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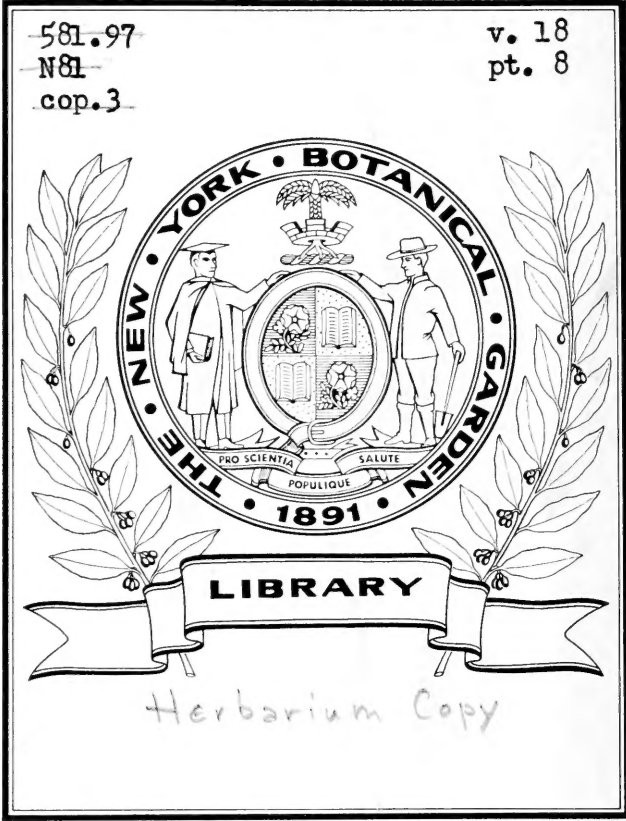
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VOLUME 18

PART 8

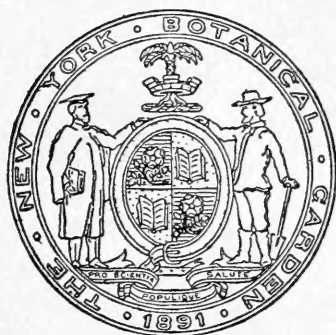
NORTH AMERICAN FLORA

(POALES)

(CYPERACEAE)

SCIRPEAE (PARS)

ALAN ACKERMAN BEETLE



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Separate Copies, \$1.00

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ANNOUNCEMENT

NORTH AMERICAN FLORA is designed to present in one work descriptions of all plants growing, independent of cultivation, in North America, here taken to include Greenland, Central America, the Republic of Panama, and the West Indies, except Trinidad, Tobago, and Curaçao and other islands off the north coast of Venezuela, whose flora is essentially South American.

The work will be published in parts at irregular intervals, by the New York Botanical Garden, through the aid of the income of the David Lydig Fund bequeathed by Charles P. Daly.

It is planned to issue parts as rapidly as they can be prepared, the extent of the work making it possible to commence publication at any number of points. The completed work will form a series of volumes with the following sequence:

- Volume 1. Myxomycetes, Schizophyta.
- Volumes 2 to 10. Fungi.
- Volumes 11 to 13. Algae.
- Volumes 14 and 15. Bryophyta.
- Volume 16. Pteridophyta and Gymnospermae.
- Volumes 17 to 19. Monocotyledones.
- Volumes 20 to 34. Dicotyledones.

The preparation of the work has been referred to a committee consisting of Dr. H. A. Gleason, Dr. H. W. Rickett, and Dr. Fred J. Seaver.

Dr. Francis W. Pennell, of the Academy of Natural Sciences of Philadelphia, and Dr. William R. Maxon, of the United States National Herbarium, have consented to act as an advisory committee.

Each author will be wholly responsible for his own contributions, being restricted only by the general style adopted for the work, which must vary somewhat in the treatment of diverse groups.

NORTH AMERICAN FLORA is published in parts of variable size; it is expected that four or more parts will be required for each volume. The subscription price for all parts published prior to 1936 is fixed at \$1.50 for each part; for later parts it is approximately two cents per page. A limited number of separate parts will be sold at an advance of a third above the subscription price.

THE NEW YORK BOTANICAL GARDEN

NEW YORK 58, N. Y.

Tribe 2. SCIRPEAE

BY HENRY KNUTE SVENSON

Scirpeae Endl. Gen. 118. 1836.

Annual or perennial herbs of diverse aspect, frequently with prominent rhizomes. Culms triangular to terete or quadrangular, frequently nodulose, sometimes leafless, or with leaves reduced to sheaths. Flowers borne in various types of inflorescence, usually in spikelets with spirally imbricate scales, perfect, frequently with a series of hypogynal (perianth) bristles, which may be modified into plate-like or filamentous structures. Stamens one to three, the filaments elongate at maturity. Ovary one-celled, triangular, compressed or cylindrical. Style one, sometimes fimbriate, branched above into two or three elongate stigmas, the base often enlarged and remaining on the achene as a tubercle.

Scales of the spikelet spirally imbricate.

Base of the style not enlarged.

Inflorescence not spicate (sometimes of one terminal spikelet, or several sessile lateral spikelets reduced from a paniculate or umbellate condition).

Scales not membranous, the bristles, when present, 1-8.

Bristles simple, sometimes lacking.

Bristles with plate-like thickenings (except in *F. incompleta*).

Scales membranous, with spreading or loosely ascending tips, the bristles usually numerous and silky-elongate.

Inflorescence a true terminal spike of more than one spikelet.

Base of the style enlarged.

Style-base persistent as a tubercle.

Scales glabrous; spikelet solitary, terminating the leafless culm.

Scales pubescent; spikelets rarely solitary.

Style-base deciduous; bristles absent.

Scales of the spikelet 2-ranked.

Base of the style not persistent as a tubercle.

Base of the style persistent as a tubercle.

1. SCIRPUS.

2. FUIRENA.

3. ERIOPHORUM.

4. NOMOCHLOA.

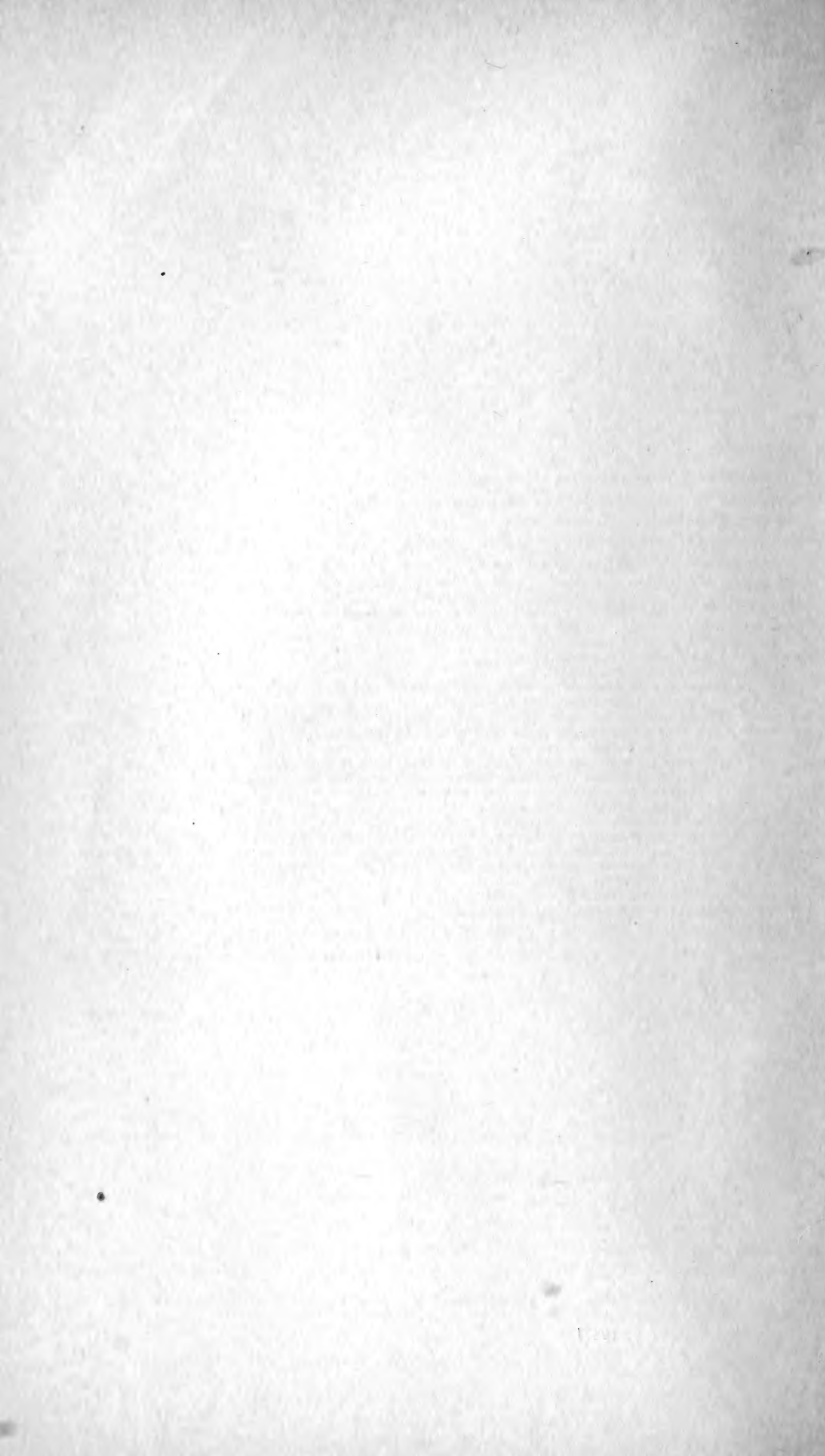
5. ELEOCHARIS.

6. BULBOSTYLIS

7. FIMBRISTYLIS.

8. ABILDGAARDIA.

5. ELEOCHARIS.



SCIRPUS L. Sp. Pl. 47. 1753; Gen. Pl. ed. 5. 26. 1754.

BY ALAN ACKERMAN BEETLE

Isolepis R. Br. Prodr. 221. 1810.*Aplostemon* Raf. Jour. de Phys. 89: 105. 1819.*Dichismus* Raf. Jour. de Phys. 89: 106. 1819.*Diplarinus* Raf. Jour. de Phys. 89: 106. 1819.*Elytrospermum* C. Meyer, Mém. Acad. St.-Pétersb. Sav. Étr. 1: 200. 1831.*Scirpocyperus* Michx.; Montandon, Syn. Fl. Jura Sept. 346. 1856.*Websteria* S. H. Wright, Bull. Torrey Club 14: 135. 1887.

Stoloniferous or caespitose perennials or occasionally caespitose annuals. Culms sheathed at the base, leafy or the blade reduced to a mucro, terete or triangular. Inflorescence subtended by 1-many bracts, an umbel or panicle or reduced from one or the other. Spikelets 1-many, terminal or lateral, sessile or pedunculate, 3-many-flowered; scales imbricate, spiral and all perfect. Perianth of bristles present or absent. Stamens 3. Style bifid or trifid, wholly deciduous from the obovate, usually apiculate achene.

Type species, *Scirpus sylvaticus* L.

Involute of foliaceous bracts; cauline leaves usually well developed.

Heads few, large, of many spikelets.

Spikelets not in heads, or the heads many, of few spikelets.

Sect. 1. OXYCARYUM.

Stoloniferous perennials.

Spikelets large, the stolons forming tubers.

Sect. 2. BOLBOSCHOENUS.

Spikelets small, the stolons without tubers.

Sect. 3. TAPHROGETON.

Tufted or fibrous-rooted perennials.

Bristles inconspicuous or absent, mostly included.

Sect. 4. ANDROCOMA.

Bristles woolly, conspicuously exceeding the scales.

Sect. 5. TRICHOPIHORUM.

Involute of non-foliaceous bracts; cauline leaves usually greatly reduced.

Spikelets single, terminal.

Plants terrestrial; style trifid.

Plants aquatic; style bifid.

Sect. 6. BAEOTHRYON.

Spikelets 1-many, apparently lateral, the involucrel bract continuing the culm.

Sect. 7. ELEOGITON.

Fibrous-rooted annuals (rarely perennial), the culms seldom equaling 1 dm., filiform; bristles usually absent; achenes 1-1.5 mm. long.

Sect. 8. ISOLEPIS.

Perennials or rarely annual, the culms usually tall, stout; bristles usually present; achenes usually exceeding 1.5 mm. in length.

Achenes horizontally ridged.

Sect. 9. ACTAEOGETON.

Achenes smooth or reticulate.

Culms slender; spikelets few, sessile or rarely short-pedunculate.

Sect. 10. SCHOENOPLECTUS.

Culms stout; spikelets many, pedunculate or rarely capitate.

Sect. 11. PTEROLEPIS.

Section 1. Oxycaryum (Nees) Beetle, stat. nov.* *Oxycaryum* Nees in Mart. Fl. Bras. 2: 90, as genus. 1842. Erect perennials, 1-10 dm. tall, leafy at the base; involucrel bracts exceeding the sessile or pedunculate, globose heads; bristles shorter than the achene or absent; style bifid or trifid.

Stoloniferous; heads light brown to reddish brown.

Style trifid; bristles present.

1. *S. coahuilensis*.

Style bifid; bristles absent.

Leaves and involucrel bracts broad (often over 1 cm. broad); heads large, 1-2 cm. broad.

2. *S. cubensis*.

Leaves and involucrel bracts narrow, up to 5 mm. broad; heads small, up to 1 cm. broad.

2a. *S. cubensis* var. *gracilis*.

Caespitose; heads dark purplish.

Achenes ca. 0.5 mm. long; culms not bulbous at the base.

3. *S. Schaffneri*.

Achenes ca. 1.25 mm. long; culms bulbous at the base.

4. *S. orbicephalus*.

1. *Scirpus coahuilensis* Svenson; I. M. Johnston,
Jour. Arnold Arb. 25: 46. 1944.

Culms many, from a short, stout, woody rhizome, caespitose, 3-5 dm. tall, ca. 1 mm. broad, erect, trigonous or angled, scabrous on the angles, densely clothed at the base with loose, brown sheaths, the elongate, narrow blades (1 mm. broad) equaling the culms, strongly scabrous on

* Sect. *Oxycaryum* was inadvertently ascribed to Nees by the present author (Am. Jour. Bot. 31: 263. 1944), which was its first publication as a section.

the margins; inflorescence subcapitate, of 10–20 spikelets in 1–3 short-rayed heads; bracts leaflike, 2–5, up to 6 cm. long, 1 mm. broad, strongly scabrous on the margins, greatly exceeding the spikelets; spikelets 3–7 mm. long, pale brown, cylindrical, acute; scales 3–4 mm. long, the midvein shortly excurrent at the broad, hyaline, bilobate apex; style trifid; bristles 6, fragile, ca. half the length of the achene; achene 2 mm. long, dark brown, plano-convex, not apiculate.

TYPE LOCALITY: North of Puerto Colorado, Coahuila.

DISTRIBUTION: Known only from the type locality.

2. *Scirpus cubensis* Poepp. & Kunth in Kunth, Enum.

Pl. 2: 172. 1837.

Oxycaryum schomburgkianum Nees in Mart. Fl. Bras. 2¹: 90. 1842.

Anosporum cubense Böck. Linnaea 36: 413. 1870.

Oxycaryum cubense Palla, Denks. Akad. Wien. 79: 169. 1908.

Stoloniferous perennial, the roots brown, fibrous, with numerous secondary rootlets, the stolons red, often 2 mm. thick and very elongate or shorter and up to 5 mm. thick; culms solitary at the nodes, to 1 m. tall, sharply trigonous, smooth; leaves all basal, the short, split sheaths drying brown, the blades to 1.5 cm. broad, exceeding the culm in length, scabrous on the margins and midrib, tapered to the blunt tip; involucre bracts 2–5, leaflike, erect, spreading, or reflexed, unequal or often greatly elongate, scabrous on the margins and midrib, often obscurely so; first head sessile, the others on 1–10 unequal rays; secondary rays occasionally present; heads globose, 1–2 cm. broad, of many crowded spikelets, subtended by 1 or 2 short bracts, the rays to 1 cm. long, smooth, flattened; spikelets many-flowered, the scales ca. 3 mm. long, reddish, spreading, tapered to the acute, reflexed tip; bristles absent; style bifid, brown; achene ca. 3 mm. long, brown above, ellipsoid, lenticular, apiculate, the base broad, cartilaginous.

TYPE LOCALITY: Cuba.

DISTRIBUTION: Fresh or brackish water or tidal estuaries; tropical and subtropical America.

ILLUSTRATIONS: Clarke, Ill. Cyp. pl. 48, f. 5, 6 (florete, achene).

2a. *Scirpus cubensis* var. *gracilis* (Böck.) Beetle,

Rhodora 46: 146. 1944.

Cyperus blepharoleptos Steud. Syn. Cyp. 28. 1855.

Courtoisia olivacea Böck. Flora 44: 332. 1861.

Kyllingia scirpina Reichenb. in Böck. Flora 44: 332. 1861.

Scirpus ablepharus Griseb. Cat. Pl. Cub. 240. 1866.

Anosporum cubense β *gracile* Böck. Linnaea 36: 414. 1870.

Scirpus cubensis var. *minor* C. Wright; Sauv. Anal. Acad. Ci. Habana 8: 82. 1871.

Isolepis echinocephala Oliver; J. A. Grant, Trans. Linn. Soc. 29: 167. 1875.

Anosporum Schinzii Böck.; Schinz, Verh. Bot. Ver. Brand. 29: 46. 1888.

Anosporum paraguayense Maury; M. Micheli, Mém. Soc. Phys. Hist. Nat. Genève 31 (1)¹: 124. 1889.

Scirpus cubensis var. *paraguayensis* Kükenth.; Barros, Anal. Mus. Argent. 38: 150. 1935.

Culms slender, the leaves narrow, only to 5 mm. broad, the involucre bracts equally narrow; heads small, only to 1 cm. broad.

TYPE LOCALITY: British Guiana.

DISTRIBUTION: Inland swamps; America; tropical and subtropical Africa (introduced?).

ILLUSTRATIONS: Jour. Linn. Soc. 29: pl. 107; Mém. Soc. Phys. Hist. Nat. Genève 3 (1)¹: pl. 35.

3. *Scirpus Schaffneri* Böck. Bot. Jahrb. 7: 275. 1886.

Scirpus cyperoides Hemsl. Biol. Centr. Am. Bot. 3: 461. 1885. Not. *S. cyperoides* Spreng. 1825.

Scirpus mexicanus Clarke; Britton, Trans. N. Y. Acad. 11: 77. 1892.

Bulbostylis Schaffneri Clarke, Kew Bull. Add. Ser. 8: 26. 1908.

Cespitose perennial, the roots spongy; culms to 4 dm. tall, slender, obtusely trigonous, scabrous on the angles, erect from a soft, not at all bulbous base; leaves basal, the sheaths drying brown, the blades to 3 dm. tall, 2–4 mm. broad, not equaling the culm, scabrous on the margins and midrib; involucre bracts 2 or 3, to 6 cm. long, erect, leaflike; first head sessile, the others on short, scabrous rays; heads 0.5–1.5 cm. broad, the spikelets many, crowded, sessile; scales 2–2.5 mm. long, reddish or purplish on the margins, the midrib extended into a prominent

mucro; bristles absent; style trifid, reddish; achene ca. 0.5 mm. long, sharply triangular, the sides concave, oval in outline, smooth, glaucous, minutely reticulate.

TYPE LOCALITY: San Luis Potosí.

DISTRIBUTION: San Luis Potosí (Pozos, according to Hemsley; near San Luis Potosí).

4. *Scirpus orbicephalus* Beetle, Madroño 7: 160. 1944.

Holoschoenus mexicanus Palla, Oesterr. Bot. Zeits. 63: 40. 1913. Not *Scirpus mexicanus* Clarke, 1892.

Cespitose perennial, the roots spongy; culms to 5 dm. tall, slender, obtusely trigonous, smooth, erect from a bulbous base; leaves basal, the sheaths drying brown, the blades to 3 dm. tall, 2-4 mm. broad, shorter than the culm, smooth except near the blunt tip; involucre bracts 2 or 3, unequal, the longest to 8 cm. long, reflexed, leaflike; heads single, terminal, dark purple, of many crowded spikelets; scales 2-2.5 mm. long, reddish or purplish on the margins, the midrib extended into a prominent mucro; bristles absent; style trifid, reddish; achene 1.25 mm. long, sharply triangular, the sides concave, oval in outline, smooth, glaucous, minutely apiculate.

TYPE LOCALITY: Huerta, Michoacán.

DISTRIBUTION: Moist meadows; Michoacán (Huerta, Loma Santa María, and Cerro Azul, according to Palla; Flor de María).

Section 2. *Bolboschoenus* (Asch.) Beetle, Am. Jour. Bot. 29: 82. 1942. *Reigera* Opiz, Seznam 83, as genus. 1852. *Bolboschoenus* Asch. Fl. Brand. 1: 753, without definite rank. 1864. *Bolboschoenus* Palla in Hallier, Syn. Deuts. Schweiz. Fl. 3: 2531, as genus. 1905. Perennials; joints of the rootstocks often enlarged into hard, woody tubers; stems leafy; involucre of foliaceous bracts; spikelets terminal, sessile or umbellate, large; stamens 3; style bifid or trifid; achene trigonous, compressed, or lenticular, smooth under low magnification, gray or brown, apiculate; bristles usually present.

Achene lenticular; style bifid.

5. *S. paludosus*.

Achene compressed to sharply trigonous; style bifid or trifid.

Leaf normally not over 6 mm. broad; secondary rootlets not conspicuous.

Style normally bifid; spikelets ovate-acute.

6a. *S. maritimus* var. *agonus*.

Style normally trifid.

Spikelets oval.

6b. *S. maritimus* var. *Fernaldi*.

Spikelets narrowly cylindrical, acute.

7. *S. tuberosus*.

Leaf commonly 8-10 mm. broad; secondary rootlets conspicuous.

Spikelets few, mostly sessile, or single on short rays.

8. *S. robustus*.

Spikelets many, 1-several on long rays.

Achenes dark brown, 3 mm. long.

8a. *S. robustus* var. *novae-angliae*.

Achenes dull gray-brown, 4 mm. long.

9. *S. fluviatilis*.

5. *Scirpus paludosus* A. Nelson, Bull. Torrey Club

26: 5. 1899.

Scirpus campestris Britton in Britt. & Brown, Ill. Fl. 1: 267. 1896. Not *S. campestris* Roth, 1795.

Scirpus robustus var. *campestris* Fernald, Rhodora 2: 241. 1900.

Scirpus robustus var. *paludosus* Fernald, Rhodora 2: 241. 1900.

Scirpus robustus var. *compactus* Davy; Jepson, Fl. W. Middle Calif. 88. 1901.

Scirpus interior Britton, Man. ed. 2, 178. 1905.

Scirpus pacificus Britton; Parish, Bull. So. Calif. Acad. 4: 8. 1905.

Scirpus brittonianus Piper, Contr. U. S. Nat. Herb. 11: 157. 1906.

Scirpus campestris var. *paludosus* Fernald, Rhodora 8: 162. 1906.

Scirpus campestris var. *longi-spicatus* Bates, Univ. Nebr. Stud. 14: 155. 1914.

Scirpus maritimus var. *paludosus* Kükenth. Repert. Sp. Nov. 23: 200. 1926.

Scirpus paludosus var. *atlanticus* Fernald, Rhodora 45: 291. 1943.

Culms 0.5-1.5 m. tall, erect from smooth, brown, horizontal rhizomes, thickened at the nodes, frequently forming tubers; roots slightly spongy, the secondary rootlets inconspicuous; culms sheathed half their length, sharply trigonous, smooth; leaf-blades 3-5 dm. long, commonly 8 mm. broad, the margins and midrib scabrous at the tip only; bracts of the inflorescence 2-5, leaflike, unequal, the outer to 2 cm. long, the others progressively shorter, the margins and midrib scabrous; inflorescence of 3-many spikelets, 1-2.5 (rarely 3.5) cm. long, 0.5 cm. broad, ovate to cylindrical, acute, sessile or umbellate; primary rays to 5 cm. long, smooth; scales ca.

6 mm. long, the midrib prolonged 2 mm. beyond the bifurcate apex, light brown, hairy; bristles 2-6, about half the length of the achene, fragile, minutely barbed; stamens 3; style bifid, 6 mm. long; achene very variable in size, 3-4 mm. long, 2 mm. broad, light to dark brown, ovate, lenticular, apiculate.

TYPE LOCALITY: Granger, Wyoming.

DISTRIBUTION: Fresh to strongly saline water; Atlantic Coast from New Brunswick to New Jersey, occasionally inland in Quebec and New York; Saskatchewan, south to Texas, west to the Pacific Coast; Hawaiian Islands; Argentina; Australia; the East Indies.

ILLUSTRATIONS: A. Gray, Man. ed. 7, 193, f. 225 (achene, spikelets); Orcutt, Am. Pl. pl. 24; Abrams, Ill. Fl. Pacif. St. 1: 275, f. 660, 661; Bull. Wyo. Exp. Sta. 42: 43 (f. 3, 3a), 44; Am. Midl. Nat. 29: 536, f. 28 (achene).

6a. *Scirpus maritimus* L. var. *agonus* (Fernald) Beetle,
Leafl. W. Bot. 4: 46. 1944.

Scirpus maritimus var. *Fernaldi* f. *agonus* Fernald, Rhodora 45: 288. 1943.

Culms to 8 dm. tall, often 1 dm. in depauperate forms, slender, erect from smooth, horizontal rhizomes, the roots slightly spongy only at the nodes, the secondary rootlets inconspicuous; culms thickened at the base, sheathed at least half their length, sharply trigonous, at most only very obscurely scabrous near the summit, very leafy; sheaths green, the margin of the orifice truncate, hyaline, the blades mostly 5 dm. long, seldom over 5 mm. wide, the margins and midrib scabrous at the tips; bracts of the inflorescence 1-5, leaflike, unequal, the outer to 2 cm. long, the others progressively shorter, the margins and midrib scabrous; inflorescence of 1-many spikelets 1-3.5 cm. long, 5 mm. broad, oval to ovate-acute, sessile or umbellate; primary rays to 4.5 cm. long, smooth, the scales ca. 7 mm. long, the midrib prolonged 2 mm. beyond the bifurcate apex, brown, minutely hairy; bristles 2, nearly equaling the achene, retrorsely barbed; stamens 3; style bifid, or rarely trifid, 6 mm. long; achene 3.5 mm. long, 2 mm. broad, dark brown, shining, punctulate, compressed-trigonous.

TYPE LOCALITY: Jordan Falls, Shelburne County, Nova Scotia.

DISTRIBUTION: Saline or brackish marshes and fresh tidal shores; Atlantic coast from Nova Scotia to New Jersey.

ILLUSTRATIONS: Am. Midl. Nat. 29: 537, f. 23 (achene).

NOTE: It is probable that the North American material of *Scirpus maritimus* is indigenous, since it usually differs in its bifid styles and thin, plano-convex to lenticular achenes from typical *S. maritimus*; the latter is European and is usually characterized by a trifid style and uniformly trigonous achenes.

6b. *Scirpus maritimus* L. var. *Fernaldi* (Bickn.) Beetle,
Am. Jour. Bot. 29: 85. 1942.

Scirpus Fernaldi Bickn. Torreyia 1: 96. 1901.

Scirpus campestris var. *Fernaldi* Bartlett; Fernald, Rhodora 8: 163. 1906.

Like the preceding but the spikelets ovate, 1-2 cm. long, 1-1.5 cm. broad, sessile or 1-3 on smooth rays 3-5 cm. long; achenes sharply trigonous.

TYPE LOCALITY: Mt. Desert, Maine.

DISTRIBUTION: Rare; along the Atlantic coast at New Brunswick, Quebec, Maine, and Massachusetts.

ILLUSTRATIONS: Britt. & Brown, Ill. Fl. ed. 2. 1: 334.

7. *Scirpus tuberosus* Desf. Fl. Atlant. 1: 50. 1798.

Scirpus corymbosus Forsk. Fl. Aegypt.-Arab. 14. 1775. Not *S. corymbosus* L. 1756.

Scirpus aegyptiacus Poir. in Lam. Encyc. 6: 770. 1804.

Scirpus maritimus β *tuberosus* R. & S. Syst. Veg. 2: 139. 1817.

Scirpus tridentatus Roxb. Fl. Ind. 1: 228. 1820.

Culms to 5 dm. tall, slender, erect from swollen nodes on slender black rhizomes; roots spongy, the secondary rootlets inconspicuous; culms sheathed to at least half their length, sharply trigonous, very obscurely scabrous at the summit, very leafy, the sheaths green, the margin of the orifice conspicuously raised, hyaline, the blades mostly less than 5 mm. broad, the margins and midrib scabrous at the tip; bracts of the inflorescence unequal, the outer to 1 dm. long, the margins scabrous; inflorescence compound-umbellate, of many spikelets, 1-2 cm. long, smooth; scales 7 mm. long, pubescent, light to dark brown, the apex notched, the midrib

mucronate; bristles 6, fragile, unequal, shorter than the achene, retrorsely barbed; stamens 3, the anthers 3 mm. long; style trifid, or rarely in the same spikelets bifid; achene 2.5 mm. long, 2 mm. broad, dark brown, trigonous, slightly apiculate.

TYPE LOCALITY: No type designated.

DISTRIBUTION: From Spain and Algeria along the coast of the Mediterranean Sea to the Caucasus; India; introduced in the United States in New York, New Jersey, Alabama, California.

ILLUSTRATIONS: Roxb. Pl. Corom. pl. 231; Twining, Ill. Nat. Ord. pl. 149, f. 5; Bull. Hawaii Exp. Sta. 60: 56, f. 50.

8. *Scirpus robustus* Pursh, Fl. Am. Sept. 56. 1814.

Scirpus maritimus macrostachyus Michx. Fl. Bor. Am. 1: 32. 1803.

Scirpus macrostachyus Muhl.; Spreng. Syst. 1: 211. 1817. Not *S. macrostachyos* Lam. 1791.

Scirpus decumanus Willd.; Kunth, Enum. Pl. 2: 168, as syn. 1837.

Scirpus salinus Schmidt; Steud. Nom. Bot. ed. 2: 541. 1841.

Scirpus strobiliferus Steud. Syn. Cyp. 317. 1855.

Scirpus maritimus var. *robustus* Kükenth. Repert. Sp. Nov. 23: 200. 1926.

Scirpus robustus f. *protrusus* Fernald, Rhodora 45: 392. 1943.

Culms about 1 m. tall, stout, erect from swollen nodes on a smooth, black rhizome; roots fibrous only at the nodes, the secondary rootlets numerous; culms trigonous, smooth, leafy nearly to the summit; sheaths green, the orifice hyaline-margined and raised, the blades to 6 dm. long, commonly 1 cm. broad, smooth below but frequently scabrous on the margins and midrib at the summit; bracts of the inflorescence 2-4, unequal, the outer to 3 dm. long, the others progressively shorter, the margins and midrib scabrous; primary rays to 3 cm. long, smooth; spikelets 1-3 cm. long, 1 cm. broad, 3-many, sessile or umbellate, single on short rays, ovate-cylindric; scales 6 mm. long, 4 mm. broad, brown, minutely hairy, the strongly recurved midrib sometimes appearing bifurcate through splitting; bristles variable; style trifid; achene 3 mm. long, 2 mm. broad, dark brown, shining, lenticular or ovate, apiculate.

TYPE LOCALITY: None designated.

DISTRIBUTION: Atlantic coast of North America from Nova Scotia to Mexico; Bahamas; Brazil; Paraguay; Argentina; California.

ILLUSTRATIONS: A. Gray, Man. ed. 7, 192, f. 294 (achene, spikelets); Jepson, Man. Fl. Pl. Calif. 155, f. 151 (achene, inflorescence; as *S. campestris*); Am. Jour. Bot. 28: 548, f. 60-69 (sections through the base of flowers); Britt. & Brown, Ill. Fl. 1: 268; ed. 2, 1: 333; Am. Midl. Nat. 29: 536, f. 34 (achene).

8a. *Scirpus robustus* var. *novae-angliae* (Britton) Beetle, Am. Jour. Bot. 29: 87. 1942.

Scirpus novae-angliae Britton; Britt. & Brown, Ill. Fl. 3: 509. 1898.

Scirpus campestris var. *novae-angliae* Fernald, Rhodora 8: 163. 1906.

Inflorescence more ample, the spikelets 6 mm. broad, to 4 cm. long, cylindric-acute, many, sessile or on smooth rays, the primary to 8 cm., the secondary to 4 cm.; achene dull brown, trigonous.

TYPE LOCALITY: Fairfield, Connecticut.

DISTRIBUTION: Rare in the coastal estuaries from Nova Scotia to South Carolina.

ILLUSTRATION: Britt. & Brown, Ill. Fl. 3: 509; ed. 2, 1: 334.

9. *Scirpus fluviatilis* (Torr.) A. Gray, Man. 527. 1848.

Scirpus maritimus β ? *fluviatilis* Torr. Ann. Lyc. N. Y. 3: 324. 1836.

Culms 1-1.5 m. tall, stout, erect from swollen nodes on rhizomes; roots not spongy, the secondary rootlets numerous; culms trigonous, sheathed to half their height, smooth; sheaths green, becoming dark brown, the margin of the orifice truncate, chartaceous, the blades to 6 dm. long, commonly 1 cm. wide, scabrous on the margins but the midrib smooth; bracts of the inflorescence 3-5, leaflike, unequal, the outer to 2.5 dm. long, the others progressively shorter, the margins and midrib scabrous; inflorescence umbellate; spikelets 1-2.5 cm. long, to 1 cm. broad, ovate-acute, smooth; scales ca. 8 mm. long, the midrib prolonged 2 mm. from the tapered apex, brown, minutely hairy; bristles 6, variable, often equaling the achene, retrorsely barbed; stamens 3; style trifid, 1.5 cm. long; achene 4 mm. long, 2.25 mm. broad, dull, gray-brown, trigonous, punctulate, prominently apiculate.

TYPE LOCALITY: Western New York.

DISTRIBUTION: Temperate North America.

ILLUSTRATIONS: A. Gray, Man. ed. 7, 192, f. 293 (achene, spikelet); Jepson, Man. Fl. Pl. Calif. 155, f. 152 (achene); Fassett, Man. Aquat. Pl. 145 (inflorescence, tuber); Britt. & Brown, Ill. Fl. 1: 268; ed. 2, 1: 333; Rep. N. J. Mus. 1910: pl. 21; Abrams, Ill. Fl. Pacif. St. 1: 275; Am. Midl. Nat. 15: 311, 317 (f).

Section 3. *Taphrogeton* Reichenb. Fl. Germ. Exc. 79. 1830. *Seidlia* Opiz, Beitr. Nat. 11: 349, as genus. 1826. *Nemocharis* Beurl. Bot. Notiser 1853: 52, as genus. 1853. *Taphrogilon* Montandon, Syn. Fl. Jura Sept. 346, as genus. 1856. Sect. *Seidlia* Clarke, Kew Bull. Add. Ser. 8: 113. 1908. Robust leafy perennials; culms trigonous; involucre bracts leaflike; inflorescence paniculate; spikelets small, single or grouped on scabrous rays; bristles 6, shorter than the scales; style bifid or trifid; achene 0.75–1.5 mm. long, white or pale brown, ovate, smooth.

Sheaths green, drying brown; bristles barbed only above the middle; style trifid.

Scales appressed, wholly reddish.

Scales reflexed, greenish-black.

Scales loosely spreading, mucronate-tipped.

Achene compressed-trigonous, the bristles subequal.

Achene trigonous, the bristles much longer.

Scales stiffly spreading, prominently awned.

Sheaths usually red-tinged; bristles barbed nearly to the base; style bifid or trifid.

Style normally trifid; achene trigonous.

Style normally bifid; achene lenticular.

Achene (including the tubercle) 1.25–1.5 mm. long; spikelets ovate-acute.

Achene (including the tubercle) 0.75–1 m. long; spikelets lanceolate-acute.

10. *S. polyphyllus*.

11. *S. atrovirens*.

12. *S. Congdoni*.

13. *S. pallidus*.

14. *S. sylvaticus* var. *Bissellii*.

15. *S. microcarpus*.

16. *S. rubrotinctus*.

10. *Scirpus polyphyllus* Vahl, Enum. 2: 274. 1805.

Scirpus exaltatus Pursh, Fl. Am. Sept. 56. 1814.

Scirpus exaltatus β *viviparus* Pursh, Fl. Am. Sept. 56. 1814.

Scirpus brunneus Muhl. Descr. Gram. 42. 1817.

Scirpus brunneus β *viviparus* Torr. Ann. Lyc. N. Y. 3: 327. 1836.

Scirpus brunneus γ *crispus* Torr. Ann. Lyc. N. Y. 3: 327. 1836.

Holoschoenus brunneus Steud. Nom. Bot. ed. 2, 1: 773. 1840.

Perennial; roots spongy, the rootstocks short; culms single at the nodes, usually ca. 6 dm. tall, to 1 m., triangular, green, smooth; sheaths green, drying brown, the blades to 3 dm. long, to 7 mm. broad, scabrous on the margins and midrib, tapered to a blunt tip; involucre bracts 3–5, leaflike, unequal, the primary rays of the umbel to 10 dm. long, smooth, the small heads of 3–15 spikelets on the shorter secondary rays; spikelets yellow-brown or reddish, ovoid, 2.5–3 mm. long; scales 1–1.5 mm. long, rounded, mucronate; bristles 6, usually twice bent, about twice the length of the achene; style trifid, dark red; achene ca. 1 mm. long, light brown, broadly obovoid, mucronate.

TYPE LOCALITY: "In America boreali?"

DISTRIBUTION: Swamps and borders of ponds; Maine, south to Georgia, west to Indiana and Kentucky.

ILLUSTRATIONS: A. Gray, Man. ed. 7, 194, f. 300 (achene, inflorescence); Fassett, Man. Aquat. Pl. 146 (achene); Britt. & Brown, Ill. Fl. 1: 269; ed. 2, 1: 336; Bull. Wis. Exp. Sta. 119: 67; Am. Midl. Nat. 15: 313, 317 (c); 29: 537, f. 32 (achene).

11. *Scirpus atrovirens* Willd. Enum. 79. 1809.

? *Scirpus reticulatus* Lam. Tab. Encyc. 1: 142. 1791.

Holoschoenus atrovirens Link, Hort. Berol. 1: 293. 1827.

Scirpus sylvaticus var. *atrovirens* A. Gray, Man. ed. 2, 500. 1856.

Scirpus sylvaticus var. *synchocephalus* S. N. Cowles, Am. Nat. 3: 101. 1869.

Scirpus georgianus Harper, Bull. Torrey Club 27: 331. 1900.

Scirpus atrovirens var. *pynchocephalus* Fernald, Rhodora 8: 163. 1906.

Scirpus atrovirens f. *synchocephalus* Blake, Rhodora 15: 161. 1913.

Scirpus atrovirens var. *georgianus* Fernald, Rhodora 23: 134. 1921.

Scirpus atrovirens var. *georgianus* subvar. *viviparus* Farwell, Am. Midl. Nat. 11: 72. 1928.

Scirpus atrovirens var. *georgianus* f. *viviparus* M.-Victorin, Proc. & Trans. Roy. Soc. Canada III. 23: 267. 1929.

Scirpus atrovirens f. *proliferus* F. J. Herm. Rhodora 40: 77. 1938.

Scirpus atrovirens var. *flaccidifolius* Fernald, *Rhodora* 40: 396. 1938.
Scirpus atrovirens var. *georgianus* f. *cephalanthus* Fernald, *Rhodora* 45: 296. 1943.
Scirpus atrovirens var. *georgianus* f. *angustispicalus* Fernald, *Rhodora* 45: 296. 1943.

Fibrous-rooted perennial; culms 0.8–1.5 m. high, stout, 1–1.5 cm. thick at the base, 2–3 mm. broad at the summit, sharply trigonous, smooth, green; sheaths long, green, drying brown, often nodulose, the blades pale green, 7–15 mm. broad, to 5 dm. long, equaling or exceeding the culm, scabrous on the margins and midrib, tapered to the blunt tip; umbel terminal, compound, the primary rays terete, minutely scabrous; spikelets in glomerules at the end of shorter, secondary rays, the glomerules usually few but occasionally very numerous and forming a densely packed head as much as 12 cm. long; spikelets dull greenish-brown or rufescent, narrowly ovoid to cylindrical, 3.5–8 (rarely 10) mm. long, in glomerules of 10–30, often viviparous; scales 1.5–2 mm. long, loosely spreading, the margins greenish-black, the midrib tapered to a scabrous, mucronate tip; bristles 6 or fewer, sparsely to strongly retrorsely barbed, white, nearly straight, about equaling the achene or rarely absent; style trifid, reddish; achene ca. 1 mm. long, white, obovoid-oblong, trigonous, conspicuously pointed.

TYPE LOCALITY: "In America boreali."

DISTRIBUTION: Meadows and bogs; Newfoundland to Saskatchewan, south to Georgia and Texas.

ILLUSTRATIONS: A. Gray, *Man. ed.* 7, 194, *f.* 298 (achene, inflorescence); Fassett, *Man. Aquat. Pl.* 146; *Proc. & Trans. Roy. Soc. Canada* III. 23^s: 267, *f.* 8 (inflorescence); Willd. *Hort. Berol. pl.* 99; Britt. & Brown, *Ill. Fl.* 1: 269; ed. 2, 1: 335; *Rep. N. J. Mus.* 1910: *pl.* 20; Georgia, *Man. Weeds, f.* 38; *Am. Midl. Nat.* 15: 312, 317 (*f.*).

12. *Scirpus Congdoni* Britton, *Torreyia* 18: 36. 1918.

Scirpus Congdoni var. *minor* Henderson, *Rhodora* 32: 21. 1930.

Stoloniferous perennial, spreading by short, stout rhizomes; culms slender, 3–8 mm. broad at the base, smooth, trigonous, 4–5 dm. tall; basal leaves to 8 mm. broad, 1–2 dm. long, the culm-leaves fewer and progressively shorter, the sheaths green, drying brown, the blades linear, scabrous on the margins and midrib below, abruptly acuminate; involucre bracts 3–7 cm. long, leaflike, equaling or shorter than the inflorescence; inflorescence usually abbreviated, the primary rays 3–6, slender, to 8 cm. long, smooth, the secondary rays short; spikelets capitate in heads 7–10 mm. in diameter, 3–5 mm. long, ovate-acute, greenish-black, drying brown; scales brown, ovate to ovate-lanceolate, abruptly acuminate; style trifid; bristles white, obscurely scabrous, exceeding the achene; achene 1–1.25 mm. long, white, trigonous, prominently apiculate.

TYPE LOCALITY: Upper San Joaquin, Madera County, California.

DISTRIBUTION: Mountain meadows, 4000–8000 feet; southern Oregon and California.

ILLUSTRATIONS: *Torreyia* 18: 37; Abrams, *Ill. Fl. Pacif. St.* 1: 276; *Am. Midl. Nat.* 29: 537, *f.* 11 (achene).

13. *Scirpus pallidus* (Britton) Fernald, *Rhodora* 8: 163. 1906.

Scirpus atrovirens var. *pallidus* Britton, *Trans N. Y. Acad.* 9: 14. 1889.

Perennial; rootstock short, thick, the primary roots spongy, the secondary fibrous; culms to 11 dm. tall, single at the nodes, erect, green, smooth, sharply triangular, ca. 1 cm. thick at the base, 2–4 mm. broad at the summit; sheaths green, drying brown, the blades usually 1–1.8 cm. broad, very pale, few to many at the base and leafy nearly to the summit, scabrous on the margins and midrib; involucre bracts 3 or 4 unequal, leaflike, the longest ca. 1 cm. long, slightly exceeding the inflorescence, the umbel of 4–8 primary rays to 1 dm. long, these scabrous, terminated by triangular heads of many spikelets; spikelets ca. 3 mm. long, greenish-black, maturing pale brown; scales 2–3 mm. long, having greenish-black margins and conspicuously pale base and midribs, the latter prolonged into long, setulose awns; bristles white, retrorsely barbed, straight, shorter than the achene; style trifid, reddish; achene ca. 1 mm. long, white, obtusely trigonous, the prominently apiculate apex usually bent.

TYPE LOCALITY: "Indian territory."

DISTRIBUTION: Minnesota, south to Texas, westward through the Great Basin.

ILLUSTRATIONS: A. Gray, *Man. ed.* 7, 194, *f.* 299 (achene); Britt. & Brown, *Ill. Fl. ed.* 2, 1: 335; Abrams, *Ill. Fl. Pacif. St.* 1: 276; *Am. Midl. Nat.* 29: 537, *f.* 27 (achene).

14. *Scirpus sylvaticus* L. var. *Bissellii* Fernald,
Rhodora 2: 21. 1900.

Scirpus sylvaticus of many American authors. Not *S. sylvaticus* L. 1753, sensu stricto.
Scirpus microcarpus var. *Bissellii* House, Bull. N. Y. State Mus. 243-244: 18. 1923.
Scirpus sylvaticus f. *Bissellii* D. S. Carpenter; Dole, Fl. Vermont, ed. 3, 76. 1937.
Scirpus expansus Fernald, Rhodora 45: 293. 1943.
Scirpus expansus f. *Bissellii* Fernald, Rhodora 45: 294. 1943.
Scirpus expansus f. *globulosus* Fernald, Rhodora 45: 294. 1943.

Fibrous-rooted perennial; culms to 6 dm. tall, stout, green, 5-8 mm. broad at the base, 3 mm. broad at the summit, sharply trigonous, scabrous (rarely smooth) on the angles, leafy to the summit; sheaths reddish, ca. 5 cm. long, the blades 3-6 dm. long, 1-2.5 cm. broad, rarely broader; involucre bracts 1.5-3 cm. long, often overtopping the inflorescence; compound umbel terminal, the branches mostly ascending, the primary rays up to 12 cm. long, closely pilose, the branches shorter, terminating in 1-8 spikelets; spikelets 3-5 mm. long, lanceolate-acute to ovoid; scales having prominent green midribs, subulate-acuminate, the sides red-streaked, the margins greenish-black, hyaline; bristles white, retrorsely barbed, equaling or slightly exceeding the achene; style trifid, reddish; achene 1-1.25 mm. long, white or pale brown, oval, obtusely trigonous, apiculate.

TYPE LOCALITY: Southington, Connecticut.

DISTRIBUTION: The east coast of the United States from Maine to Georgia; occasionally inland.

ILLUSTRATIONS: A. Gray, Man. ed. 7, 193, f. 297 (inflorescence); Fassett, Man. Aquat. Pl. 145 (inflorescence, achene); Fernald, Rhodora 45: pl. 767; Britt. & Brown, Ill. Fl. 1: 268; ed. 2, 1: 334.

15. *Scirpus microcarpus* Presl, Rel. Haenk. 1: 195. 1828.

Scirpus lenticularis Torr. Ann. Lyc. N. Y. 3: 328. 1836.
Scirpus sylvaticus β *digynus* Böck. Linnæa 36: 727. 1870.
Scirpus sylvaticus var. *microcarpus* MacM. Metasp. Minn. Valley 97. 1892.
Scirpus Macounii Holm, Am. Jour. Sci. IV. 18: 21. 1904.
Scirpus microcarpus var. *longispicatus* M. E. Peck, Proc. Biol. Soc. Wash. 47: 185. 1934.

Stout perennial 0.5-1.3 m. tall, erect from thick rhizomes; leaves up to 1 m. long, often exceeding the culm, the sheaths mostly green but often tinged with red, the blades 0.5-2.5 cm. broad, green, often nodulose, strongly scabrous on the margins and midrib; involucre bracts 3-many, to 1.5 cm. broad, leaflike, variable in length, equaling but not exceeding the mature inflorescence; inflorescence spreading, compound-umbellate, the primary rays to 2 dm. long, terete or angled, obscurely scabrous, the secondary branches usually ca. 5 cm. long, the tertiary shorter and capped by 3-8 spikelets; spikelets greenish-black, mostly 3-5 mm. long, 2 mm. broad, lanceolate-acute; style bifid, brick-red; bristles 4-6, whitish, fragile, obscurely scabrous, exceeding the achene; achene 1.25-1.5 mm. long, white, lenticular, apiculate.

TYPE LOCALITY: "In Nootka-Sund."

DISTRIBUTION: Moist shady banks; Alaska, south to New Mexico and California.

ILLUSTRATIONS: Am. Jour. Sci. IV. 18: 16, f. 9; Jepson, Man. Fl. Pl. Calif. 156, f. 153 (achene, scale, spikelet, inflorescence); Jepson, Fl. Calif. 203 (achene, scale, spikelet, inflorescence); Sv. Vet.-Akad. Handl. III. 5: 168; Munz, Man. S. Calif. Bot. 67; Am. Midl. Nat. 29: 537, f. 24 (achene).

16. *Scirpus rubrotinctus* Fernald, Rhodora 2: 20. 1900.

Scirpus microcarpus var. *rubrotinctus* M. E. Jones, Bull. Univ. Mont. Biol. 15: 20. 1910.
Scirpus rubrotinctus var. *confertus* Fernald, Rhodora 2: 21. 1900.
Scirpus awatshensis Kom. Repert. Sp. Nov. 13: 163. 1914.
Scirpus microcarpus var. *confertus* House, Bull. N. Y. State Mus. 233-234: 62. 1921.
Scirpus rubrotinctus f. *confertus* Weath. Bull. Conn. Geol. Nat. Hist. Surv. 48: 29. 1931.
Scirpus rubrotinctus f. *radiosus* Fernald, Rhodora 45: 295. 1943.

Perennial from stout, reddish stolons; roots fibrous; culm rather stout, 4-9 dm. high, 0.5-1.5 cm. thick at the base, green, triangular, smooth; leaves to 12 mm. broad, the upper equaling or slightly exceeding the inflorescence, the sheaths mostly red-tinged at the base, the blades scabrous on the margins only, tapered to a rounded tip; involucre leaves mostly 3, the longest equaling or exceeding the inflorescence, strongly scabrous on the margins; rays numerous, the 3-5 longest 0.5-1.5 dm. long, stiff, ascending, subequal, the many shorter ascending and divergent; spikelets 4-9 mm. long, ovoid to cylindrical, in glomerules of 3-many; scales 1.5-2 mm. long, ovate, blunt or somewhat mucronate, the weak midrib green or white, the

margins greenish-black; bristles 6, whitish, stiff, retrorsely scabrous, equaling or slightly exceeding the achene; style bifid, reddish; achene 0.75–1 mm. long, white, oval, lenticular, slightly apiculate.

TYPE LOCALITY: Foxcroft, Maine.

DISTRIBUTION: Damp soil; Newfoundland, south to New Jersey and west through the Great Lakes to Colorado, Idaho, and British Columbia.

ILLUSTRATIONS: A. Gray, Man. ed. 7, 193, f. 296 (achene, spikelets); Fassett, Man. Aquat. Pl. 145 (achene); M.-Victorin, Fl. Laurent. 696; Am. Midl. Nat. 29: 537, f. 36 (achene).

Section 4. *Androcoma* (Nees) Benth. & Hook. Gen. Pl. 3: 1051. 1883. *Androcoma* Nees, Jour. Bot. Hook. 2: 396, as genus. 1840. Robust leafy perennials without stolons; culms trigonous; inflorescence paniculate; spikelets small (usually 1 cm. or less long), single or grouped on scabrous rays; bristles 6, about equaling the scales, or absent; style trifid; achene 0.75–1.5 mm. long, white or pale brown, ovate, smooth.

Bristles present; achene 0.75–1.5 mm. long.

Spikelets small, ca. 1 mm. broad and less than 5 mm. long; bristles firm, appressed, shorter than or about equaling the achene.

Spikelets large, 1.5–3 mm. broad and mostly longer than 5 mm.; bristles weak, loosely ascending, about twice as long as the achene.

Scales having the strong, green midrib prolonged into a sharp point.

Leaves dark green; achene oval, rugose.

Leaves pale green; achene ovate, smooth.

Scales blunt, the midrib conspicuous.

Bristles absent; achene 1.75–2.5 mm. long.

17. *S. divaricatus*.

18. *S. lineatus*.

19. *S. fontinalis*.

20. *S. Peckii*.

21. *S. Analecti*.

17. *Scirpus divaricatus* Ell. Bot. S.C. & Ga. 1: 88. 1816.

Scirpus ambiguus Schultes in R. & S. Syst. Veg. Mant. 2: 85. 1824.

Isolepis divaricata A. Dietr. Sp. Pl. 2: 131. 1833.

Perennial; roots spongy; culms slender, erect, weak, 0.5–1.5 m. high, triangular, smooth; leaves to 3 dm. long, 4–10 mm. broad, deep green, soft, weakly scabrous on the margins and midrib, the sheaths green, the margin of the orifice broad, hyaline; involucre bracts 1 or 2, to 7 cm. long, leaflike, the involucre scale-like; inflorescence loose, often proliferous, the rays elongate, widely divergent, flexuous, the primary rays to 10 cm. long, smooth below, scabrous above, the secondary to 6 cm. long, scabrous, the tertiary to 3 cm. long, fourth and fifth branches often present; spikelets mostly pedicel, very slender, cylindric, at first 3–4 mm. long, 0.5–1 mm. broad, the axis elongating to 1 cm., 1–2 mm. thick; scales 1.5 mm. long, whitish or pale brown, blunt, incurved, with broad, green midrib and broad, hyaline margins; bristles 3–6, about equaling the achene; style trifid, reddish; anther ca. 1 mm. long; achene white or pale brown, smooth, sharply trigonous, ovoid, apiculate.

TYPE LOCALITY: "Between Bee's Creek and Puryburgh," South Carolina.

DISTRIBUTION: Wet places; coastal states from Virginia south to Florida and west to Louisiana; Missouri.

ILLUSTRATIONS: A. Gray, Man. ed. 7, 194, f. 301 (achene, inflorescence); Ell. Bot. S. C. & Ga. 1: pl. 2; Britt. & Brown, Ill. Fl. 1: 270; ed. 2, 1: 336; Am. Midl. Nat. 29: 537, f. 13 (achene).

18. *Scirpus lineatus* Michx. Fl. Bor. Am. 1: 32. 1803.

Trichophorum ? lineatum Pers. Syn. Pl. 1: 69. 1805.

Scirpus pendulus Muhl. Descr. Gram. 44. 1817.

Trichophorum pendulum Muhl. Descr. Gram. 44, as syn. 1817.

Isolepis lineata R. & S. Syst. Veg. 2: 117. 1817.

Scirpus brizoides Link, Jahrb. Gewächsk. 1⁸: 80. 1820.

Scirpus Drummondii Steud. Syn. Cyp. 318. 1855.

Eriophorum lineatum Benth. & Hook. Gen. Pl. 3: 1052. 1883.

Scirpus lineatus habereri House, Bull. N. Y. State Mus. 176: 38. 1915.

Scirpus lineatus f. *elongatus* Eames, Rhodora 33: 168. 1931.

Perennial with fibrous roots; culms 0.5–1.5 m. high, single, erect from a slightly swollen base, obtusely trigonous, smooth; leaves mostly to 0.5 mm. broad, linear, flat, pale green, stiff, scabrous on the margins and midrib, the basal sheaths persistent, dark brown, the upper green, smooth, the margin of the orifice truncate, hyaline; involucre bract often single, occasionally 2 or 3, leaflike, to 8 cm. long, 4 mm. broad, green or pale brown at the base, the involucre pale brown, scale-like; umbels terminal and sometimes axillary, loose, 0.5–2 dm. high, subsecund, the involucre much shorter than the long, slender, ascending, nodding-tipped rays; spikelets

0.5–1 cm. long, oblong becoming cylindrical, on thread-like, drooping, scabrous pedicels, the primary pedicels to 10 cm. long, the secondary to 5 cm. long, the tertiary to 2 cm. long; scales ca. 2 mm. long, ovate, with pale brown margins and broad, green midrib, pointed, the tips ascending; style trifid, reddish; bristles light brown, elongate; achene ca. 1 mm. long, light brown, firm, trigonous, obovate, prominently apiculate.

TYPE LOCALITY: "In Carolina."

DISTRIBUTION: Wet places at low altitudes; Maine and Ontario, south to Florida, westward to Iowa and Texas.

ILLUSTRATIONS: A. Gray, *Man. ed. 7, 194, f. 302* (achene, inflorescence); Fassett, *Man. Aquat. Pl. 146* (inflorescence); Britt. & Brown, *Ill. Fl. 1: 270; ed. 2, 1: 337; Bull. Wis. Exp. Sta. 119: 66; Rep. N. J. Mus. 1910: pl. 20; Abrams, Ill. Fl. Pacif. St. 1: 277; Am. Midl. Nat. 15: 314, 317 (2)*.

19. *Scirpus fontinalis* Harper, Bull.

Torrey Club 30: 322. 1903.

Scirpus fontinalis var. *virginiana* Fernald, *Rhodora* 41: 532. 1939.

Stoloniferous perennial; culms tufted, 12–18 dm. long, triangular at least below, smooth, the summits very slender and nodding; basal leaves few, 3–4 dm. long, 3–10 mm. broad; cauline leaves few or several, 0.8–1.3 cm. broad, 1–3 dm. long, scabrous on the margins and midrib, ascending or almost appressed, slender and acute; involucre bracts 1 or 2, leaflike, to 6 cm. long, the involucels scale-like; inflorescence a compound umbel, axillary and terminal, unequal-rayed, the 1–4 lateral umbels with spikelets on slender, flattened, drooping peduncles 1–3 dm. long, in the terminal umbels the primary rays to 10 cm. long, rather smooth, the secondary to 4.5 cm. long, scabrous, the tertiary to 2 cm. long, strongly scabrous; spikelets often viviparous, pedicellate, to 5 mm. long, 2–3 mm. broad, oblong when young, their axes elongating as the lower scales drop but exceeding 5 mm. in length only in extreme maturity; scales 1.5–2.5 mm. long, oblong, acute, the broad, green keel mucronate, somewhat reflexed, the margins reddish; bristles 6, smooth, tortuous; style trifid, reddish; achene 1–1.5 mm. long, light brown, oblong, triquetrous, covered with minute, depressed, conical papillae, prominently beaked.

TYPE LOCALITY: Leslie, Sumter County, Georgia.

DISTRIBUTION: Calcareous soils; on the coastal plain from Virginia to Florida, west to Louisiana.

ILLUSTRATION: *Am. Midl. Nat. 29: 537, f. 17* (achene).

20. *Scirpus Peckii* Britton, *Trans. N. Y. Acad. 11: 82. 1892.*

Scirpus polyphyllus β *Macrostachys* Böck. *Linnaea* 36: 731. 1870.

Scirpus atratus Fernald, *Rhodora* 2: 18. 1900.

Scirpus polyphyllus f. *macrostachys* Fernald, *Rhodora* 45: 296. 1943.

Perennial; culms 0.8–1.7 m. high, erect, slender, wiry, smooth; sheaths green, the margin of the orifice firm or narrowly hyaline; leaves 3–4 dm. long, 5–9 mm. broad, pale green, strongly scabrous on the margins and midrib; involucre of 1 or 2 leaflike bracts to 1.5 dm. long, the involucels scale-like, blackish; inflorescence 0.5–2 dm. high, the 2–5 longest (to 8 cm. long) stiff rays ascending, the others shorter (to 4 cm. long), ascending or divergent, the tips scarcely drooping; spikelets (occasionally viviparous) oblong-cylindric, 5–9 mm. long, on slender rays 1–6 cm. long, subsessile or sessile in glomerules of 2–7; scales 1.5 mm. long, oblong-ovate, acutish or obtuse, green or blackish-ferruginous above the pale base; style trifid, reddish; bristles 6, white, elongate; achene 0.75 mm. long, whitish, oblong, smooth, apiculate.

TYPE LOCALITY: Lake Pleasant, Hamilton County, New York.

DISTRIBUTION: Meadows and bogs; northern New Hampshire, Vermont, and New York.

ILLUSTRATIONS: A. Gray, *Man. ed. 7, 195, f. 303* (achene, inflorescence); Fassett, *Man. Aquat. Pl. 146* (inflorescence, achene); Britt. & Brown, *Ill. Fl. 1: 270; ed. 2, 1: 336; Am. Midl. Nat. 29: 537, f. 29* (achene).

21. *Scirpus Analecti* Beetle, *Brittonia* 5: 148. 1944.

Scirpus potosinus Clarke; Britton, *Trans. N. Y. Acad. 11: 77. 1892.* (Nomen nudum.)

Scirpus potosiensis Clarke, *Kew Bull. Add. Ser. 8: 89. 1908.* (Nomen nudum.)

Perennial, the roots spongy; caespitose or spreading from short stolons to 5 mm. thick; culms to 1 m. tall, single at the nodes, slender, ca. 2 mm. thick, erect, sharply trigonous, scabrous on the angles; leaves numerous, basal, equaling or exceeding the culm, to 6 mm. broad, scabrous

on the margins and midrib, the short sheaths soon split and drying brown or blackish; involucre bracts to 2 dm. long, 3 or 4, unequal, leaflike; inflorescence terminal, umbellate, the primary rays to 1 dm. long, terete or flattened, smooth, the spikelets congested in groups of 4-10 on shorter, secondary rays; spikelets 5-8 mm. long, ca. 2 mm. broad, 6-15-flowered; scales ca. 3 mm. long, green, smooth, lanceolate, acute; bristles absent; style trifid, reddish; achene ca. 1.75 mm. long, white maturing dark brown, plano-convex, oval, hardly apiculate.

TYPE LOCALITY: Minas de San Rafael, San Luis Potosí.

DISTRIBUTION: Moist banks; Mexico.

Section 5. *Trichophorum* (Pers.) Darl. Flora Cestr. ed. 3, 40. 1853.* *Trichophorum* Pers. Syn. Pl. 1: 68, as genus. 1805. Tufted, fibrous-rooted perennials; culms triangular, leafy; leaves and culms strongly scabrous; inflorescence a compound umbel, usually very ample and spreading but often contracted; spikelets many; style trifid; achene ca. 1 mm. long, smooth, apiculate, surrounded by 6 elongate, persistent bristles.

All spikelets in glomerules.

22. *S. cyperinus*.

At least the lateral spikelets of each group pediceled.

Involucels and wool brown or reddish.

Involucels and wool bright red-brown or terra-cotta.

22a. *S. cyperinus* var. *Eriophorum*.

Involucels and wool dull brown, not reddish.

22b. *S. cyperinus* var. *laxus*.

Involucels black, the wool nearly white.

Achene white; bristles somewhat exerted.

23. *S. atrocinctus*.

Achene reddish; bristles long-exserted.

24. *S. Longii*.

22. *Scirpus cyperinus* (L.) Kunth, Enum. Pl. 2: 170. 1837.

Eriophorum cyperinum L. Sp. Pl. ed. 2, 77. 1762.

Trichophorum cyperinum Pers. Syn. Pl. 1: 69. 1805.

Scirpus thyrsiflorus Willd. Enum. 78, in part. 1809. (Excl. *S. eriophorum* Michx.)

Scirpus Eriophorum var. *cyperinus* A. Gray, Man. ed. 2, 501. 1856.

Scirpus cyperinus α *normalis* Kuntze, Rev. Gen. 2: 757. 1891.

Scirpus sylvaticus f. *cephaloideus* Sheldon, Minn. Bot. Stud. 1: 68. 1894.

Scirpus Eriophorum var. *condensatus* Fernald, Proc. Am. Acad. 34: 501. 1899.

Scirpus cyperinus var. *Andrewsii* Fernald, Rhodora 2: 16. 1900.

Scirpus cyperinus var. *condensatus* Fernald, Rhodora 2: 16. 1900.

Scirpus cyperinus var. *pelius* Fernald, Rhodora 8: 164. 1906.

Scirpus cyperinus var. *pelius* f. *condensatus* Blake, Rhodora 15: 162. 1913.

Eriophorum cyperinum var. *pelium* Farwell, Rep. Mich. Acad. 19: 253. 1917.

Eriophorum cyperinum var. *pelium* f. *condensatum* Farwell, Rep. Mich. Acad. 21: 360. 1920.

Scirpus cyperinus var. *congesta* House, Bull. N. Y. State Mus. 233-234: 62. 1921.

Scirpus cyperinus var. *pelius* f. *congestus* House, Bull. N. Y. State Mus. 254: 150. 1924.

Scirpus cyperinus f. *cephaloideus* Beetle, Rhodora 46: 146. 1944.

Culms nearly terete, 1-1.5 m. high; blades numerous, narrowly linear, rather rigid, often equaling the culm; involucre bracts leaflike, 3-5, longer than the loose umbel, 1.5-3 dm. long, the tips of the rays at length drooping; involucre reddish-brown; spikelets exceedingly numerous, ovoid, clustered, woolly at maturity, 3-6 mm. long; bristles rust-colored, much longer than the pointless, reddish-brown scales; achene short-pointed.

TYPE LOCALITY: "In America septentrionali."

DISTRIBUTION: Wet meadows and swamps; Newfoundland to Virginia, west to Iowa and Saskatchewan.

ILLUSTRATIONS: A. Gray, Man. ed. 7, 195, f. 304 (inflorescence); Fassett, Man. Aquat. Pl. 148 (inflorescence); Knobel, Grasses, Sedges & Rushes N. U. S. pl. 25, f. III 15 (inflorescence); Britt. & Brown, Ill. Fl. 1: 271; ed. 2, 1: 337; Am. Midl. Nat. 29: 537, f. 12 (achene).

NOTE: Specimens with capitate inflorescence may be treated as *Scirpus cyperinus* f. *cephaloideus* (Sheldon) Beetle.

22a. *Scirpus cyperinus* var. *Eriophorum* (Michx.)

Kuntze, Rev. Gen. 2: 757. 1891.

Scirpus Eriophorum Michx. Fl. Bor. 1: 33. 1803.

Scirpus thyrsiflorus Willd. Enum. 78, in part. 1809. (Excl. *Eriophorum cyperinum* L.)

Culms coarse, 1-2 m. tall, 2.5-6 mm. thick below the ample (1.5-3 dm. long) inflorescence; blades pale green, firm, 6-11 mm. broad; rays very elongate, mostly ascending, drooping at the

* The sign § is interpreted as indicating sectional rank, and the name as applied definitely to this rank; in earlier editions the generic name *Trichophorum* Pers. is listed as synonym of the unnamed section.

tips, the primary ascending, the secondary and tertiary slender and drooping; involuclers deep red-brown or terra-cotta; spikelets ovoid, 3–6 mm. long, mostly in 3's, the two lateral pediceled, the central sessile; scales red-brown; maturing from late July to September.

TYPE LOCALITY: Maryland.

DISTRIBUTION: More abundant near the coast but in many scattered localities inland; Massachusetts, south to Florida, west to Iowa and Texas.

ILLUSTRATIONS: A. Gray, Man. ed. 5, pl. 3, f. 6–10; Am. Midl. Nat. 29: 537, f. 14 (achene).

22b. *Scirpus cyperinus* var. *laxus* (A. Gray) Beetle, comb. nov.

Scirpus Eriophorum Kunth, Enum. Pl. 2: 170. 1837. Not. *S. Eriophorum* Michx. 1803.

Scirpus Eriophorum var. *laxus* A. Gray, Man. ed. 2, 501. 1856.

Eriophorum cyperinum var. *laxum* A. Gray, Man. ed. 6, 582. 1890.

Scirpus pedicellatus Fernald, Rhodora 2: 16. 1900.

Scirpus pedicellatus var. *pullus* Fernald, Rhodora 2: 17. 1900.

Scirpus atrocinctus var. *grandis* Fernald, Rhodora 2: 17. 1900.

Eriophorum cyperinum var. *pedicellatum* f. *grande* Farwell, Rep. Mich. Acad. 21: 360. 1920.

Scirpus rubricosus Fernald, Rhodora 47: 213. 1945.

Culms rather stout, 2–4 mm. thick below the inflorescence; leaves pale green, firm, 3–10 mm. broad; inflorescence ample, 1–2.5 dm. high, the numerous, ascending, subequal rays very slender, their tips nodding; involuclers brown to dull straw-color; spikelets 3–6 mm. long; scales pale brown; wool whitish-brown.

TYPE LOCALITY: "America borealis."

DISTRIBUTION: Alluvial thickets and swamps; eastern Quebec to Connecticut, westward to Minnesota, mostly in the interior.

ILLUSTRATIONS: A. Gray, Man. ed. 7, 195, f. 305 (achene, inflorescence); Fassett, Man. Aquat. Pl. 148, f. 130 (spikelets); Am. Midl. Nat. 15: 316; 29: 537, f. 30 (achene); M.-Victorin, Fl. Laurent. 696.

23. *Scirpus atrocinctus* Fernald, Proc. Am.

Acad. 34: 502. 1899.

Eriophorum cyperinum var. *atrocinctus* Farwell, Ann. Rep. Comm. Parks Detroit 11: 50. 1900.

Eriophorum cyperinum var. *laxum* f. *condensatum* Peck, Ann. Rep. N. Y. State Mus. 46: 130. 1893.

Scirpus atrocinctus var. *brachypodus* Fernald, Proc. Am. Acad. 34: 503. 1899.

Eriophorum cyperinum var. *brachypodium* Farwell, Rep. Mich. Acad. 6: 204. 1904.

Scirpus atrocinctus f. *brachypodus* Blake, Rhodora 15: 161. 1913.

Scirpus atrocinctus var. *condensatum* House, Bull. N. Y. State Mus. 233–234: 62. 1921.

Eriophorum cyperinum var. *atrocinctum* f. *brachypodium* Farwell, Rep. Mich. Acad. 21: 360. 1920.

Cespitose, fibrous-rooted perennial; culms 0.5–1.2 m. high, slender, only 1–2 mm. in diameter below the inflorescence, trigonous, smooth or obscurely scabrous above on the angles; leaves 2–5 mm. broad, to 6 dm. long, mostly basal, bright green, rather soft, weakly scabrous on the margins and midrib; involucler bracts to 2 dm. long, 4 mm. broad, black at the base, green above, strongly scabrous on the margins and midrib; rays strongly scabrous, the primary to 8 cm. long, the secondary to 4 cm. long, the tertiary to 2 cm. long; spikelets 5–6 mm. long, oval, mostly pediceled; scales 1.5 mm. long, 0.5 mm. broad, lanceolate, hyaline, greenish-black throughout or at least above, streaked with red, the margins entire, the minutely excurrent midrib scabrous above, readily deciduous; bristles 6, elongate, white or light brown; anthers 2, 0.5 mm. long; style trifid, reddish; achene 1 mm. long, white or yellowish, planoconvex, lanceolate, apiculate.

TYPE LOCALITY: Rumford, Maine.

DISTRIBUTION: Meadows and swamps, abundant in the east, rarer westward; Newfoundland, south to Connecticut and West Virginia, west to British Columbia and Washington.

ILLUSTRATIONS: M.-Victorin, Fl. Laurent. 696; Am. Midl. Nat. 29: 537, f. 3 (achene).

NOTE: Specimens with capitate inflorescence may be treated as *Scirpus atrocinctus* forma *brachypodus* (Fernald) Blake.

24. *Scirpus Longii* Fernald, Rhodora 13: 6. 1911.

Plants robust; culms 9–14 dm. high, lustrous at the nodes; leaves green or slightly glaucous, 3–8 mm. wide, serrulate along the margins and the narrow keel, the basal numerous and crowded, more or less nodulose toward the base, the cauline remote; cyme umbelliform, irregularly decompound, usually very full, 1–1.8 (rarely 3) dm. high; rays scabridulous, the longer 2–6 erect, the shorter numerous, spreading or curved; involucler of 2 or 3 leaves, these shorter than or

about equaling the umbel, blackish and glutinous at the base; involuclers blackish; spikelets ellipsoid, obtuse, 4-8, becoming 6-10 mm. long, the lateral long-pedicelated; scales blackish, carinate-convex, oblong, obtuse, 2-3 mm. long; bristles whitish, extremely slender, finally long-exserted, crisp-flexuous, glabrous; style exserted, deeply trifid, the branches 1-1.5 mm. long; anthers linear, 1-2 (rarely 2.5) mm. long; achene about 0.5 mm. long, chestnut-brown or reddish-brown, ellipsoid-obovoid, trigonous.

TYPE LOCALITY: Northeast of Andrews, Camden County, New Jersey.

DISTRIBUTION: Meadows, swamps, and fresh marshes, often in shallow water; Norfolk and Middlesex Counties, Massachusetts; Burlington and Camden Counties, New Jersey.

ILLUSTRATION: Am. Midl. Nat. 29: 537, f. 22 (achene).

Section 6. Baeothryon (A. Dietr.) Reichenb. Ic. Fl. Germ. 1846.* *Baeothryon* A. Dietr. Sp. Pl. 2: 89, as genus. 1833. Subsect. *Baeothryon* Endl. Gen. 118. 1836. Perennials; spikelets uniformly single, terminal; involucre merely the modified, outer caducous scale; stamens 3; style trifid; achene trigonous, compressed or lenticular, smooth under low magnification, brown, usually apiculate; bristles usually present.

Culms terete, smooth.

Achene sharply trigonous; perianth-segments broad and firm. 25. *S. Clementis*.

Achene compressed; bristles terete and fragile.

Awn of the outermost scale of the spikelet scabrous; spikelet ovate.

Awn of the outermost scale of the spikelet smooth; spikelet lanceolate. 26. *S. pumilus*.

Culms triangular, scabrous.

Bristles 6, elongate (20-25 mm. long), ligulate. 28. *S. hudsonianus*.

Bristles 6, variable (ca. 2 mm. long), terete.

Cauline leaves numerous, 1-1.5 mm. broad, often exceeding the culms. 29. *S. planifolius*.

Cauline leaves few, 0.5 mm. broad, sometimes equaling but not exceeding the culms. 30. *S. Clintonii*.

25. *Scirpus Clementis* M. E. Jones, Contr. W.

Bot. 14: 21. 1912.

Scirpus yosemitanus Smiley, Univ. Calif. Publ. Bot. 9: 108. 1921.

Dwarf, very densely cespitose, fibrous-rooted perennial; culms 0.3-1.2 dm. long, erect, green, grooved, terete, smooth, clothed at the base with brown, persistent sheaths, the margin of the orifice very hyaline, soon splitting, the upper sheath green, its blade (1-4 cm. long) ca. 5 mm. broad, blunt-tipped, smooth or very obscurely scabrous on the margins, rather spongy; spikelets 2-3 mm. long, 1-2 mm. broad, solitary, terminal, 2-4-flowered; outer scale 2-3 mm. long, brown, prominently bracteal, the midrib yellow, prolonged 3.3 mm., smooth or scabrous-margined, blunt-tipped; inner scales ovate, brown with a yellow midrib; bristles 6, variable, yellow, broad, chartaceous, shorter than the achene; stamens 3; style trifid, brick-red; achene 2 mm. long, 1 mm. broad, dark brown, ovate, trigonous, minutely apiculate.

TYPE LOCALITY: Rae Lake, Fresno County, California.

DISTRIBUTION: Gravel banks and wet peaty meadows near mountain streams; Sierra Nevada, California.

ILLUSTRATION: Abrams, Ill. Fl. Pacif. St. 1: 272 (as *S. pumilus*); Am. Midl. Nat. 29: 537, f. 9 (achene).

26. *Scirpus pumilus* Vahl, Enum. 2: 243. 1805.

Isolepis pumila R. & S. Syst. Veg. 2: 106. 1817.

Scirpus alpinus Schleich. Cat. Pl. Helv. ed. 4, 32. 1821 (nomen nudum); Gaudin. Fl. Helv. 1: 108. 1828.

Isolepis elongantha C. Meyer; Ledeb. Fl. Alt. 1: 64. 1829.

Isolepis oligantha C. Meyer, Mém. Acad. St. Pétersb. Sav. Étr. 1: 197. 1831.

Limnochloa alpina Reichenb. Fl. Germ. Exc. 140^u. 1832.

Eleogiton elongantha A. Dietr. Sp. Pl. 2: 96. 1833.

Eleocharis alpina Bluff & Fingerh. Comp. Fl. Germ. 1: 92. 1836.

Trichophorum emergens Norman, Skr. Norske Vid.-Selsk. 19: 319. 1868.

Scirpus uniflorus Trautv. Acta Hort. Petrop. 5: 120. 1877.

Scirpus Meyeri Trautv. Acta Hort. Petrop. 5: 121, as syn. 1877.

* The primary divisions of the genus in Reichenbach's and in Endlicher's treatments are here interpreted as of sectional rank.

- Trichophorum atrichum* Palla, Bot. Jahrb. 10: 296. 1888.
Scirpus atrichus Lindm. Sv. Fanerogamfl. 117. 1918.
Trichophorum pumilum Schinz & Thell.; Viert. Nat. Ges. Zürich 66: 265. 1921.
Trichophorum oliganthum Fritsch, Exkursionsfl. ed. 3, 709. 1922.
Scirpus emergens Fernald, Rhodora 45: 281. 1943.
Scirpus Rollandii Fernald, Rhodora 45: 282. 1943.

Dwarf, loosely cespitose perennial, the rhizomes slender, the roots fibrous; culms 0.5–1.5 dm. tall, erect, tufted, green, terete, grooved, smooth, clothed at the base with brown, persistent sheaths and dead culms; upper sheaths green, very loose, the margin of the orifice hyaline, white, abruptly contracted, the blades 0.5–1 mm. long, smooth, blunt-tipped; spikelets 2 mm. long, 2–3 mm. wide, 3–5-flowered, solitary, terminal, oval; outer scale 2.5 mm. long, bracteal, the mucronate tip blunt, smooth, the inner scales 2–2.5 mm. long, 1–1.25 mm. broad, oblong-ovate, the sides brown with white, hyaline margins, the midrib yellow; bristles 3–6, brick-red; style trifid; achene 1.5–2 mm. long, 1 mm. broad, dark brown, smooth, ovoid, lenticular, obscurely apiculate.

TYPE LOCALITY: "In Helvetia."

DISTRIBUTION: Boreal and montane bogs and meadows; Eurasia and North America.

ILLUSTRATIONS: Mém. Acad. St.-Petersb. Sav. Étr. 1: pl. 1; Proc. & Trans. Roy. Soc. Canada III. 23: pl. 1; Coste, Fl. Fr. 3: 477 (as *S. alpinus*); Am. Midl. Nat. 29: 536, f. 33 (achene).

27. *Scirpus cespitosus* L. var. *callosus* Bigel. Fl. Bost.

ed. 2, 21. 1824.

- Scirpus luteus* Gilib. Exerc. Phyt. 2: 513. 1792.
Scirpus obtusus Bigel. New Engl. Jour. Med. 5: 335. 1816.
Scirpus bracteatus Bigel. New Engl. Jour. Med. 5: 335. 1816.
Aplotemon bracteatum Raf. Am. Mo. Mag. 1: 441. 1817.
Trichophorum austriacum Palla, Ber. Deuts. Bot. Ges. 15: 468. 1897.
Scirpus caespitosus B. *austriacus* Asch. & Graebn. Syn. Mitteleur. Fl. 2: 300. 1904.
Scirpus austriacus Asch. & Graebn.; Lindm. Sv. Fanerogamfl. 117. 1918.
Scirpus cespitosus var. *delicatulus* Fernald, Rhodora 23: 25. 1921.

Densely cespitose perennial, fibrous-rooted, forming hard, close mats or occasionally soft tussocks on wet, calcareous banks; culms 1–3.5 dm. high, 1 mm. broad, slender, green, erect, terete, with 5 parallel grooves, clothed at the base with brown, gray, or black, persistent, indurate, imbricate sheaths; sheaths scale-like, mucronate, the uppermost green and having a smooth blade 5–8 mm. long, blunt at the tip, the orifice 0.5–1.5 mm. long, usually with a firm, abruptly-contracted, purple-dotted border; spikelet 4 mm. long, 2 mm. broad, solitary, terminal, light brown, 2–4-flowered; outer scales 5–7 mm. long, 3.5 mm. broad, bearing a broad, smooth, green, blunt awn exceeding the spikelet; inner scales less prominently awned or merely acute; bristles 6, white or brown above, smooth, very fragile, surrounding and usually exceeding the achene; stamens 3; style 5 mm. long, trifid, barbellate; achene 1.5 mm. long, 0.75 mm. broad, dark brown, trigonous, smooth, short-pointed.

TYPE LOCALITY: White Mountains, New Hampshire.

DISTRIBUTION: Acid peat of the northern tundra, and localized southward on mountain tops; North America, south in the mountains to Georgia, Illinois, Utah, and Washington; northern Europe.

ILLUSTRATIONS: A. Gray, Man. ed. 7, 190, f. 279 (achene, spikelet); Britt. & Brown, Ill. Fl. 1: 262; ed. 2, 1: 328; Abrams, Ill. Fl. Pacif. St. 1: 271; Lindm. Sv. Fanerogamfl. 114, 115; Am. Midl. Nat. 29: 537, f. 8 (achene).

NOTE: *Scirpus cespitosus* L. is a plant of western Europe which differs from *Scirpus cespitosus* var. *callosus* Bigel. in the notched orifice of the upper sheath and the 5–8-flowered, dark-brown or purple spikelet.

28. *Scirpus hudsonianus* (Michx.) Fernald,

Rhodora 8: 161. 1906.

- Eriophorum alpinum* L. Sp. Pl. 53. 1753. Not *Scirpus alpinus* Schleich. 1821; Gaudin 1828.
Linagrostis alpina Scop. Fl. Carn. ed. 2, 1: 48. 1772.
Eriophorum hudsonianum Michx. Fl. Bor. Am. 1: 34. 1803.
Trichophorum alpinum Pers. Syn. Pl. 1: 70. 1805.
Trichophorum alpinum β *hudsonianum* Pers. Syn. Pl. 1: 70. 1805.
Trichophorum hudsonianum Nutt. Gen. 1: 36. 1818.
Limnolobos alpina Drejer Fl. Exc. Hafn. 18. 1838.
Scirpus trichophorum Asch. & Graebn. Syn. Mitteleur. Fl. 2: 301. 1904.

Loosely tufted perennial from slender rootstocks; culms 1–4 dm. high, erect, green, trigonous, the angles scabrous, clothed at the base with light brown, imbricate sheaths having hya-

line, red-flecked margins; upper sheaths green, the margin of the orifice hyaline, white, abruptly contracted, the blades 1 cm. long, or occasionally fully developed to 3 dm. long, scabrous-margined, their tip abruptly globular; spikelets 5–7 mm. long, 3 mm. broad, solitary, terminal, many-flowered, terete, ovoid-acute; outer scale 4 mm. long, bracteate, the mucronate tip 2 mm. long, scabrous-margined; inner scales oblong-lanceolate, the midrib broad and green, the margins brown; bristles 6, elongate, 2–2.5 cm. long, ligulate, white; stamens 3; style 4 mm. long, trifid; achene 1.5 mm. long, 0.75 mm. broad, dark brown, smooth, narrowly obovoid, trigonous, acutely apiculate.

TYPE LOCALITY: "A sinu Hudsonis ad lacus Mistassius."

DISTRIBUTION: Cold bogs and wet shores of northern Europe and northern North America; Labrador and Newfoundland, south to New York, westward to Montana and Yukon Territory.

ILLUSTRATIONS: A. Gray, Man. ed. 7, 190, f. 280 (achene, spikelet); Fassett, Man. Aquat. Pl. 142 (inflorescence, achene); Clarke, Ill. Cyp. pl. 57 (as *Eriophorum alpinum*); Torrey, Fl. N. Y. pl. 140 (as *Eriophorum alpinum*); Britt. & Brown, Ill. Fl. 1: 271, f. 637; ed. 2, 1: 323, f. 791; M.-Victorin, Fl. Laurent. 693; Am. Midl. Nat. 29: 537, f. 20 (achene).

29. *Scirpus planifolius* Muhl. Descr. Gram. 32. 1817.

Isolepis planifolia Spreng. Neue Entdeck. 3: 10. 1822.

Eleoigton planifolia A. Dietr. Sp. Pl. 2: 98. 1833.

Eleocharis planifolia Nees, Linnaea 9: 294. 1834.

Trichophorum planifolium Palla, Oesterr. Bot. Zeits. 63: 402. 1913.

Perennial; culms 1–3 dm. high, erect, tufted, from short rootstocks, clothed at the base with brown, persistent sheaths, slender, green, trigonous, the angles scabrous, grooved; cauline leaves numerous, the lower reduced but the upper (1–1.5 mm. broad) often exceeding the culms, blunt-tipped, scabrous-margined; upper sheaths hyaline, uniformly flecked with red, the margin of the orifice apparently deeply notched; spikelets 4–5 mm. long, 2 mm. broad, solitary, terminal, 5–8-flowered, terete, ovoid-acute; outermost scale prolonged into a blunt awn sometimes equaling or exceeding the spikelet; inner scales 3 mm. long, ovate, mucronate (or the innermost acute), the midrib green, the margins chestnut; bristles 3–6, variable, equaling the achene, terete, minutely hairy; stamens 3; style trifid, brick-colored; achene 2 mm. long, 1 mm. broad, reddish-brown, smooth, compressed, trigonous, beakless.

TYPE LOCALITY: Presumably in eastern Pennsylvania.

DISTRIBUTION: Dry fields and open woods; Maine, south to Virginia, west to Missouri.

ILLUSTRATIONS: A. Gray, Man. ed. 7, 190, f. 278 (achene, spikelet); W. Barton, Fl. N. Am. pl. 86; Britt. & Brown, Ill. Fl. 1: 263; ed. 2, 1: 328; Knobel, Grasses, Sedges & Rushes N. U. S. 58 (achene, scale); Am. Midl. Nat. 29: 536, f. 31 (achene).

30. *Scirpus Clintonii* A. Gray, Am. Jour. Sci. II. 38: 290. 1864.

Scirpus planifolius β *brevifolius* Torr. Ann. Lyc. N. Y. 3: 442. 1836.

Perennial; culms 1–3.5 dm. high, erect, tufted, from short rootstocks, clothed at the base with brown, persistent sheaths, slender, green, trigonous, the angles minutely scabrous, grooved; cauline leaves few, reduced to subulate awns or the upper 2–25 cm. long, 0.5 mm. broad, flat, erect, with blunt (scabrous or smooth) tips, sometimes equaling but not exceeding the culms; upper sheaths hyaline, uniformly flecked with red, the orifice abruptly contracted; spikelets 4–5 mm. long, 2 mm. broad, solitary, terminal, terete, ovoid; outermost scale prolonged into a blunt, scabrous-margined bract shorter than the spikelet; inner scales broadly ovate, the midrib green, the margins chestnut; bristles 3–6, variable, often equaling or exceeding the achene, terete, with fine hairs; stamens 3; style 1.5 mm. long, trifid, brick-colored; achene 2 mm. long, 1.25 mm. broad, light brown, smooth, obovoid, compressed, trigonous, beakless.

TYPE LOCALITY: Between Buffalo and Williamsville, New York.

DISTRIBUTION: Dry banks; Quebec, south to New York, west to Minnesota.

ILLUSTRATIONS: A. Gray, Man. ed. 7, 189, f. 277 (achene, spikelet); Clarke, Ill. Cyp. pl. 46; Britt. & Brown, Ill. Fl. 1: 263; ed. 2, 1: 328; M.-Victorin, Fl. Laurent. 693; Am. Midl. Nat. 29: 536, f. 10 (achene).

Section 7. *Eleoigton* (Link) Reichenb. Ic. Fl. Germ. 8: 38. 1846.* *Eleoigton* Link, Hort. Berol. 1: 284, as genus. 1827. Aquatic, stoloniferous perennials; culms rooting at the

* As "Heleoigton." The primary divisions of Reichenbach's treatment are here interpreted as of sectional rank.

nodes, slender, sometimes floating; blades soft, linear or filiform; spikelets single, terminal; style bifid; achene smooth.

31. *Scirpus confervoides* Poir. in Lam. Encyc. 6: 755. 1804.

Baeothryon confervoides A. Dietr. Sp. Pl. 2: 94. 1833.
Eleocharis ? confervoides Miq. Fl. Ind. Bat. 3: 303. 1855.
Schoenus confervoides Willd.; Böck. Linnaea 36: 487, as syn. 1870.
Scirpus submersus Sauv. Anal. Acad. Ci. Habana 8: 79. 1871.
Scirpus ruppioides Thw.; Sauv. Anal. Acad. Ci. Habana 8: 80. 1871.
Websteria limnophila S. H. Wright, Bull. Torrey Club 14: 135. 1887.
Websteria submersa Britton, Bull. Torrey Club 15: 99. 1888.

Aquatic, stoloniferous perennial; culms elongate, terete, smooth, rooting and branching at the nodes; spikelets viviparous, of imbricate, elongate, leaflike structures; normal spikelets rare; style bifid; achene smooth.

TYPE LOCALITY: Madagascar.

DISTRIBUTION: Shallow water; Florida; West Indies; Guatemala; British Guiana; Old World Tropics.

Section 8. *Isolepis* (R. Br.) Griseb. Spicil. Fl. Rumel. Bith. 2: 417. 1845. *Isolepis* R. Br. Prodr. 34, as genus. 1810. Subg. *Isolepis* Pax in E. & P. Nat. Pfl. 2: 111. 1887. Annuals or rarely perennials, usually dwarf, the roots fibrous, the culms short, filiform; sheaths tipped with short, setaceous blades; involucre bract single; spikelets 1-several, sessile, lateral, many-flowered; bristles absent.

Achene constricted to form a short-necked base.
 Achene not constricted at the base.

32. *S. koilolepis*.

Achene smooth.

Spikelets 1 or 2; culms seldom elongate or viviparous.

33. *S. cernuus* var. *californicus*.

Spikelets 3-6 or more; culms often elongate and viviparous.

34. *S. inundatus*.

Achene marked with horizontal and vertical ridges.

35. *S. setaceus*.

32. *Scirpus koilolepis* (Steud.) Gleason, Rhodora 44: 479. 1942.

Heleogiton trigonum Reichenb. in Mössler, Handb. ed. 2, 1807. 1829. Not *H. trigonum* Roth, 1802.

Isolepis carinata H. & A.; Torr. Ann. Lyc. N. Y. 3: 349. 1836.

*Isolepis koilolepis** Steud. Syn. Cyp. 318. 1855.

Scirpus carinatus A. Gray, Proc. Am. Acad. 7: 392. 1868. Not *Scirpus carinatus* Smith, 1824.

Isolepis Hookeri Nees; Böck. Linnaea 36: 498, as syn. 1870.

Trichelostylis carinata Wood, Class-Book ed. 1861, 742. 1861.

Annual, fibrous-rooted, caespitose; culms 0.5-5 dm. tall, terete, grooved, green, smooth, the sheaths green drying brown at the base, smooth, the margin of the orifice hyaline, truncate, the blades to 4 cm. long, smooth, blunt-tipped; involucre bract to 2.5 cm. long, single, smooth, blunt-tipped; spikelets ovate, green drying pale brown, 1-3 on a culm, to 5 mm. long, ca. 3 mm. broad, 2-12-flowered; scales ca. 2 mm. long, strongly carinate, acute, 2-3-nerved on the broadly hyaline margins, the broad, green midrib shortly mucronate, smooth; bristles absent; style trifid, brownish; achene ca. 1.5 mm. long, light to dark brown, strongly triangular with concave sides, globose in outline, constricted to a short-necked base, minutely apiculate.

TYPE LOCALITY: New Orleans, Louisiana.

DISTRIBUTION: Swamps and moist stream banks; Georgia; Tennessee and Alabama to Oklahoma and Texas; California.

ILLUSTRATIONS: Jepson, Man. Fl. Pl. Calif. 152, f. 143; Abrams, Ill. Fl. Pacif. St. 1: 270; Am. Midl. Nat. 29: 536, f. 6 (achene).

33. *Scirpus cernuus* Vahl var. *californicus* (Torr.) Beetle, Rhodora 46: 145. 1944.

Isolepis leptocaulis Torr. Pacif. R. R. Rep. 41⁽⁴⁾: 153. 1857.

Isolepis pygmaea var. *californica* Torr. U. S. Expl. Exp. 17: 476. 1874.

Scirpus subtilis Böck. Allg. Bot. Zeits. 2: 54. 1896.

Fibrous-rooted, annual or perennial, caespitose or spreading from short stolons; culms many, very variable in length, 0.5-4 dm. long according to habitat, terete or angular, smooth, the sheaths reddish at the base, green above, mucronate-tipped or with a short, smooth blade;

* Corrected to *koilolepis* in the Index.

involucral bract about equaling or rarely exceeding the 3-8-flowered, single or rarely paired spikelets; glumes ca. 1.5 mm. long, from solid chocolate-brown to pale green; style trifid, reddish; bristles absent; achene ca. 0.75 mm. long, whitish to dark brown, rugulose, planoconvex to obtusely trigonous, minutely apiculate.

TYPE LOCALITY: Lower Sacramento, California.

DISTRIBUTION: Wet places near the coast; British Columbia, south to Mexico; Florida (where probably introduced).

ILLUSTRATIONS: Jepson, Man. Fl. Pl. Calif. 151, f. 142 (achene, scale); Abrams, Ill. Fl. Pacif. St. 1: 271; Am. Midl. Nat. 29: 536, f. 7 (achene) (all as *S. cernuus*).

NOTE: Closely related to typical *Scirpus cernuus* described from Europe, and other varietal material from temperate South America and Australia.

34. *Scirpus inundatus* (R. Br.) Spreng. Syst. 1: 207. 1825.

Isolepis inundata R. Br. Prodr. 34. 1810.

Isolepis propinqua R. Br. Prodr. 34. 1810.

Isolepis nigricans H.B.K. Nov. Gen. & Sp. 1: 220. 1816.

Scirpus nigricans Poir. in Lam. Encyc. Suppl. 5: 104. 1817.

Isolepis Gaudichaudiana Kunth, Enum. Pl. 2: 201. 1837.

Isolepis albescens Desv. in C. Gay, Hist. Chile Bot. 6: 188. 1853.

Isolepis vivipara Schrad.; Desv. in C. Gay, Hist. Chile Bot. 6: 189. 1853.

Isolepis prolifera sensu Hook. f. Fl. Nov. Zel. 1: 271. 1853. Not *I. prolifera* R. Br. 1810.

Isolepis Gunnii Steud. Syn. Pl. Cyp. 94. 1855.

Isolepis Urvillei Steud. Syn. Pl. Cyp. 94. 1855.

Cyperus Urvilleanus Steud.; Böck. Flora 42: 448. 1859.

Scirpus Gunnii Böck. Linnaea 36: 493. 1870.

Scirpus angachillensis Böck. Linnaea 36: 496. 1870.

Scirpus Bridgesii Böck. Linnaea 36: 508. 1870.

Scirpus Gaudichaudii Böck. Linnaea 36: 511. 1870.

Scirpus varians Böck. Linnaea 36: 698. 1870.

Scirpus albescens F. Philippi, Cat. Pl. Chil. 310. 1881.

Scirpus didymostachyus Philippi, Anal. Univ. Chile 93: 475. 1896.

Scirpus trichocaulos Philippi, Anal. Univ. Chile 93: 478. 1896.

Scirpus constitutionis Philippi, Anal. Univ. Chile 93: 483. 1896.

Isolepis psilocarpa Kunze; Kunth, Enum. Pl. 2: 193, as syn. 1837; Clarke, Bot. Jahrb. 30 Beibl. 68: 31. 1901.

Isolepis trichocaulis Philippi; Clarke, Bot. Jahrb. 30 Beibl. 68: 31. 1901.

Isolepis tristachya Philippi; Clarke, Bot. Jahrb. 30 Beibl. 68: 31. 1901.

Culms cespitose, often elongate, many from a closely packed base; sheaths reddish, shortly mucronate-tipped; culms terete, smooth, erect or spreading; involucral bract variable in length, equaling or several times exceeding the spikelets, terete, smooth; spikelets sessile, 3-12, rarely single, 3-6-flowered, often viviparous; scales oval, strongly nerved, reddish; bristles absent; stamen 1; style trifid; achene smooth, usually strongly trigonous, minutely apiculate.

TYPE LOCALITY: Australia.

DISTRIBUTION: Costa Rica; Argentina; the Andes; New Zealand, Australia (where abundant), and Borneo.

ILLUSTRATIONS: C. Gay, Hist. Chile Bot. 6: pl. 70, f. 2; Anal. Mus. Argent. Ci. Nat. 38: 142, f. 3.

35. *Scirpus setaceus* L. Sp. Pl. 49. 1753.

Isolepis setacea R. Br. Prodr. 34. 1810.

Isolepis plebeia Schrad. An. Fl. Cap. 18. 1832.

Isolepis hookeriana Böck. Flora 41: 418. 1858.

Scirpus gracillimus Kohts, Oesterr. Bot. Zeits. 19: 333. 1869.

Scirpus setaceus var. *pygmaeus* J. Ball, Jour. Linn. Soc. 22: 167. 1886.

Isolepis expallescens Kunth; Durand and Schinz, Consp. Fl. Afr. 5: 630. 1894.

Isolepis pleurocarpa Hochst.; Durand and Schinz, Consp. Fl. Afr. 5: 630. 1894.

Fibrous-rooted, annual or perennial, cespitose or spreading from short stolons; culms many, to 2 dm. long, terete or angular, smooth, the sheaths reddish or brown below, green above, smooth, the margin of the orifice hyaline, truncate, the blade smooth, mucronate; involucral bract 0.5-2 cm. long, exceeding the usually paired spikelets, smooth; spikelets 2-3 mm. long, oval, pale green or purplish, 5-10-flowered; scales ca. 2 mm. long, oval, entire-margined; style trifid, purplish; bristles absent; achene ca. 1 mm. long, reddish-brown, with prominent vertical ridges and less prominent horizontal ridges between, ovate, apiculate.

TYPE LOCALITY: "In Europae."

DISTRIBUTION: Introduced in wet places on the western coast of the United States and on the east coast in New Jersey.

ILLUSTRATIONS: Jepson, Man. Fl. Pl. Calif. 152, f. 145 (achene, inflorescence); Reichenb. Ic. Fl. Germ. 8: pl. 301; Lindm. Sv. Fanerogamfl. 113; Am. Midl. Nat. 29: 536, f. 39 (achene).

Section 9. Actaeogeton Reichenb. Fl. Germ. Exc. 78. 1830. Annual or rarely perennial herbs; culms triangular or often very obscurely angled, green, smooth; sheaths usually bladeless or nearly so; outer involucrel bract appearing as a continuation of the culm, green, smooth, glabrous; bristles present or absent; stamens 3; style bifid or trifid; achene dark gray-brown or black, marked by horizontal ridges, trigonous or lenticular, apiculate.

Involucrel bract solitary; all spikelets sessile.

Culms rigid, yellow-green; spikelets 1-many; upper sheaths bladeless. 36. *S. Smithii* var. *Williamsii*.

Culms flacid, dull green; spikelets 1-3; upper sheaths blade-bearing. 36. *S. Smithii*.

Secondary involucrel bract present; some spikelets on peduncles. 37. *S. supinus* var. *Hallii*.

36. *Scirpus Smithii* A. Gray, Man. ed. 5, 563. 1867.

Scirpus Smithii var. *levisetus* Fassett, Rhodora 23: 42. 1921.

Scirpus Smithii f. *levisetus* Fernald, Rhodora 44: 479. 1942.

Cespitose annual; culms 1-2 dm. high, erect or sometimes prostrate-spreading, dull green, slender, terete or angled, sheathed at the base; upper sheaths bearing blades to 1 dm. long; involucrel bract single, to 1 dm. long, erect or usually curved over the spikelets; spikelets usually 1-3, ovate-acute, sessile, 4-8 mm. long, 3 mm. broad; scales 3 mm. long, smooth, green, slightly mucronate-tipped; bristles absent or 2-6, equaling or exceeding the achene; style bifid; achene 2 mm. long, 1.5 mm. broad, shining black, obscurely horizontally ridged, planoconvex or obscurely trigonous, apiculate.

TYPE LOCALITY: Shore of the Delaware River below Redbank, New Jersey.

DISTRIBUTION: Rare on tidal estuaries and sandy lake shores; Quebec, south to Virginia.

ILLUSTRATIONS: A. Gray, Man. ed. 7, 191, f. 285 (achene, inflorescence); Britt. & Brown, Ill. Fl. 1: 264; Am. Midl. Nat. 29: 536, f. 40 (achene).

36a. *Scirpus Smithii* var. *Williamsii* (Fernald) Beetle, Am. Jour. Bot. 29: 655. 1942.

Scirpus debilis Pursh, Fl. Am. Sept. 55. 1814. Not *S. debilis* Lam. 1791.

Scirpus debilis var. *Williamsii* Fernald, Rhodora 3: 252. 1901.

Scirpus Smithii var. *setosus* Fernald, Rhodora 3: 252. 1901.

Scirpus Purshianus Fernald, Rhodora 44: 479. 1942.

Scirpus purshianus f. *Williamsii* Fernald, Rhodora 44: 479. 1942.

Scirpus Smithii f. *setosus* Fernald, Rhodora 44: 479. 1942.

Usually more robust; culms to 6 dm. tall, bright green; involucrel bract often strongly reflexed; spikelets 1-12; bristles absent, or as many as six, occasionally strongly barbed; achene somewhat more strongly trigonous.

TYPE LOCALITY: Sharon, Massachusetts.

DISTRIBUTION: Sandy shores of inland lakes and streams; Maine, south to Georgia, westward to Minnesota.

ILLUSTRATIONS: A. Gray, Man. ed. 7, 190, f. 284 (achene, inflorescence); Fassett, Man. Aquat. Pl. 144; Torr. Fl. N. Y. pl. 139 (as *S. debilis*); Britt. & Brown, Ill. Fl. 1: 264, f. 616; ed. 2, 1: 329, f. 808.

37. *Scirpus supinus* L. var. *Hallii* A. Gray, Man. ed. 5, 563. 1867.

Scirpus Hallii A. Gray, Man. ed. 3, xcvi. 1862.

Scirpus saximontanus Fernald, Rhodora 3: 251. 1901.

Scirpus uninodis var. *Hallii* Beetle, Am. Jour. Bot. 29: 656. 1942.

Fibrous-rooted annual; culms 1-3.5 dm. high, erect, green, terete or obscurely angled, sheathed at the base, the sheaths prominently mucronate-tipped, or the upper often bearing blades 3-12 cm. long; outer involucrel bract 3-12 cm. long, erect or incurved; second involucrel bract below the spikelets, to 3 cm. long; spikelets 2-many, both sessile and rayed, 3-15 mm. long, ovate to cylindrical-acute, green drying to pale straw-brown; scales hyaline-margined, fimbriate, 3-3.5 mm. long, 3 mm. broad, the green midrib excurrent; bristles present or absent; stigma bifid or trifid; achene 1.5-2 mm. long, 1 mm. broad, dark gray-brown, prominently horizontally ridged, trigonous, apiculate.

TYPE LOCALITY: St. Louis, Missouri.

DISTRIBUTION: Rare and scattered on wet shores and stream banks and in moist swales; Massachusetts; Georgia and Florida; Ohio to South Dakota, south to Mexico.

ILLUSTRATIONS: A. Gray, Man. ed. 7, 190, f. 283 (achene, inflorescence); Fassett, Man. Aquat. Pl. 144; Britt. & Brown, Ill. Fl. 1: 264, f. 615; ed. 2, 1: 329, f. 807; Am. Midl. Nat. 29: 536, f. 44 (achene).

NOTE: The use of separate identities for *Scirpus supinus* L., *S. Hallii* Gray, *S. lateralis* Forsk. (*Isolepis uninodis* Delile), and *S. saximontanus* Fernald had never gone unchallenged in spite of the use of the separate names in different regions. It has yet to be shown how they may be maintained as species. The North American material is here treated as a variety because the often peduncled spikelets with reflexed scales, frequent secondary involucre bract, and erect habit distinguish it for the most part at least from typical European prostrate *S. supinus* with sessile spikelets, appressed scales, and a single involucre bract, if not from Asiatic and North African material.

Section 10. *Schoenoplectus* Reichenb. Ic. Fl. Germ. 8: 40.* 1846. *Schoenoplectus* Palla, Bot. Jahrb. 10: 298, as genus. 1888. Perennials with rhizomes; culms usually triangular, erect, stout, the basal leaves mostly reduced, the involucre bract single; spikelets usually sessile; stamens 3; style bifid or trifid; bristles present; achene light to dark brown, without prominent ridges, usually apiculate.

- Achene not apiculate, the coat reticulate; leaves stiffly erect. 38. *S. nevadensis*.
 Achene apiculate, the coat not reticulate; leaves somewhat
 lax and spreading.
 Spikelets peduncled. 39. *S. etuberculatus*.
 Spikelets sessile. 40. *S. subterminalis*.
 Culms terete; leaves many, equaling the culm.
 Culms triangular; leaves fewer, not equaling the culm.
 Spikelets obtuse; sides of the trigonous culm
 concave. 41. *S. chilensis*.
 Spikelets acute; sides of the trigonous culm flat.
 Achene trigonous, 3-4 mm. long, long-apicu-
 late. 42. *S. Torreyi*.
 Achene planoconvex, 2.5 mm. long, short-
 apiculate.
 Style normally bifid; leaves usually not
 more than 3, mostly 1 or 2.
 Bristles and spikelets reddish. 43. *S. americanus*.
 Spikelets mostly to 4 mm. broad;
 scales usually viscid-dotted.
 Spikelets frequently 5 mm. broad;
 scales not glandular. 43c. *S. americanus* var. *triangularis*.
 Bristles and spikelets straw-brown. 43b. *S. americanus* var. *longispicatus*.
 Style normally trifid; leaves usually 3 or
 more. 43a. *S. americanus* var. *polyphyllus*.

38. *Scirpus nevadensis* S. Wats. Bot. King's Expl. 360. 1871.

Scirpus remireoides Griseb. Abh. Ges. Wiss. Gött. 19: 267. 1874.
Scirpus chubutensis Clarke, Kew Bull. Add. Ser. 8: 89. 1908.

Perennial; culms 0.5-4.5 dm. tall, stout, smooth, conspicuously grooved, trigonous, arising from a scaly rhizome to 7 mm. thick which grows 1-1.5 dm. below the ground; leaves numerous, stiff, ca. 1 mm. broad, pointed, often equaling but hardly exceeding the culm, the sheaths numerous, persistent, light brown; involucre bract 1-7 cm. long; scales walnut-brown, ovate; style bifid; bristles 1-3, much shorter than the achene; achene 2 mm. long, 1.25 mm. broad, broadly ovate, planoconvex, minutely reticulate.

TYPE LOCALITY: Soda Lake, Carson County, Nevada.

DISTRIBUTION: Moist alkali spots in desert regions; British Columbia to Saskatchewan, south to Nebraska, Colorado, Wyoming, southern Nevada, and adjacent California; Argentina.

ILLUSTRATIONS: Jepson, Man. Fl. Calif. 153, f. 146 (achene, scale, inflorescence); Anal. Mus. Argent. 38: 163; Abrams, Ill. Fl. Pacif. St. 1: 273; Am. Midl. Nat. 29: 536, f. 25 (achene).

39. *Scirpus etuberculatus* (Steud.) Kuntze, Rev. Gen. 2: 758. 1891.

Scirpus maritimus γ *cylindricus* Torr. Ann. Lyc. N. Y. 3: 325. 1836.
Rhynchospora etuberculata Steud. Syn. Pl. Cyp. 142. 1855.
Scirpus macranthus Böck. Flora 41: 412. 1858.
Scirpus leptolepis Chapm. Fl. S. U. S. 520. 1860.
Scirpus Canbyi A. Gray; Canby, Proc. Acad. Phila. 1864: 18. 1864.
Scirpus cylindricus Britton, Trans. N. Y. Acad. 11: 79. 1892.

Perennial; culms 1-1.5 m. tall, 5-10 mm. broad at the base, very soft and spongy, smooth, obscurely trigonous, erect from a scaly, reddish rhizome ca. 3 mm. thick; blades 1-several,

* The principal divisions of the genus in Reichenbach's treatment are here interpreted as of sectional rank.

elongate, arising at the base and nearly equaling the culm, smooth, flat, soft, blunt-tipped, ca. 6–8 mm. broad near the base, narrowing upwards; outer involucrel bract 2–3 dm. long, smooth, blunt-tipped, obscurely trigonous; second involucrel bract often present, to 1 dm. long; spikelets ca. 2 mm. long, 6–20 on smooth rays to 1 dm. long; scales ca. 6 mm. long, narrow, glabrous, blunt-tipped, brown or slightly reddish; style trifid; bristles 6, somewhat scabrous above, equaling the tubercle; body of the achene 3.5–4 mm. long, dark-brown, smooth, trigonous, the prominent tubercle 1 mm. long.

TYPE LOCALITY: Louisiana.

DISTRIBUTION: Swamps near the coast; Maryland, south to Florida, west to Louisiana.

ILLUSTRATIONS: A. Gray, *Man. ed. 7*, 191, *f. 289* (achene, inflorescence); Britt. & Brown, *Ill. Fl. 1*: 266, *f. 621*; ed. 2, 1: 331; *Am. Midl. Nat.* 29: 537, *f. 15* (achene).

40. *Scirpus subterminalis* Torr. *Fl. U. S.* 47. 1823.

Scirpus subterminalis var. *terrestris* Paine, *Ann. Rep. N. Y. State Cab.* 18: 148. 1865.

Scirpus subterminalis f. *terrestris* Fernald, *Rhodora* 45: 288. 1943.

Aquatic perennial; rhizome slender, 1 mm. thick, often reddish; culms 2–6 dm. long, 0.6–1 mm. broad, slender, flaccid, terete, nodulose; sheaths green or white below, the blades many, very slender, channeled, 2–6 dm. long; involucrel bract single, erect, 1–7 mm. long; spikelet solitary, ovoid to oblong-cylindric, 4–18 mm. long, 3–5 mm. broad; scales 5 mm. long, straw-brown with a broad, green midrib, ovate-lanceolate, acute; bristles 6, straw-brown, retrorsely barbed, about equaling the achene; style trifid; anthers 3 mm. long; achene 2.5 mm. long, 1.5 mm. broad, brown, smooth, obovoid, trigonous, beaked.

TYPE LOCALITY: Near Deerfield, Massachusetts.

DISTRIBUTION: Uncommon, in bogs, swamps, and slow streams; Newfoundland, south to South Carolina, westward to British Columbia and Oregon; Mississippi; Alaska.

ILLUSTRATIONS: A. Gray, *Man. ed. 7*, 190, *f. 281* (achene, spikelet); Fassett, *Man. Aquat. Pl.* 142 (inflorescence); Britt. & Brown, *Ill. Fl.* 1: 263; ed. 2, 1: 329; Abrams, *Ill. Fl. Pacif. St.* 1: 272; M.-Victorin, *Fl. Laurent.* 693.

41. *Scirpus chilensis* Nees & Meyen; Nees, *Linnaea* 9: 293.

1834 (nomen nudum); *Nova Acta Acad. Leop.-*

Carol. 19 suppl.: 93. 1843.

Scirpus Olneyi A. Gray; Engelm. & Gray, *Bost. Jour. Nat. Hist.* 5: 238. 1845.

Schoenoplectus Olneyi Palla, *Bot. Jahrb.* 10: 299. 1888.

Scirpus Olneyi var. *longisetis* Kükenth.; Urban, *Ark. Bot.* 22A¹⁷: 8. 1929.

Scirpus Olneyi f. *australis* Barros & Osten; Osten, *Anal. Mus. Hist. Nat. Montevideo* II. 3: 204. 1931.

Perennial; culms to 1 m. tall, from scaly, black rhizomes; culms sharply triquetrous, the angles somewhat winged, green, smooth; 2–3 sheaths at the base having blades to 1 dm. long, keeled, smooth; involucrel bract single, smooth, 1–5 cm. long; spikelets 2–10, 0.5–1.5 mm. long, 4 mm. broad, ovate, mostly very obtuse, pale brown or reddish; scales reddish-brown, glabrous, 3 mm. long, the midrib extending beyond the bidentate apex in a sharp mucro, the margins hyaline and slightly fimbriate; style bifid; bristles retrorsely barbed, 4–6, shorter than the achene; achene 2.5 mm. long, 1.5 mm. broad, light brown, smooth, planoconvex, apiculate.

TYPE LOCALITY: Copiapo, Chile.

DISTRIBUTION: Coastal eastern North America from Nova Scotia to the West Indies, westward through scattered inland localities to the west coast, where common from central California to Central America; South America.

ILLUSTRATIONS: A. Gray, *Man. ed. 7*, 191, *f. 288* (achene, inflorescence); Jepson, *Man. Fl. Pl. Calif.* 154, *f. 150* (achene, scale, inflorescence); Britt. & Brown, *Ill. Fl.* 1: 265, *f. 619*; ed. 2, 1: 330, *f. 810*; *Am. Midl. Nat.* 29: 536, *f. 26* (achene).

42. *Scirpus Torreyi* Olney, *R. I. Pl.* 32. 1847.

Perennial; culms 8–15 dm. tall, usually ca. 1 m. tall, erect, rather soft, trigonous, smooth, arising from a scaly, red rhizome 2–4 mm. thick; sheaths 1–3, green turning straw-brown, the blades to 6 dm. long, ca. 2 mm. broad, lax, smooth, blunt-tipped; outer involucrel bract to 13 cm. long, mostly 6–7 cm. long, smooth; second involucrel bract occasionally present, to 2 cm. long; scales straw-brown, lanceolate, hyaline-margined, mucronate-tipped; style trifid; bristles 6, brown, retrorsely barbed, about equaling the achene; body of the achene 3–4 mm. long (the prominent beak ca. 1 mm. long), dark brown, smooth, trigonous, obovate.

TYPE LOCALITY: Smithfield, Rhode Island.

DISTRIBUTION: Wet places, local; Quebec, south to Delaware, west to Minnesota.

ILLUSTRATIONS: A. Gray, Man. ed. 7, 191, f. 287 (achene, inflorescence); Am. Jour. Bot. 28: 548, f. 52-59 (sections through the base of flowers); Fassett, Man. Aquat. Pl. 142 (achene); Britt. & Brown, Ill. Fl. 1: 265; ed. 2, 1: 330; M.-Victorin, Fl. Laurent. 695; Am. Midl. Nat. 29: 537, f. 42 (achene).

43. *Scirpus americanus* Pers. Syn. Pl. 1: 68. 1805.

Scirpus triquetel sensu Michx. Fl. Bor. Am. 1: 30. 1803. Not *S. triquetel* L. 1753.

Scirpus longispicatus Smyth, Trans. Kansas Acad. 16: 163. 1899.

Schoenoplectus americanus Volkart; Schinz & Keller, Fl. Schweiz ed. 2, 1: 75. 1905.

Scirpus Olneyi var. *contortus* Eames, Rhodora 9: 220. 1907.

Helophylax americanus Schiz & Thell. Viert. Nat. Ges. Zürich 53: 587. 1909.

Scirpus solispicatus Lunell, Am. Midl. Nat. 4: 230. 1915.

Perennial; culms mostly ca. 1 m. tall, erect from reddish, scaleless stolons, the roots reddish, fibrous; sheaths commonly as many as 3 at the base, commonly whitish or green, bearing a blade to 2 dm. long which is green, broad, flat, not scabrous (5 dm. long and 8 mm. broad in unusual specimens); culms trigonous, smooth, green, keeled; involucre bract single, 1.5-12 cm. long, erect, green, trigonous, scabrous on the angles; second bract very rarely present; spikelets reddish, sessile, 1-5, or in occasional specimens to 15, 5-20 mm. long, 4 mm. broad; scales 4 mm. long, 3 mm. broad, the midrib prominent, excurrent from the notched apex of the scale, the smooth or scabrous mucro slightly recurved, glabrous, the margins strongly fimbriate, pale brown, variously flecked with red, somewhat viscid-dotted; style bifid; anther 1.5 mm. long; bristles 4, often tortuous, reddish-brown, about half to equaling the length of the achene, retrorsely barbed; achene 3 mm. long, 2 mm. broad, dark brown, smooth, planoconvex, prominently apiculate.

TYPE LOCALITY: "In Carolina inferiore."

DISTRIBUTION: Stream banks and lake margins; Nova Scotia, south to Florida, west to Wisconsin and Texas.

ILLUSTRATIONS: A. Gray, Man. ed. 7, 190, f. 286 (achene, inflorescence); Jepson, Man. Fl. Pl. Calif. 154, f. 149 (achene, scale, inflorescence); Jepson, Fl. Calif. 201 (achene, scale, inflorescence); Fassett, Man. Aquat. Pl. 142; Rydb. Fl. Pr. & Pl. 152.

43a. *Scirpus americanus* var. *polyphyllus* (Böck.) Beetle, Am. Jour. Bot. 30: 399. 1943.

Scirpus badius Presl, Rel. Haenk. 1: 193. 1828.

Scirpus longifolius H. & A. Bot. Beech. Voy. 49. 1832.

Scirpus melas Kunze; Kunth, Enum. Pl. 2: 169, as syn. 1837.

Scirpus subappendiculatus Steud. Syn. Pl. Glum. 84. 1855.

Scirpus pungens β *polyphyllus* Böck. Linnaea 36: 709. 1870.

Scirpus lomanus H. Pfeiffer; Bruns, Mitt. Inst. Bot. Hamburg 8: 39. 1929.

Scirpus americanus var. α *pungens* Barros & Osten; Osten, Anal. Mus. Hist. Nat. Montevideo II. 3: 204. 1931.

Scirpus americanus var. β *longibracteatus* Barros & Osten; Osten, Anal. Mus. Hist. Nat. Montevideo II. 3: 204. 1931.

Culms 1-10 dm. tall, mostly ca. 5 dm., often decumbent, or somewhat lax, with several blade-bearing sheaths; blades narrow, keeled, commonly 3 dm. long; scales solid chocolate-brown; anthers 2 mm. long; involucre bract smooth; style trifid; achene and bristles as in typical *Scirpus americanus*.

TYPE LOCALITY: Not stated.

DISTRIBUTION: The West Indies; coast of the Gulf of Mexico; common in western North America; Ontario to Saskatchewan, south to Texas, west to British Columbia and Mexico; South America; New Zealand; Tasmania.

ILLUSTRATION: Anal. Mus. Argent. 38: 160.

43b. *Scirpus americanus* var. *longispicatus* Britton, Trans. N. Y. Acad. 11: 78. 1892.

Scirpus brevivaginatatus Böck. Flora 41: 413. 1858.

Culms mostly 2-10 dm. tall, to 17 dm. tall in unusual specimens, erect from a slender, black rhizome; basal sheaths bearing 1 or 2 blades mostly 1-3 dm. long, in unusual specimens to 7 dm. long; spikelets brown, 1-5, mostly solitary; scales straw-brown, only slightly tinged with

red, not viscid; bristles equaling the achene, straw-brown with a white, retrorse scabrosity; style bifid; achene broadly obovate.

TYPE LOCALITY: New Mexico.

DISTRIBUTION: Wet places; Texas, west to Arizona, south to Guatemala.

43c. *Scirpus americanus* var. *triangularis* (Pers.) Beetle,
Am. Jour. Bot. 30: 400. 1943.

Scirpus mucronatus sensu Roth, Fl. Germ. 1: 23. 1788. Not *S. mucronatus* L. 1753.

Scirpus triqueter sensu Roth, Neue Beitr. 1: 91. 1802. Not *S. triqueter* L. 1753.

Scirpus triqueter β *triangularis* Pers. Syn. Pl. 1: 68. 1805.

Scirpus pungens Vahl, Enum. 2: 255. 1805.

Scirpus Rothii Hoppe in Sturm, Deuts. Fl. 36: pl. 4. 1814.

Scirpus tenuifolius DC. Fl. Fr. 6: 300. 1815.

Eleocharis leptophylla Schultes in R. & S. Syst. Veg. Mant. 2: 88. 1824.

Heleogiton pungens Reichenb. Fl. Germ. Exc. 78. 1830.

Heleocharis pungens Reichenb. Fl. Sax. 60. 1842.

Scirpus Rothii β *monostachys* Sond. Fl. Hamb. 27. 1851.

Eleogiton Rothii Fourr. Ann. Soc. Linn. Lyon II. 17: 174. 1869.

Scirpus pungens β *monostachys* Marsson, Fl. Neu-Vorpomm. 516. 1869.

Schoenoplectus pungens Palla, Bot. Jahrb. 10: 299. 1888.

Scirpus triangularis MacM. Metasp. Minn. Valley 99. 1892.

Basal leaf-bearing sheaths several, the blades usually not elongate; scales never viscid-dotted; bristles 2-4, seldom more than half the length of the achene; spikelets frequently 5 mm. broad, often nearly as broad as long, and seldom more than 10 mm. long.

TYPE LOCALITY: Europe.

DISTRIBUTION: Europe; the West Indies (where possibly introduced).

ILLUSTRATIONS: Smith, Suppl. Engl. Bot. 3: pl. 2819; Coste, Fl. Fr. 3: 475 (as *S. pungens*).

Section 11. *Pterolepis* (Schrad.) Endl. Gen. 118. 1836.* *Pterolepis* Schrad. Gött. Gel. Anz. 1821: 2071, as genus. 1821. *Malacochaete* Nees, Linnaea 9: 292, as genus. 1834. Subsect. *Lacustris* Clarke, Kew Bull. Add. Ser. 8: 112. 1908. Perennials from horizontal root-stocks; culms sheathed at the base; inflorescence paniculate or capitate, subtended by a single, erect involucre bract; spikelets many-flowered; stamens 3; style bifid or trifid; bristles 2-6, plumose or setulose; achene ovate, abruptly acuminate.

Bristles setulose; style bifid or trifid; culms terete.

Spikelets all single on the rays.

Some of the spikelets 2-several on a single ray.

Spikelets ovoid; roots fibrous.

Spikelets subcylindric; roots swollen, spongy.

Style bifid; scales 1.5-2.5 times the length of the achene.

Style bifid or trifid; scales equaling the achene.

Bristles plumose; style bifid; culms trigonous at the summit.

44. *S. heterochaetus*.

45. *S. validus*.

46. *S. acutus*.

47. *S. rubiginosus*.

48. *S. californicus*.

44. *Scirpus heterochaetus* Chase, Rhodora 6: 70. 1904.

Scirpus lacustris var. *miculmis* Sheldon, Minn. Bot. Stud. 2: 583. 1896.

Roots fibrous, red or purplish; culms 1-2 m. tall, 1-2 mm. broad at the summit, 1-1.5 cm. broad at the base, erect from rhizomes covered with purplish scales, green, terete, very slender, strong, smooth, sheathed at the base by 2-3 rudimentary leaves, these abruptly contracted to the mucronate blade, to 2 dm. long, smooth; inflorescence paniculate, the spikelets single on very slender, smooth or scabrous-margined rays, the primary to 8 cm. long, the secondary to 3 cm., no tertiary observed; outer involucre bract 3-7 cm. long, smooth, erect; bractlets 4-5 mm. long, pale brown flecked with darker brown, smooth with a scabrous-margined, mucronate tip, the margins entire becoming lacerate; spikelets 0.75-1.5 cm. long, 3-5 mm. broad, ovoid to cylindric, usually not more than 25, brown, many-flowered; scales 4 mm. long, 2 mm. broad, pale brown flecked with darker brown, ovate-oblong, bifurcate, the tip scabrous, mucronate; bristles 2-4, irregular, occasionally nearly equaling the achene, retrorsely barbed, reddish-brown; style bifid or more commonly trifid; body of the mature achene 2.5 mm. long, 2.25-3 mm. broad, dark brown, trigonous, reticulate, the mucronate tip nearly 1 mm. long.

* The primary divisions of the genus in Endlicher's treatment are here interpreted as of sectional rank.

TYPE LOCALITY: Havana, New York.

DISTRIBUTION: Freshwater lakes and streams; southeastern Canada and northeastern United States; central United States; of rare occurrence in the northwestern United States.

ILLUSTRATIONS: A. Gray, Man. ed. 7, 192, f. 292 (achene, inflorescence); Fassett, Man. Aquat. Pl. 144 (achene); Minn. Bot. Stud. 1: pl. 30; Rhodora 6: pl. 53, d; M.-Victorin, Fl. Laurent. 695.

45. *Scirpus validus* Vahl, Enum. 2: 268. 1805.

Scirpus lacustris of many American authors. Not *S. lacustris* L. 1753.

Scirpus orygalis Raf. Ann. Nat. 16. 1820.

Scirpus lacustris var. *condensatus* Peck, Ann. Rep. N. Y. State Mus. 53: 853. 1900.

Scirpus lacustris var. *validus* Kükenth. Repert. Sp. Nov. 23: 200. 1926.

Scirpus validus var. *creber* Fernald, Rhodora 45: 283. 1943.

Scirpus validus var. *creber* f. *megastachyus* Fernald, Rhodora 45: 283. 1943.

Scirpus Steinmetzii Fernald, Rhodora 45: 286. 1943.

Culms to 5 m. tall, erect from slender rhizomes covered with brown scales; roots fibrous, reddish; lower sheaths reddish, becoming pale brown, the upper green with a broad, hyaline margin and a reduced, stiff blade 4 mm. to 1 dm. long; culms 0.3–2 cm. thick, green, terete, smooth, soft when growing in fresh water but hard in saline habitats; bract of the inflorescence 0.7–7 cm. long, smooth, rigid; bracts of the primary rays 5 mm. long, brown, membranous, sometimes prolonged to a scabrous tip 15 mm. long; bracts of the secondary rays 3 mm. long, brown, membranous; outermost scale of the spikelets often bractlike; spikelets many, in groups of 1–4 on green, flat, scabrous-margined pedicels, the primary rays to 4 cm. long, the secondary to 2 cm. long, tertiary rays rare; spikelets 5–10 mm. long, 4–5 mm. broad, few-many-flowered, ovate; average fertile scale 2 mm. broad, 2.75 mm. long, pale straw-brown, variously flecked or shaded with red, usually strongest at the summit and weakest at the base and margins, frequently viscid-dotted, the margins entire or minutely to strongly fimbriate, the midrib green or brown, smooth or scabrous, the mucronate tip often slightly recurved; bristles brick-red, typically 6, equaling the achene, retrorsely white-scabrous, tortuous; style 6 mm. long, bifid, brick-red; anther 2.25 mm. long; achene 2 mm. broad, 2.5 mm. long, deep gray at maturity, lenticular, apiculate.

TYPE LOCALITY: "In Caribaeis."

DISTRIBUTION: Fresh waters or occasionally brackish coastal situations; common throughout temperate North America, and bordering the Pacific basin except for South America, where local in Argentina.

ILLUSTRATIONS: A. Gray, Man. ed. 7, 192, f. 290 (achene, spikelets); Britt. & Brown, Ill. Fl. 1: 266, f. 623; ed. 2, 1: 331; Britton, Fl. Bermuda 48; Rhodora 6: pl. 52; Abrams, Ill. Fl. Pacif. St. 1: 273; Plant Physiol. 5: 80, 82, 84 (roots).

NOTE: A single specimen of the European *Scirpus lacustris* L. var. *tabernaemontani* (C.C.Gmel.) Doll. has been seen from "ballast, Camden, New Jersey, J. C. Martindale." There is no evidence that it has become established in the North American flora.

46. *Scirpus acutus* Muhl.; Bigel. Fl. Bost. 15. 1814.

Scirpus lacustris var. *occidentalis* S. Wats. Bot. Calif. 2: 218. 1880.

Scirpus occidentalis Chase, Rhodora 6: 68. 1904.

Scirpus occidentalis var. *congestus* Farwell, Rep. Mich. Acad. 19: 247. 1917.

Scirpus acutus f. *congestus* Fernald, Rhodora 23: 131. 1921.

Scirpus malheurensis Henderson, Rhodora 32: 20. 1930.

Culms to 5 m. tall, erect from thick, brown rhizomes bearing thick, spongy, brown roots, 0.5–2 cm. thick, green, terete, smooth, variably soft or hard; lower sheaths pale brown or green, soon splitting away from the culm, the upper occasionally with narrow blades to 8 cm. long; bract of the inflorescence usually 2 cm. long (to 10 cm.), smooth, blunt, brown; bracts of the secondary rays brown, 5 mm. long, smooth, not prolonged into a scabrous tip; spikelets 0.7–2 cm. long, 3–5 mm. broad, ovate-acute to cylindrical, 1–5 on green or brown, flat or angled, usually heavily scabrous rays of very irregular lengths, the longest primary rays to 8 cm. long, the secondary to 3 cm., the tertiary rare; spikelets few, many-flowered, light to dark brown, often reddish; average fertile scale 4 mm. long, 2 mm. broad, paleaceous, the margin broad, hyaline, entire or fimbriate, variously brown or flecked with brown, the summit deeply notched, the midvein prolonged into a scabrous mucro; bristles very variable, sometimes exceeding the achene, red, minutely scabrous at the summit, tortuous; style 6 mm. long, brown, bifid; achene 2 mm. long, 1.75 mm. broad, pale brown turning shining black, broadly ovate, the inner surface flat, the outer broadly convex, apiculate.

TYPE LOCALITY: "Deep water at Fresh Pond," Massachusetts.

DISTRIBUTION: Bay of Islands, Newfoundland, to British Columbia, north to Alaska, south to North Carolina, Tennessee, Oklahoma, Texas, New Mexico, Arizona, and California.

ILLUSTRATIONS: A. Gray, *Man. ed. 7, 192, f. 291* (achene, inflorescence); Rhodora 6: *pl. 53, c*; Britt. & Brown, *Ill. Fl. ed. 2, 1: 332, f. 815*; Abrams, *Ill. Fl. Pacif. St. 1: 274*; M.-Victorin, *Fl. Laurent. 695*; Am. Midl. Nat. 29: 537, *f. 1* (achene).

47. *Scirpus rubiginosus* Beetle, *Am. Jour. Bot. 28: 697. 1941.*

Perennial; roots swollen, spongy, reddish; culms to 3 m. tall, 2-4 mm. broad at the summit, 1-2 cm. broad at the base, terete, soft, green, smooth, erect from heavy rhizomes 1-2.5 cm. thick, heavily clothed with scales, purple, prominently veined, sheathed at the base; sheaths chocolate-brown or reddish, the uppermost often with a mucronate blade to 8 cm. long, blunt-tipped, revolute, smooth; outer involucrel bract to 1 cm. long, usually short and inconspicuous, terete, smooth; inflorescence paniculate or contracted to a sessile head, the primary rays to 8 cm. long, scabrous-margined, the secondary to 3 cm. long, tertiary rays absent; bractlets smooth, light brown, with a scabrous-margined mucro; spikelets 0.5-2 cm. long, 3 mm. broad, ovate-acute to cylindrical, light to dark-reddish brown; scales 3 mm. long, 2 mm. broad, scabrous on the mucronate midrib, the margins sometimes fimbriate; bristles 6, very variable, hardly equaling the achene, brick-red, retrorsely barbed; style bifid or frequently in the same spikelet trifid; achene 2.5-3 mm. long, 2 mm. broad, dark gray at maturity, smooth, trigonous, mucronate-tipped.

TYPE LOCALITY: Marin County, California.

DISTRIBUTION: Brackish water of coastal estuaries; Vancouver Island to Lower California.

ILLUSTRATION: *Am. Midl. Nat. 29: 536, f. 35* (achene).

48. *Scirpus californicus* (C. Meyer) Steud.

Nom. Bot. ed. 2, 2: 538. 1841.

Elytrospermum californicum C. Meyer, *Mém. Acad. St. Pétersb. Sav. Étr. 1: 201. 1831.*

Scirpus rigidus Schrad.; Nees in *Mart. Fl. Bras. 2¹: 107, as syn. 1842.*

Scirpus decipiens St.-Hil.; Nees in *Mart. Fl. Bras. 2¹: 208, as syn. 1842.*

Malacochaete assimilis Ces. *Atti Accad. Sci. Nap. 5⁷: 17. 1871.*

Culms 1-4 m. tall, 3 mm. broad at the summit, to 3 cm. broad at the base, green, triangular at least at the summit, smooth, stout; roots spongy, reddish; basal sheaths dark brown; inflorescence contracted or more usually open, the spikelets 1-4 on smooth rays, the primary rays to 2.5 dm. long, the secondary to 5 cm. long, the tertiary to 3 cm. long; outer involucrel bract 2-11 cm. long, smooth, stiffly erect; bractlets to 5 cm. long, smooth, the upper scale-like; spikelets numerous, 5-10 mm. long, 3 mm. broad, brown, ovate-acute; scales 3 mm. long, 2 mm. broad, ovate, smooth, brown or light brown flecked with darker brown, the margins entire, the midrib mucronate; bristles 2-4, dark red, plumose; style bifid, reddish; achene 2 mm. long, 1.25 mm. broad, dark brown, smooth, lenticular, bluntly apiculate.

TYPE LOCALITY: California.

DISTRIBUTION: South Carolina and Florida, west to California, south to Argentina and Chile; the Hawaiian Islands.

ILLUSTRATIONS: Jepson, *Man. Fl. Pl. Calif. 154, f. 148* (achene, scale, inflorescence); *Anal. Mus. Argent. Ci. Nat. 38: 168* (as *S. riparius*); Abrams, *Ill. Fl. Pacif. St. 1: 274*; Am. Midl. Nat. 29: 536, *f. 5* (achene); *Mém. Acad. St. Pétersb. Sav. Étr. 1: pl. 2.*

NOTE

Scirpus Holoschoenus L. *Sp. Pl. 49. 1753* (Section *Holoschoenus* K. Koch, *Linnaea 21: 619. 1848*) has been reported on ballast "about wool-mill, Yonkers, New York" in 1884 by I. Burk and in 1894 by E. P. Bicknell.



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