrous; achenium globose, half a line broad, pointed, its base somewhat attenuated, triangular, each side furnished with from 5—7 minute pores; perigynium none.

Fl. Ind. Occ., i, 93; Sprengel, Syst. Veg., iii, 832; Kunth., Enum., ii, 353; Steud., Syn., 175; H. B. K., Nov. Gen. et Sp. Pl., i, 132; Grisebach, Fl. Br. W. I., 579; Dietrich, Syn. Plant., v, 253; Bœckeler, Linnæa, xxxviii, 489.

S. humile, Nees, Linnæa, ix, 303.

S. distans, Poir., Encycl., vii, 4; Kunth., Enum., ii, 353; Steud., Syn., 176; Dietrich, Syn. Plant., v, 253.

S. nutans, Kunth., Enum., ii, 351; Steud., Syn., 175; Dietrich, Syn. Plant., v, 252.

S. mollis, Kunth., Enum., ii, 352; Steud., Syn., 175; Dietrich, Syn. Plant., v, 252.

S. renchroides, Kunth, Enum., ii, 352; Steud., Syn., 175; Dietrich, Syn. Plant., v, 252.

S. interrupta, Michx., Fl. N. A., ii, 108 (*vide* Torrey, Ann. Lyc., iii, 388); Wood, Class-book, 747; Bot. and Flor., 368.

S. Michauxii, Chapman, 582.

Hypoporum hirtellum, Nees, Linnæa, ix, 303; Mart., Flor. Bras., ii, Part i, 170.

H. humile, Nees, Linnæa, ix, 303.

H. nutans, Nees, in Mart., Flor. Bras., ii, Pt. i, 170.

H. interruptum, Nees, Linnæa, ix, 303; Torrey, Ann. Lyc., iii, 382.

Habitat, Florida to Louisiana. Also in Mexico, Central America, Columbia, Peru, Chili, Venezuela, Guiana, Brazil, the West Indies, and Middle and Southern Africa.*

Var. **paucicellulata**, n. var. Scales sparingly ciliate-bristly or nearly naked.

Cuba, Plantæ Cubensæ Wrightianæ, No. 3418, mixed with *S. tenella*, Kunth, in Dr. Gray's Herbarium.

* Pursh records *S. hirtella*, Willd., in Flor. Amer. Sept., i, 40, as growing "in dry woods on slate rocks: Virginia, Carolina. The smallest species." Dr. Torrey notes on the margin "Pursh's plant in Herb. Lamb. is *Isotepus stenophylla*."

Here may be noted:—

S. interrupta, Richard. Closely resembles *S. hirtella*, Swartz, differing in the transversely tuberculate-rugose achenium.

Act. Soc. Hist. Nat. Paris, i, 113; Flor. Abyss., 511 (*vide* Bœckeler); Kunth, Enum., ii, 352; Willd., Sp. Pl., iv, 318; Steud., Syn., 175; Darby, 364; Pursh, Flor. Amer. Sept., i, 45; Dietrich, Syn. Plant., v, 252.

S. Kunthiana, Steud., Syn., 176.

S. verticillata, Kunth, Enum., ii, 353; Dietrich, Syn. Plant., v, 258.

S. hirtella, Swartz, var. *y.* Bœckeler, Linnæa, xxxviii, 441.

I have seen no specimens of this plant from North America, though it has been recorded by several authors. It occurs in Cuba (Plantæ Cubensæ Wrightianæ without a number, and mixed with *S. verticillata*, Muhl.), and was originally described from specimens collected in French Guiana. Bœckeler (Linnæa, xxxviii, 441), reduces it to a variety of *S. hirtella*, Swartz, but I regard it as a distinct species. The achenium is very similar to that of *S. verticillata*.

- *Achenium with short, transverse ridges, or by additional longitudinal ridges, somewhat reticulated; scales naked.*

11. *S. verticillata*, Muhl. Culms slender, simple, 4—24 inches high, smooth; leaves narrowly linear and, with their sheaths, smooth, or somewhat hairy; clusters of flowers 8—9, sessile, generally erect; bracts setaceous; scales smooth; achenium globose, half a line broad, somewhat triangular at the base, its sides destitute of pores; perigynium none.

In Willd., Sp. Pl., iv, 317; Gram., 260; Ell., Sketch, ii, 561; Pursh, Flor. Amer. Sept., i, 45; Spreng., Syst. Veg., iii, 832; Eaton and Wright, 419; Torrey, Compend., 849; Flor. N. Y., ii, 369; Steud., Syn., 176; Eaton, 454; Gray, Manual, 571; Chapman, 532; Wood, Class-book, 747; Bot. and Flor., 368; Bœckeler, Linnæa, xxxviii, 445.

Hypoporum verticillatum, Nees, Linnæa, ix, 803; Torrey, Ann. Lyc., iii, 384.

Habitat, Long Island, Eastern Massachusetts, Southern Canada, Michigan and southward. Also in Texas, Mexico, and Cuba. I have found the achenium of this species reticulated only in southern specimens; the northern forms produce achenia which are marked with short, distinct, transverse ridges; in a plant from Biscayne Bay, Florida, (E. Palmer, 1874) nuts with each style of ornamentation occur.

It is allied to the East Indian and African *S. pergracilis*, Kunth, Enum., ii, 354, as has been remarked by Dr. Torrey (Ann. Lyc., iii, 384), which may however be distinguished by its rather tuberculate achenium, and oblong or ovate bracts.*

* Here may be noted

S. tenella, Kunth, Enum., ii, 352. Culms slender; inflorescence branched or simple; achenium finely reticulated, one half the size of that of *S. verticillata*.

Bœckeler (Linnæa, xxxviii, 446), unites this species with the last; but I believe them to be distinct. *S. tenella* grows in Cuba, Mexico, Columbia, Guiana and Brazil. It is figured in Mart., Flor. Bras., i, pt. ii, 171, t. 9, fig. 2. *S. verticillata* is said by Bœckeler (ibid.), to occur in Sierra Leone; but as he regards the species as inseparable, I cannot say which is meant. I have seen no African specimens of either.