

LUZULA  
SCIRPUS





- a Involucre none; outermost scale of solitary spikelet elongate, appearing as an involucre; tufted; blades elongate.  
*S. verecundus*
- a' Involucre of only 1 primary bract; leaves, if present, only near base. (See a".)
- b Spikelets sessile or subsessile, single or 2-6 in a glomerule; stem sharply 3-angled; perennial, with rhizomes; stigmas 2; achene plano-convex, short-pointed; scale notched, mucronate. 1. *S. pungens*
- b' At least some spikelets or glomerules of spikelets stalked in an umbelliform inflorescence; stem terete, soft, easily compressed; scale about equaling achene; spikelet ovoid. 2. *S. validus*
- a" Involucre of 2 or more leaflike bracts; stem leafy; spikelets or groups of spikelets in umbelliform cluster.
- c Stem sharply 3-angled, tall, stout; spikelet 5 mm thick or more, 1-2.5 cm long. 3. *S. fluviatilis*
- c' Stem terete or slightly 3-angled; spikelet narrower and shorter.
- d Leaves 10-20, 2-ranked; spikelets red-brown, in small glomerules; bristles 6, contorted, about twice as long as pale achene. 4. *S. polyphyllus*
- d' Leaves 10 or fewer, not 2-ranked.
- e Spikelets dark-green or dark-gray, becoming blackish, in dense glomerules; bristles straight, equaling or shorter than the pale achene or wanting. 5. *S. atrovirens*
- e' Spikelets brown or red-brown, in clusters of few to several or solitary; bristles flexuous, much longer than pale achene, at maturity long exerted, inflorescence then a mass of brown wool. 7. *S. cyperinus* (See e".)
- e" Spikelets oblong or cylindric, brown, mostly solitary on pedicels; scale with excurrent green midrib; involucral leaves mostly shorter than rays; bristles curling, longer than brown achene. 6. *S. pendulus*

1. *Scirpus pungens* Vahl

Three-square

Spikelets sessile, in 1 or more glomerules; stem sharply 3-angled; stigmas 2; achene plano-convex, pointed; scale mucronate tipped, notched. Syn.: *S. americanus* Pers., misapplied

REFERENCES: Sullivant 1840:51 (*Scirpus triquetus* L.); Selby & Craig 1890:17; Kellerman & Werner 1893:230 (margin of river, 31 Jul 1890; also common in the lagoons); Braun 1967:203 (illus. p. 202).

HERBARIUM RECORDS: [ca. 1840]—Cols., Sullivant (URB); 1890—Franklin Co., Selby; Jul 1891—Big Darby R., Selby; 5 Sep 1891—Cols., Werner (CLM); 15 Aug 1972—Scioto R. at Greenlawn Ave. bridge, uncommon in shallow water in sandy substrate, Roberts 3041; Summer 1988—along Big Darby Creek between I-70 & Little Darby Creek, Galloway Quad., Delong.

NOTE: Selby & Craig and Kellerman & Werner called it *Scirpus pungens*. Sullivant's *Scirpus triquetus* belongs here based on the specimen at Urbana University.

2. *Scirpus validus* Vahl var. *creber* Fernald

Great Bulrush, Soft-stem Bulrush

Culms soft, easily compressed; spikelets ovoid to linear cylindric, 5-9 mm long; scales round-ovate with green midrib, hairy only at tip, slightly longer than achenes. Syn.: *S. lacustris* L. of American authors

REFERENCES: Sullivant 1840:51; Selby & Craig 1890:17; Kellerman & Werner 1893:230.

HERBARIUM RECORDS: 10 Jul 1890—Cols., Hine; 4 Aug 1974—along Olentangy R. near intersection of Rt. 315 (Olentangy River Rd.) & W. North Broadway, borrow pit, edge of pond, Cols., Roberts 4410; 17 May 1982—ODNR, Fountain Sq., depression in open field, Wooddell 42; 17 May 1982—ODNR, Fountain Sq., Forrest 48; 5 Aug 1989—Godown Rd., wet drainage ditch, between Commerce Pl. & LeAnne Marie Circle, Perry Twp., Lowden 4256; 9 Aug 1990—S side of Berger Rd., 1 mi. E of Richardson Rd., Madison Twp., Lowden 4549; 18 May 1991—S side of E. North Broadway, exit ramp from Rt. 315, large population in ditch, Gara 61; 22 Jul 1991—Antrim Park drainage ditch, along walkway underpass of Rt. 315. Sharon Twp., Lowden 4781.

NOTE: Not mapped for Franklin Co. by Braun 1967:205 (illus. pp. 200 & 202).

3. *Scirpus fluviatilis* (Torr.) A.Gray

River Bulrush

Spikelets large, more than 1.5 cm long, in umbelliform cluster; scales long-awned; stem sharply 3-angled, tall, stout, leafy. Syn.: *S. maritimus* L.

REFERENCES: Sullivant 1840:51 (*Scirpus maritimus*); Selby & Craig 1890:17 (*Scirpus maritimus*); Kellerman & Werner 1893:230 (there is a *Scirpus* growing in the lagoons which is undoubtedly this species though no inflorescence has been observed, Aug 1890).

HERBARIUM RECORDS: 1840—Cols., Sullivant; [ca. 1840]—Cols., Sullivant (URB).

NOTE: Not mapped for Franklin Co. by Braun 1967:205 (illus. p. 204).

4. *Scirpus polyphyllus* Vahl

Bulrush

Leaves 10-20, more or less 2-ranked; spikelets red-brown, in small glomerules; bristles contorted above middle.

REFERENCES: Sullivant 1840:51 (*Scirpus brunneus* Muhl.); Selby & Craig 1890:17; Braun 1967:208 (illus. p. 206).

HERBARIUM RECORDS: [ca. 1840]—Cols., Sullivant (URB); 8 Oct 1892—Cols., Werner; 12 Aug 1897—Rocky Fork, Osburn.

NOTE: Sullivant's *Scirpus brunneus* is placed here based on his specimen at Urbana University.

5. *Scirpus atrovirens* Willd. var. *atrovirens*

Bulrush

SCIRPUS  
ERIOPHORUM



Spikelets dark-green or grayish, becoming dark brown, in dense glomerules; bristles straight, almost equaling the length of the pale achene. Syn.: *S. atrovirens* Muhl.

REFERENCES: Sullivant 1840:51; Craig 1890:107 (rather common along the brook and around the island); Selby & Craig 1890:17; Braun 1967:207 (illus. p. 206).

HERBARIUM RECORDS: 1840—Cols., Sullivant; [ca. 1840]—Cols., Sullivant (URB); 10 Jul 1890—O.A.E.S. field, Cols., Hine; 10 Jul 1890—Cols., Hine (WOOS); 11 Jul 1898—Cols., J. H. Schaffner; 12 Jul 1902—head of run ½ mi. N of Cols., Morris (OWU); 11 Jul 1926—Blacklick Woods Metropolitan Park, Truro Twp., E. Thomas; 4 Aug 1974—along Olentangy R. near intersection of Rt. 315 & W. North Broadway, Cols., Roberts 4411; 1 Jun 1982—Blendon Woods, Owens; 1 Jun 1986—N of St. Michael's Church, corner of Selby & High St., Benkowski 67; 7 Jun 1987—Highbanks Metro Park (Delaware Co.), wet field hillside, Morawetz 50 (OS, OWU); 6 Aug 1987—Highbanks Metro Park (Delaware Co.), open wet areas, Watts; Summer 1988—along Big Darby Creek between I-70 & Little Darby Creek, Galloway Quad., Delong; Summer 1988—along the Olentangy R., OSU campus, Cols., Delong; 9 May 1988—Highbanks Metro Park (Delaware Co.), open fields, wet areas, Watts 438; 2 Jun 1988—Highbanks Metro Park (Delaware Co.), open fields, wet areas, Watts 437 (OWU); 5 Aug 1989—Godown Rd., wet drainage ditch, between Commerce Pl. & LeAnne Marie Circle, Perry Twp., Lowden 4236; 10 Jun 1990—McOwen Rd., woody swampy area, jct. with Dixon Rd., Franklin/Licking Co. line, Jefferson Twp., Lowden 4387; 31 Jul 1990—wet ditch, W side of I-71 at Rt. 161, NE Cols. Quad., Cusick 29085; 8 Aug 1990—Elliott Rd., swampy pond, ½ mi. NW of Scioto-Darby Creek Rd., Brown Twp., Lowden 4512; 5 Jul 1991—Blacklick Woods Metro, Buttonbush Nature Trail (succession field), Reynoldsburg, Rawlings 4.

#### 6. *Scirpus pendulus* Muhl.

Bulrush

Spikelets mostly solitary on pedicels; scales orange-brown with excurrent green midrib; bristles curling, hardly exerted beyond the scales. Syn.: *S. lineatus* Michx., misapplied, *Tricophorum lineatum* Pers.

REFERENCES: Sullivant 1840:51; Selby & Craig 1890:17 (*Eriophorum lineatum* Benth. & Hook.); Braun 1967:207 (illus. p. 204).

HERBARIUM RECORDS: 1840—Cols., Sullivant; [ca. 1840]—Cols., Sullivant (URB); 1890—OSU, Cols., Selby; 6 Jun 1891—Harrisburg, Selby; 11 Jul 1892—Cols., Bogue; 20 May 1982—Blendon Woods, Owens; 29 May 1988—Highbanks Metro Park (Delaware Co.), ¼ mi. E of the Olentangy R. & ¼ mi. S of Powell Rd., marshy area near farm area, Morawetz (OWU); 10 Jun 1990—McOwen Rd., woody swampy area, jct. of Dixon Rd., Franklin/Licking Co. line, Jefferson Twp., Lowden 4388.

NOTE: Voss 1972:359 states, "This plant was long known as *Scirpus lineatus* Michx." Sullivant's published name, *Tricophorum lineatum*, is on his specimen label.

#### 7. †*Scirpus cyperinus* (L.) Kunth

Wool-grass

Spikelets brown or red-brown; in clusters, sessile or pedicellate; bristles very curly, at maturity long exerted and wooly; culms terete. Syn.: *S. pedicellatus* Fernald, *S. rubricosus* Fernald, *Eriophorum cyperinum* L., *Tricophorum cyperinum* Pers.

REFERENCES: Sullivant 1840:51; Craig 1890:107 (very rare; I found a large specimen in the island swamp S of the dike in the fall of 1888); Selby & Craig 1890:17; Braun 1967:209 (illus. p. 210).

HERBARIUM RECORDS: [ca. 1840]—Cols., Sullivant (URB); Aug 1892—Cols., Werner (CLM); 6 Aug 1897—Hamilton Twp., W. Kellerman; 30 Sep 1991—N side of Rodebaugh Rd., ¾ mi. E of Reynoldsburg, New Albany Rd., sect. 6, Truro Twp., Reynoldsburg Quad., McCormac 4406.

## 2. ERIOPHORUM L. Cotton-sedge

Bog plants; flowers perfect; spikelets many-flowered, solitary or in clusters; foliaceous bracts present in Ohio species; stamens 1-3; style 3-cleft; achene surrounded by the many persistent elongate white to brown cottony branches of bristles.

a Involucral leaf 1; leaves channeled. 1. *E. gracile*

a' Involucral leaves more than 1; leaves flat below the middle; stamens 3; scale with 1 prominent midnerve.

#### 2. *E. viridicarinatum*

#### 1. †*Eriophorum gracile* W.D.J.Koch

Slender Cotton-grass, Bog-cotton

Perianth bristles soft, hairlike, white, becoming much longer than scales; heads cottony or silky; upper cauline leaf with blade much shorter than its sheath; scales suffused with black or lead color.

REFERENCES: Braun 1967:211 (where it is represented by a single collection from a bog in Franklin Co.) (illus. p. 212); Stuckey & Roberts 1977:39 (bog); Stuckey & Roberts 1982:36 (of bog and peat habitats).

HERBARIUM RECORD: 17 May 1931—bog at Baumgardner's Pond, Jackson Twp., Gordon & E. Thomas.

#### 2. †*Eriophorum viridicarinatum* (Engelm.) Fernald

Bog Cotton, Thin-leaf Cotton-sedge, Green Cottongrass

Syn.: *E. polystachion* of American authors

REFERENCES: Sullivant 1840:51 (*Eriophorum polystachyum* L.); Selby & Craig 1890:17 (*Eriophorum polystachyon* L.).

NOTE: No specimens seen from Franklin Co. Not mapped for Franklin Co. by Braun 1967:212 (illus. p. 212).

3. *ELEOCHARIS* R.Br. Spike-rush

In wet soil or water; culms unbranched; leaf-sheaths bladeless or lower rarely with blades; spikelets terminal, solitary, erect, without involucre; flowers perfect, spirally arranged, lower 1-3 scales usually empty; perianth none or of 1-12 bristles; stamens 2-3; styles 2-3-branched, base dilated, persisting as a tubercle on the 3-angled or lenticular achene.

- a Culm quadrangular, about as wide as the spikelet. 1. *E. quadrangulata*
- a' Culm usually not quadrangular, narrower than the spikelet.
- b Tubercle flattened dorsi-ventrally, sharp-edged, as wide to half as wide as achene-body. 8. *E. ovata*
- b' Tubercle not flattened as above, not more than half as wide as achene-body.
- c Stigmas 2; achene biconvex or lenticular.
- d Basal empty scales 2-3; scales with conspicuous hyaline tips, the median acute; sheath blackish at top; tubercle ovoid-conic. 6. *E. smallii*
- d' Basal empty scale 1, circular, base encircling spikelet-base; scales obtuse; tubercle conic, longer than wide. 7. *E. erythropoda*
- c' Stigmas 3; achene 3-angled or terete.
- e Achene with lengthwise ridges and crosswise lines, terete, ellipsoid; culms filiform; bristles sometimes present. 2. *E. acicularis*
- e' Achene pitted, pits sometimes in lines, or roughened, obovoid, width 2/3 length.
- f Culms tufted, unequal in length; achene yellow to olive-brown, pitted; tubercle conic, pointed, longer than wide. 3. *E. intermedia*
- f' Culms from horizontal rhizomes; achene rough; scales with wide pale margins.
- g Culms flattened; scales wide, white apex often split; achene yellow to brown, rough-granular; tubercle low to globose-conic. 5. *E. compressa*
- g' Culms 6-8-angled; achenes yellow or orange; tubercle pyramidal or low.  
4. *E. tenuis* var. *borealis*

1. †*Eleocharis quadrangulata* (Michx.) Roem. & Schult. Four-angled Spike-rush

Stems stout, sharply 4-sided, as wide as spikelet.

REFERENCE: ODNR-DNAP 1996.

HERBARIUM RECORD: 24 Jul 1992—SW side of man-made pond, S of W. Main St.-Central District Office entrance to Sharon Woods Metro Park, Sharon Twp., *Watts* 625.

NOTE: Not mapped for Franklin Co. by Braun 1967:191 (illus. p. 190).

2. *Eleocharis acicularis* (L.) Roem. & Schult. Needle Spike-rush

Tubercle differentiated from achene-body; stigmas 3; achene with lengthwise ridges and crosswise lines; culms filiform. Syn.: *E. acicularis* R.Br.

REFERENCES: Sullivant 1840:51; Selby & Craig 1890:17; Braun 1967:193 (illus. p. 194).

HERBARIUM RECORDS: [ca. 1840]—Cols., *Sullivant* (URB); 9 Jul 1892—Alum Creek Station, *Bogue*; 4 Aug 1974—along Olentangy R. near intersection of Rt. 315 (Olentangy River Rd.) & W. North Broadway, Cols., *Roberts* 4408.

3. †*Eleocharis intermedia* (Muhl.) Schult. Matted Spike-rush

Stigmas 3; achenes somewhat 3-angled, pitted, yellow to olive-brown; tubercle conic, pointed, longer than wide; culms tufted, unequal in length. Syn.: *E. intermedia* Schult., *E. reclinata* Kunth

REFERENCES: Sullivant 1840:51; Selby & Craig 1890:17; Selby 1891a:111a (#932 Re-collected); Kellerman & Werner 1893:230 (edge of lagoon near river, 9 Aug 1890); Jones 1943:93; Braun 1967:195 (illus. p. 194); Stuckey & Roberts 1977:31 (mud-flat); Stuckey & Roberts 1982:35-36 (mudflats in marshes along shores of ponds and lakes); ODNR-DNAP 1996.

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; 22 Aug 1890—OSU farm near river, Cols., *Werner*; 28 Aug & 2 Sep 1890—Cols., *Werner* (CLM).

4. †*Eleocharis tenuis* (Willd.) Schult. var. *borealis* (Svenson) Gleason Slender Spike-rush

Stigmas 3; achene pitted, rough, yellow-orange; scales with wide pale margins; tubercle low; culms angled, corrugated, 6-8 angled. Syn.: *E. elliptica* Kunth, *E. tenuis* Schult.

REFERENCES: Sullivant 1840:51; Selby & Craig 1890:17.

HERBARIUM RECORD: 1840—Cols., *Sullivant*.

NOTE: Not mapped for Franklin Co. by Braun 1967:196 (illus. p. 194).

5. †*Eleocharis compressa* Sull. Flat-stem Spikerush

ELEOCHARIS



Culm flattened, narrower than the spikelet; scales with wide pale margins, white apex split; stigmas 3; achenes yellow to brown, rough-granular; tubercle low to globose-conic. Syn.: *E. elliptica* Kunth var. *compressa* (Sull.) Drapalik & Mohlenbr.

REFERENCES: Sullivant 1840:51, 62 (*Eleocharis tortilis* Schult.); Selby & Craig 1890:17 (*Eleocharis tortilis* Schult.); McCance 1984:A-107.

HERBARIUM RECORD: [ca. 1840]—Cols., Sullivant (CLM).

NOTE: Not mapped for Franklin Co. by Braun 1967:191 (illus. p. 190).

#### 6. *Eleocharis smallii* Britton

Spike-rush

Stigmas 2; spikes lance-ovoid, acute; basal scales empty; scale margins and tips hyaline; sheaths darkened at top.

REFERENCE: Braun 1967:193 (illus. p. 194).

HERBARIUM RECORDS: 1840—Cols., Sullivant; 17 May 1931—Baumgardner's Pond, Jackson Twp., Gordon; 14 May 1963—damp place in Boulevard Gardens, a nursery along Olentangy River Rd., Cusick; 30 Jul 1977—Pickerington Marsh, intersection of Wright Rd. & Bowen Rd., 3 mi. W of Pickerington & 3 mi. N of Canal Winchester, Sect. 18, Madison Twp., Sect. 17, Violet Twp., Franklin/Fairfield Co. line, Eu. Wright.

#### 7. *Eleocharis erythropoda* Steud.

Creeping Spike-rush

Stigmas 2; achene biconvex, brown; basal scale empty, circular; scales obtuse; tubercle conic, longer than wide.

Syn.: *E. calva* Torr., *E. palustris* (L.) Roem. & Schult. var. *glaucescens* of American authors, not Willd., *E. palustris* R.Br.

REFERENCES: Sullivant 1840:51; Selby & Craig 1890:17; Selby 1891a:111a (#934 Re-collected); Braun 1967:195 (illus. p. 194).

HERBARIUM RECORDS: 1840—Cols., Sullivant; 9 May 1891—Big Darby, Selby; 8 Jun 1931—Westerville, Hicks; 30 Jun 1963—E bank of Olentangy R. directly W of French Field House, OSU, Cusick; 25 Jun 1977—Pickerington Marsh, intersection of Wright Rd. & Bowen Rd., 3 mi. W of Pickerington & 3 mi. N of Canal Winchester, Sect. 18, Madison Twp., Sect. 17, Violet Twp., Franklin/Fairfield Co. line, Eu. Wright; 29 May 1988—Highbanks Metro Park (Delaware Co.), pond at residence ¼ mi. E of Rt. 315, common, Morawetz (OS, OWU); 15 Jul 1988—Highbanks Metro Park (Delaware Co.), wet meadows area just N of county line, Watts 453; 13 Jun 1991—Friendship Park, jct. of Big Walnut Creek, with Rocky Fork Creek, S of Rt. 317, Gahanna, Mifflin Twp., Lowden 4692; 14 Aug 1992—Sharon Woods Metro Park, moist bank NE side of Schrock Lake, Sharon Twp., Watts 632.

NOTE: Braun called it *Eleocharis calva*; Weishaupt (1971) and Voss (1972), *Eleocharis erythropoda*; others called it *Eleocharis palustris*.

#### 8. †*Eleocharis ovata* (Roth) Roem. & Schult.

Blunt Spike-rush

Tubercle differentiated from achene-body, flattened dorsi-ventrally, about 3/4 as wide and 1/3-1/2 as long as achene-body; bristles exceeding achene. Syn.: *E. obtusa* Schult., *E. obtusa* (Willd.) Schult.

REFERENCES: Sullivant 1840:51; Selby & Craig 1890:17; Kellerman & Werner 1893:230 (margin of brook near river, 2 Aug 1890; edge of lagoon, 9 Aug 1890); Braun 1967:195 (illus. p. 194).

HERBARIUM RECORDS: [ca. 1840]—Cols., Sullivant (URB); 1890—OSU, Cols., Selby; 6 Aug 1897—Hamilton Twp., W. Kellerman; 7 Sep 1899—Worthington, Selby; 24 Sep 1904—canal S of Cols., York; 31 Jul 1977—Pickerington Marsh, intersection of Wright Rd. & Bowen Rd., 3 mi. W of Pickerington & 3 mi. N of Canal Winchester, Sect. 18, Madison Twp., Sect. 17, Violet Twp., Franklin/Fairfield Co. line, Eu. Wright; 10 Jul 1980—ODNR complex, Fountain Sq., Morse Rd., 1.8 mi. E of I-71, NE Cols. Quad., Shelly 61 (MU); 1 Jun 1982—Cooper Rd. & Forest Hills, Blendon Twp., Owens; 17 Jul 1987—Highbanks Metro Park (Delaware Co.), Watts; Summer 1988—along the Olentangy R., OSU campus, Cols., Delong; 9 Aug 1990—S side of Hibbs Rd., swampy area, 1 mi. E of Rt. 104, Jackson Twp., Lowden 4542; 7 Jun 1991—Boyer Park at end of Park St., E of Rt. 3, Westerville, Blendon Twp., Lowden 4667; 22 Jul 1991—Antrim Park, drainage ditch, along walkway underpass of Rt. 315, Sharon Twp., Lowden 4780.

Wet areas, pond edge.

NOTE: Selby & Craig (1890) and Kellerman & Werner (1893) called it *Eleocharis ovata* R.Br. Gray's Manual 1950:255 indicates that this species is not in Ohio and that it resembles *Eleocharis obtusa*.

### 4. FIMBRISTYLIS Vahl

Tufted annual; stem and leaves slender, leaves basal or subbasal; flowers perfect, spirally arranged in spikelet; spikelets in simple or compound cymose clusters subtended by 2-3 bracts; perianth none; style 3-cleft, its dilated base deciduous; achene 3-angled.

#### 1. *Fimbristylis autumnalis* (L.) Roem. & Schult.

Tufted leaves basal-subbasal; flowers perfect, spirally arranged in spikelet; perianth none; style 3-cleft, base dilated, deciduous below dilation.

HERBARIUM RECORDS: 1840—Cols., Sullivant; 8 Sep 1992—between nursery & Olentangy R., scattered, moist weedy ground, Olentangy River Rd. N of Union Cemetery, NW Cols. Quad., Cusick 30495.

NOTE: Not mapped for Franklin Co. by Braun 1967:198 (illus. p. 197).

### 5. BULBOSTYLIS Kunth



ELEOCHARIS  
FIMBRISTYLIS  
BULBOSTYLIS  
RHYNCHOSPORA



Tufted annual; stem erect, slender; leaves very narrow, basal or subbasal; sheaths pubescent; flowers perfect, spirally imbricated; spikelets in bracted capitate or umbelliform clusters; perianth none; style 3-cleft, base persistent as minute tubercle; achene cross-wrinkled.

1. *Bulbostylis capillaris* (L.) C.B. Clarke

Tubercle minute, at tip of achene; blades filiform; plants tufted to 2 dm high.

HERBARIUM RECORD: 1840—Cols., *Sullivant*.

NOTE: Not mapped for Franklin Co. by Braun 1967: 197 (illus. p. 197).

6. RHYNCHOSPORA Vahl Beak-rush

Stem usually leafy; spikelets 1-several-flowered, in terminal and often axillary cymose clusters; usually lowest scales empty; flowers perfect or the terminal often staminate; perianth of bristles, rarely absent; stamens 2-3; style 2-cleft or 2-toothed, base persisting as a beak on the flat or lenticular achene.

a Stamens usually 2; scales white or pinkish-tan; bristles 8-14, usually pubescent at base; blades setaceous to narrowly linear. 1. *R. alba*

a' Stamens 3; scales brown; bristles usually 6, not pubescent; blades filiform; width of achene about half the length, exclusive of beak. 2. *R. capillacea*

1. †*Rhynchospora alba* (L.) Vahl

White Beak-rush

Plants 3-4 dm tall; tubercle longer than wide; achene obovoid; stamens 2; scales pinkish-tan; bristles more than 10, pubescent at base; blades narrowly linear. Syn.: *R. alba* Vahl

REFERENCES: Sullivant 1840:51; Selby & Craig 1890:17.

HERBARIUM RECORD: 1840—Cols., *Sullivant*.

NOTE: Not mapped for Franklin Co. by Braun 1967:215 (illus. p. 214).

2. *Rhynchospora capillacea* Torr.

Beak-rush

Plants 1.5-2.0 dm tall; tubercle longer than wide; achene-body obovoid, width about half the length; stamens 3; scales brown; blades filiform.

REFERENCES: Sullivant 1840:51; Selby & Craig 1890:17.

HERBARIUM RECORD: 1840—Cols., *Sullivant*.

NOTE: Not mapped for Franklin Co. by Braun 1967:216 (illus. p. 214).

7. CLADIUM P.Browne Twig-rush

Culm leafy; blades narrow; spikelet few-flowered, lowest scales empty, middle flowers staminate or rudimentary, uppermost flower perfect; spikelets in capitate clusters, the clusters in terminal and axillary umbelliform cymes, the terminal subtended by a leaflike bract; perianth none; stamens 2; style deciduous; achene ovoid.

1. †*Cladium mariscoides* (Muhl.) Torr.

Twig-rush

Achenes with a small pointed tip, brown, ovoid, base truncate and as wide as the achene; uppermost flower of spikelet perfect; others staminate or vestigial.

HERBARIUM RECORD: 1840—Cols., *Sullivant*.

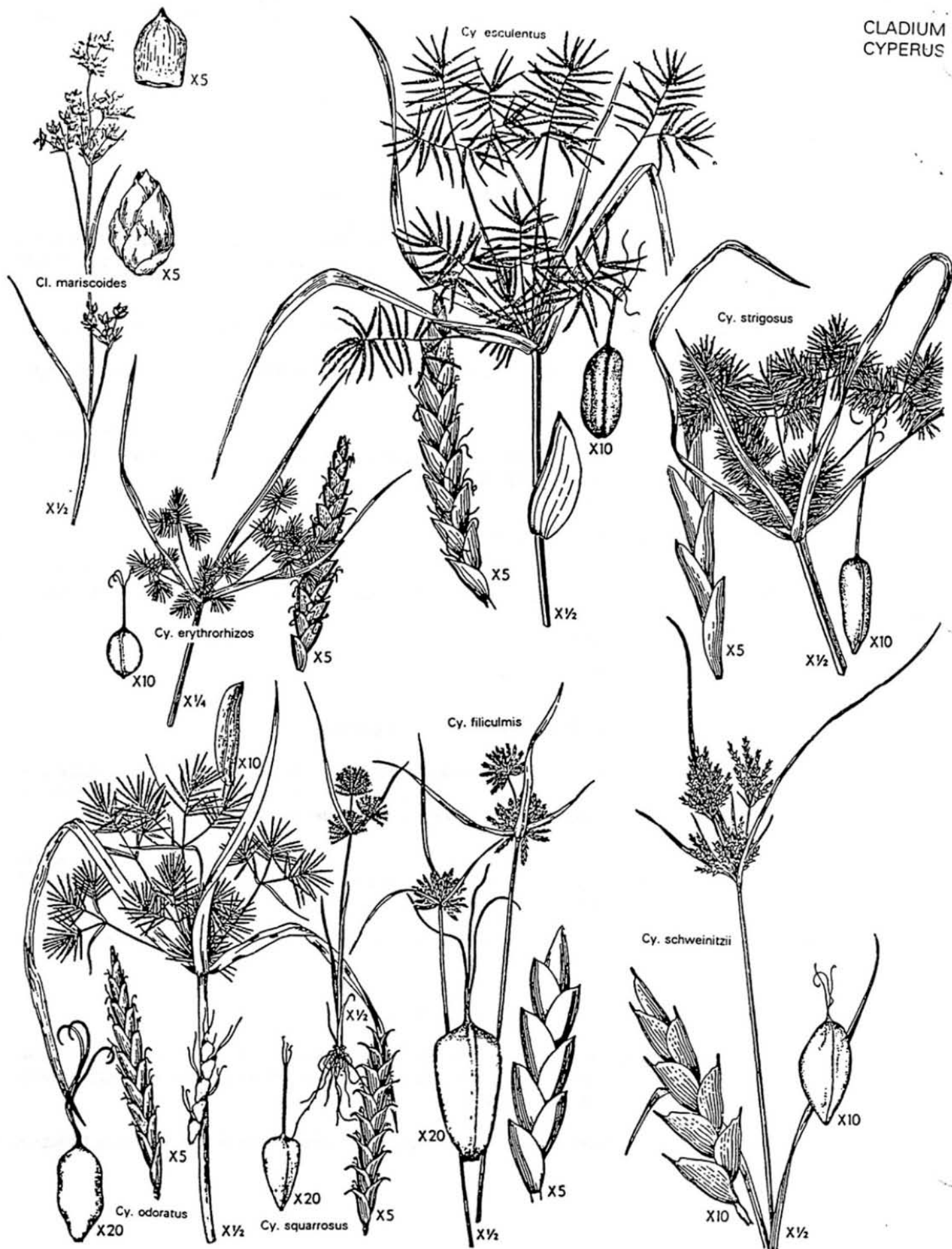
NOTE: Sullivant 1840:51 and Selby and Craig 1890:17 reported on plants collected in adjacent counties. Not mapped for Franklin Co. by Braun 1967:217 (plants of wet poorly drained prairies, marl bogs, or open peat bogs) (illus. p. 218).

8. CYPERUS L. Flatsedge

Stem unbranched below inflorescence; leaves basal; flowers perfect, without perianth, 2-ranked in spikelets, spikelets in sessile or peduncled spikes; spikes solitary or in heads or umbels, subtended by 1 to several leaflike bracts; stamens 1-3; style 2-3-branched; achene 3-angled or lenticular.

a Tips of scales strongly recurved; spikelets linear; stigmas 3; achenes 3-angled; spikes 6-many-flowered, flattened; heads sessile or peduncled; annual. 3. *C. squarrosus*

CLADIUM  
CYPERUS



- a' Tips of scales ascending or erect.
- b Spikelets 1-flowered, crowded in a dense globular or slightly oblong head; heads sessile, solitary or 2-3 confluent; stigmas 2; slender annual with culms to 2 dm. 11. *C. tenuifolius*
- b' Spikelets 3-many-flowered, in loose spherical or hemispherical heads. (See b".)
- c Stigmas 2; scales nerved at center but not in margin; spikelet flattened; achene not 3-angled; stamens 2-3; annual.
- d Achene black, white-encrusted, rough, nearly as wide as long; scales green or yellow. 8. *C. flavescens* var. *poaeformis*
- d' Achene brownish, longer than wide; scales with some markings of purple or brown on sides.
- e Style cleft to base, exserted 2-4 mm beyond scale; scale with band of brown or purple along margin and at tip. 9. *C. diandrus*
- e' Style cleft to middle, often deciduous, exserted 1-1.5 mm beyond scale; whole side of scale red-purple. 10. *C. bipartitus*
- c' Stigmas 3; achene 3-angled; scales nerved in center and in margin.
- f Involucral bracts and spikelets ascending; scales ovate, 3 mm long or more, strongly mucronate. 5. *C. schweinitzii*
- f' Involucral leaves and lateral spikelets spreading; scales minutely mucronate. 6. *C. filiculmis*
- b" Spikelets in an obconic or a loose cylindrical spike, the spikes in an umbelliform cluster; stigmas 3.
- g Spikelets all ascending; scales conspicuously mucronate; spikelets flattened. 5. *C. schweinitzii*
- g' Some spikelets horizontal or reflexed; scales not conspicuously mucronate.
- h Scales 4-6 mm long, 7-nerved; spikelet flattened, golden-yellow. 4. *C. strigosus*
- h' Scales 3 mm long or less.
- i Scales 1-1.5 mm long, nerved in center, not in margin, closely imbricated, divergent; achene less than 1 mm long, little longer than wide. 2. *C. erythrorhizos*
- i' Scales 1.5 mm long or more, nerved in center and in margin; achene linear or oblong, more than 1 mm long.
- j Annual with stout base; without rhizomes and tubers; rachilla breaking into short segments. 7. *C. odoratus*
- j' Perennial with slender rhizomes ending in tubers; rachilla not breaking into segments. 1. *C. esculentus*

### 1. *Cyperus esculentus* L.

Yellow Nut-grass or Nutsedge

Spikes in an umbelliform cluster; stigmas 3; scales 1.5-3.0 mm long, nerved in center and in margin; stolons slender and scaly terminating in small tubers; rachilla not breaking into segments. Syn.: *C. dentatus* Torr.

REFERENCES: Craig 1890:107; Selby & Craig 1890:17; Kellerman & Werner 1893:227; Braun 1967:187 (illus. p. 186).

HERBARIUM RECORDS: 13 Sep 1890—OSU grounds, near river, *Werner*; 13 & 19 Sep 1890—Cols., *Werner* (CLM); 20 Aug 1892—Cols., *Bogue*; Summer 1988—along the Olentangy R., OSU campus, Cols., *Delong*; 7 Aug 1989—OSU Campus, Morrill Tower, N parking lot, *Lowden 4257A*; 23 Sep 1991—Scioto R. at I-270, Hamilton Twp., SW Cols. Quad., *McCormac 4369*.

### 2. *Cyperus erythrorhizos* Muhl.

Umbrella Sedge, Redroot Flatsedge

REFERENCES: Selby & Craig 1890:17; Kellerman & Werner 1893:230 (field back of North Dormitory, rare, 23 Aug 1890).

HERBARIUM RECORDS: 12 Sep 1991—Hoover Dam Park, N of entrance off Cubbage Rd., reservoir inlet, Blendon Twp., *Lowden 4830A*; 23 Sep 1991—Scioto R. just N of I-270, Hamilton Twp., SW Cols. Quad., *McCormac 4367*.

NOTE: Not mapped for Franklin Co. by Braun 1967:187 (illus. p. 186).

### 3. *Cyperus squarrosus* L.

Umbrella Sedge

Scales 7-9 nerved; tips of scales awned, strongly recurved; stigmas 3; achenes 3-angled; spikelets linear, flowers and subtending scales 2-ranked on axis of spikelet. Syn.: *C. aristatus* Rottb., *C. inflexus* Muhl.

REFERENCES: Sullivant 1840:50; Selby & Craig 1890:17; Kellerman & Werner 1893:230 (borders of brook W of Neil Ave., 31 Jul 1890; borders of lagoon near river, Aug & Sep 1891); Braun 1967:181 (illus. p. 180).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; [ca. 1840]—Cols., *Sullivant* (URB); 3 Sep 1890—N Cols., near Scioto R., Fishinger Mill region, Cols., *Werner*; 20 Aug 1893—OSU grounds, near river, *Werner*; 15 Sep 1929—Baumgardner's Pond, Jackson Twp., *Harper*; 27 Sep 1990—W bank of Olentangy R., 1/3 mi. N of Lane Ave., Clinton Twp., NW Cols. Quad., *McCormac 3341*; 5 Jul 1991—OSU Campus, E bank of Olentangy R., just S of Lane Ave. bridge, Clinton Twp., *Lowden 4753*; 30 Aug 1991—Olentangy River Rd., N of Union Cemetery, between nursery & Olentangy R., moist weedy ground, frequent, Cols., *Cusick 29853*; 23 Sep 1991—Scioto R., just N of I-270, common on damp gravel bars, Hamilton Twp., SW Cols. Quad., *McCormac 4373-4375*.

### 4. *Cyperus strigosus* L.

Umbrella Sedge, Galingale, False Nutsedge

Spikes in an umbelliform cluster; stigmas 3; spikelets horizontal or reflexed; scales 4 mm or more long, 7-nerved; spikelet flattened, golden-yellow. Syn.: *C. phymatodes* Muhl.

REFERENCES: Sullivant 1840:50; Craig 1890:107 (two species [*Cyperus esculentus* and *Cyperus phymatodes*] usually occur together along the brook E of Neil Ave.); Selby & Craig 1890:17; Kellerman & Werner 1893:230 (along the brook between Neil Ave. and the river, also in the fields back of the Veterinary Hospital and Dormitory); Braun 1967:187 (illus. p. 186).

HERBARIUM RECORDS: 1840—Cols., Sullivant; Jul 1888—Cols., Craig; Aug 1890—Cols., Werner (CLM); 14 Sep 1890—N Cols., E. V. Wilcox; 7 Sep 1899—Worthington, Selby; 10 Aug 1982—Blendon Woods, Owens; 10 Aug 1986—Highbanks Metro Park (Delaware Co.), closed forest, uncommon, Witsberger 926; Summer 1988—along the Olentangy R., OSU campus, Cols., Delong; Summer 1988—along Big Darby Creek between I-70 & Little Darby Creek, Galloway Quad., Delong; 23 Sep 1991—Scioto R., just N of I-270, common on damp gravel bars, Hamilton Twp., SW Cols. Quad., McCormac 4366.

NOTE: Kellerman & Werner 1893:230 state "The *Cyperus esculentus* of the Catalogue [Craig 1890] must refer to one or both of these plants [*Cyperus strigosus* or *Cyperus speciosus*] since that species [*Cyperus esculentus*] was referred to as *Cyperus dentatus*."

5. †*Cyperus schweinitzii* Torr.

Schweinitz's Sedge

Spikes in an umbelliform cluster; stigmas 3; achene 3-angled; spikelets all ascending; scales nerved in center and in margin, conspicuously mucronate.

HERBARIUM RECORD: 1840—Cols., Sullivant.

NOTE: Not mapped for Franklin Co. by Braun 1967:182 (illus. p. 180).

6. *Cyperus filiculmis* Vahl

Umbrella Sedge

Spikelets 3-many flowered, in loose hemispherical heads; achene 3-angled; involucre leaves and lateral spikelets spreading; scales minutely mucronate.

REFERENCES: Sullivant 1840:50; Selby & Craig 1890:17.

HERBARIUM RECORD: 1840—Cols., Sullivant.

NOTE: Not mapped for Franklin Co. by Braun 1967:183 (a variety of situations, such as sandy soil, fields, dry rocky slopes and ridges, and creek-banks) (illus. p. 184).

7. †*Cyperus odoratus* L.

Umbrella Sedge

Achene 3-angled; style 3-cleft; mature spikelets spreading; rachilla breaking into sections at maturity; scales of spikelet 2-2.5 mm long; achenes 1-1.5 mm long, obovoid-oblong, yellowish to reddish brown. Syn.: *C. engelmannii* Steud., *C. ferax* Rich., *C. ferruginescens* Boeck., *C. speciosus* Torr. monog., *C. speciosus* Vahl, in part

REFERENCES: Sullivant 1840:50; Selby 1891a:111a; Kellerman & Werner 1893:230 (along the brook between Neil Ave. and the river, also in the fields back of the Veterinary Hospital and Dormitory); Jones 1943:92; Braun 1967:185 (illus. p. 184).

HERBARIUM RECORDS: 1840—Cols., Sullivant; [ca. 1840]—Cols., Sullivant (URB); 1890—Franklin Co., Werner (CLM); 8 Aug 1890—Cols., Werner (CLM); 8 Aug 1890—OSU grounds, in the river bottoms, N of old dormitory, Werner; 26 Sep 1969—along Olentangy R. opp. Lincoln Tower, OSU campus, W. Owen 076; Summer 1988—along Big Darby Creek between I-70 & Little Darby Creek, Galloway Quad., Delong; Summer 1988—along the Olentangy R., OSU campus, Cols., Delong; 8 Aug 1990—jct. of Amity Rd., & Scioto Darby Creek Rd., abandoned field, N side of Scioto Darby Creek Rd., Brown Twp., Lowden 4519; 5 Jul 1991—OSU Campus, E bank of Olentangy R., just S of Lane Ave. Bridge, Clinton Twp., Lowden 4752; 12 Sep 1991—Hoover Dam Park, N of entrance off Cabbage Rd., reservoir inlet, Blendon Twp., Lowden 4830B; 23 Sep 1991—Scioto R., at and just N of I-270, common on gravel bars, Hamilton Twp., McCormac 4368, 4370-4371.

NOTE: One of two Sullivant specimens is marked *Cyperus repens* Elliott, which appears to belong here; however, the rachilla does not break easily into sections. Both Weishaupt 1971:336 and Voss 1972:336 called it *Cyperus odoratus* L.

8. *Cyperus flavescens* L. var. *poaeformis* (Pursh) Fernald

Umbrella Sedge

Spikelets 3-many flowered in loose spherical or hemispherical heads; stigmas 2; scales nerved at center but not in margin; achene lenticular, rough, very dark, white-encrusted.

REFERENCES: Selby & Craig 1890:17; Braun 1967:179 (illus. p. 180).

HERBARIUM RECORDS: Sep 1890—Cols., Selby; 28 Sep 1901—S Cols., Halverstadt; 7 Sep 1991—Antrim Lake, drainage ditch at entrance parking lot, Sharon Twp., Lowden 4800.

9. †*Cyperus diandrus* Torr.

Low Umbrella Sedge

Syn.: *C. diandrus* var. *castaneus* Bigelow

REFERENCES: Sullivant 1840:50; Selby & Craig 1890:17; Kellerman & Werner 1893:230 (borders of brook between Neil Ave. and the river, 31 Jul 1890; also along margin of lagoon near the river); Werner 1893:93 (Cols., Werner).

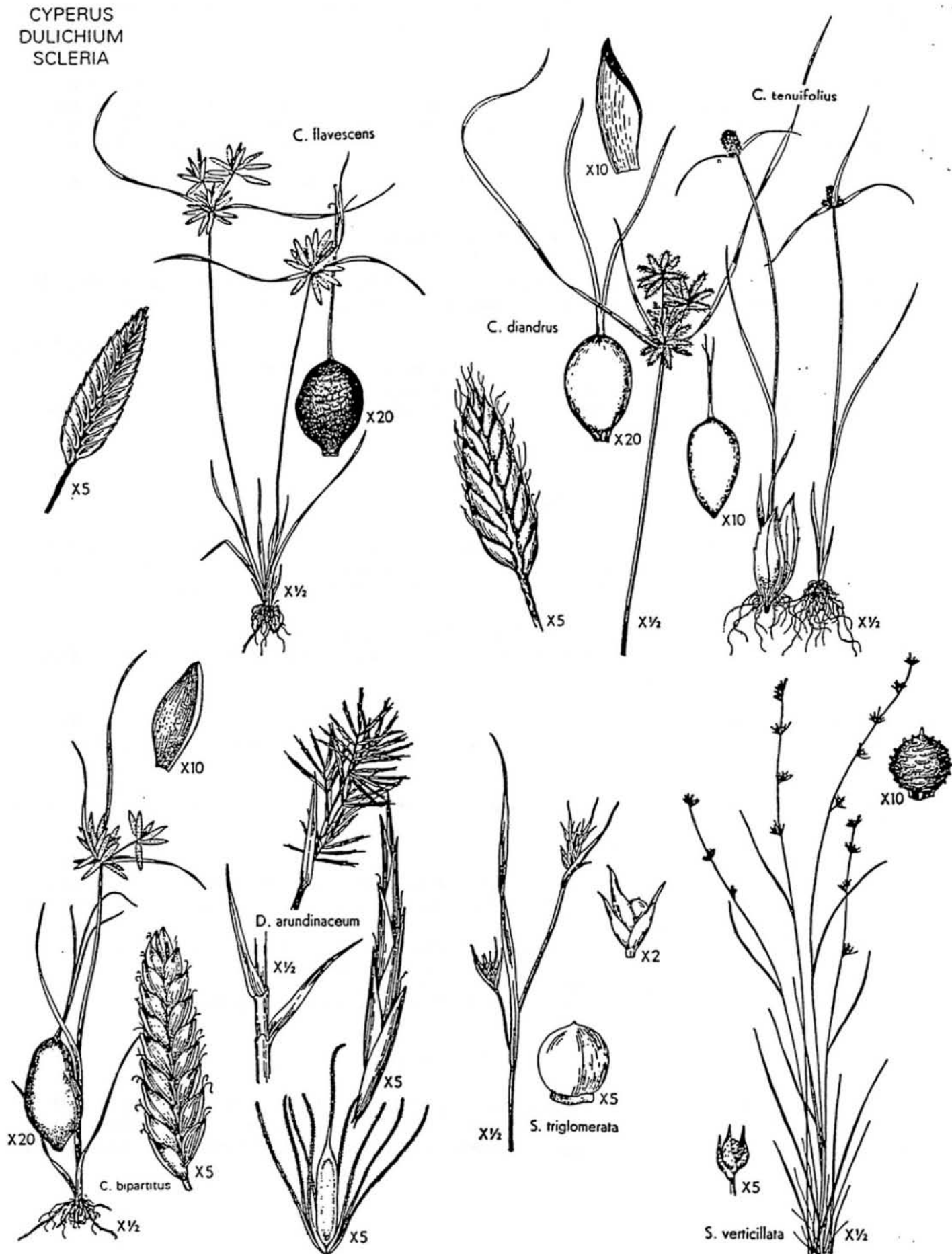
NOTE: No specimens seen from Franklin Co. Not mapped for Franklin Co. by Braun 1967:181 (illus. p. 180). There are specimens of Sullivant labelled *C. diandrus* that are *C. bipartitus* at OS.

10. *Cyperus bipartitus* Torr.

Umbrella Sedge

Spikelets 3-many flowered, in loose hemispherical heads; stigmas 2; scales nerved at center but not in margin; achene lenticular, brownish, longer than wide; style cleft to middle, exerted 1-1.5 mm beyond scale; whole side of scale red-purple. Syn.: *C. rivularis* Kunth

CYPERUS  
DULICHIMUM  
SCLERIA



REFERENCE: Braun 1967:181 (illus. p. 180).

HERBARIUM RECORDS: 1840—Cols., *Sullivant* (OS, URB); 14 Aug 1890—Cols., *Werner* (CLM, OS); 4 Oct 1892—Cols. & canal S of city, *Bogue*; 3 Sep 1992—W side of Cabbage Rd., occasional in muddy soil of small drainage ditch, approx. ½ mi. S of Walnut St., Blendon Twp., New Albany Quad., *McCormac* 4888.

11. *Cyperus tenuifolius* (Steud.) Dandy

Umbrella Sedge

Heads sessile, solitary or 2-3 confluent; spikelet 1-flowered; stigmas 2; culms to 2 dm. Syn.: *Kyllinga pumila* Michx.

REFERENCES: Selby 1891a:111a; Kellerman & Werner 1893:230 (margin of lagoon near river, Oct 1891); Braun 1967:179 (illus. p. 180).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; May 1890—near Cols., *E. M. Wilcox*; 21 Oct 1890—Neil Run, Cols., *Werner*; 3 Sep 1892—Cols., *Werner* (CLM).

NOTE: *Sullivant* 1840:51 and Selby & Craig 1890:17 reported on plants collected in adjacent counties. All except Braun called it *Kyllinga pumila*.

9. DULICHIMUM Pers.

Stems tall, hollow; leaves many, short, the lower bladeless; spikelets in axillary spikes; flowers 2-ranked, perfect; perianth-bristles 6 or more; stamens 3; style 2-cleft; achene linear-oblong, flattened, style persistent as a beak.

1. *Dulichium arundinaceum* (L.) Britton

Three-way Sedge

Inflorescence axillary; spikelets 2-ranked; cauline leaves numerous. Syn.: *D. spathaceum* Pers.

REFERENCES: *Sullivant* 1840:50; Selby & Craig 1890:17; Braun 1967:188 (swamps and margins of ponds) (illus. p. 186).

HERBARIUM RECORDS: [ca. 1840]—Cols., *Sullivant* (URB); 7 Sep 1930—bog at Baumgardner's Pond, Jackson Twp., *Gordon & Chapman*; 17 May 1931—bog at Baumgardner's Pond, Jackson Twp., *Gordon & E. Thomas*.

NOTE: *Sullivant* and Selby & Craig called it *Dulichium spathaceum*.

10. SCLERIA P.J.Bergius Nut-rush

Stem 3-angled, leafy; spikelets in small terminal and axillary clusters; flowers monosporangiate, the 2 kinds in separate spikelets; carpellate spikelets 1-flowered, lower scales empty; staminate spikelets few-flowered; perianth none; stamens 1-3; stigmas 3; achenes hard, white, globose or ovoid, usually with smooth or rough disk at base.

a Achene smooth; disk covered with white crust; blades 4-9 mm wide. 1. *S. triglomerata*

a' Achene rough; disk very small, without tubercles; blades narrowly linear; spikelets in sessile clusters that form an interrupted spike. 2. *S. verticillata*

1. †*Scleria triglomerata* Michx.

Tall Nut-rush, Whipgrass

Culms leafy, 3-angled; achenes smooth, white, subglobose, about 3 mm high, on a disk covered with white crust; leaves 5-7 mm wide.

HERBARIUM RECORD: 1840—Cols., *Sullivant*.

NOTE: *Sullivant* 1840:52 and Selby & Craig 1890:17 reported on plants collected in adjacent counties. Not mapped for Franklin Co. by Braun 1967:219 (illus. p. 218).

2. †*Scleria verticillata* Muhl.

Low Nut-rush

Annual; culms filiform, leafy, 3-angled; achenes rough, whitish, transversely irregularly ridged on a short stipe-like disk; spikelets in sessile clusters that form an interrupted spike; leaves narrowly linear, about 1 mm wide. Syn.: *S. verticillata* Willd., *Hypoporum verticillata* Nees

REFERENCES: *Sullivant* 1840:52; Selby & Craig 1890:17; *Werner* 1893:93 (#951 Re-collections, S of Cols., *Werner*); Braun 1967:219 (illus. p. 218); Stuckey & Roberts 1977:32; Stuckey & Roberts 1982:37 (open, wet, calcareous meadows and fens).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; 5 Aug 1893—canal S of Cols., *Werner*.

NOTE: Voss 1972:330 considered Willdenow as author, whereas Selby & Craig and Braun used Muhlenburg. *Sullivant* cited *Hypoporum*.

11. CAREX L. Sedge

Stems mostly triangular; leaves 3-ranked; flowers monosporangiate, in spikes, the spikes solitary or clustered; staminate flower of 3 stamens in axil of a scale; carpellate flower of 2 or 3 united carpels, enclosed in a sac (perigynium) which is in axil of a scale, stigmas protruding from tip of perigynium at anthesis; ovary 1-loculed; fruit an achene.

KEYS TO THE SPECIES-GROUPS

- a Stigmas 2; achene lenticular.
  - b Spikes similar in appearance, sessile, usually both staminate and carpellate flowers in each.
    - c At least the terminal spike with staminate flowers at tip and carpellate flowers at base (androgynous), or some plants largely pistillate and others largely staminate (in *C. praegracilis*).
      - d Culms scattered on long stout rhizomes with blackish scales, upper stem angles scabrous. II. DIVISAE
      - d' Culms tufted, from usually short thick rhizomes.
        - e Culms soft, easily compressed; inner band of leaf-sheath usually cross-wrinkled or red-dotted; perigynium-base spongy or corky; spikes all on main axis or some on lateral branches. V. VULPINAE
        - e' Culms firm, not easily compressed; perigynium-base sometimes spongy or corky.
          - f Spikes usually fewer than 10, all on main axis of inflorescence, sometimes not separated; perigynium usually plano-convex, usually green. III. BRACTEOSAE
          - f' Spikes many, usually some attached to lateral branches of main axis; inner band of leaf-sheath cross-wrinkled or red-dotted or red-brown at mouth.
            - g Perigynia flattened, pale; inner band of leaf-sheath cross-wrinkled; bracts of inflorescence usually several, setaceous. IV. MULTIFLORAE
            - g' Perigynia biconvex, dark at maturity; inner band of sheath red-dotted or with red-brown mouth, not wrinkled; bracts usually short and few. VI. PANICULATAE
      - c' At least the terminal spike with staminate flowers at base (gynecandrous) or scattered among the carpellate flowers.
        - h Perigynium very flat, scalelike, margin winged, base not thick or corky. X. OVALES
        - h' Perigynium not so flat, margin sometimes thin, not winged, base thickened or corky.
          - i Perigynium narrowly lanceolate, 4 mm long or more, closely appressed. IX. DEWEYANAE
          - i' Perigynium shorter than above.
            - j Perigynium ellipsoid, not bent outward, length about twice width, finely dotted, abruptly narrowed to short, not thin-edged, beak. VII. HELEONASTES
            - j' Perigynium lance- to round-ovate, strongly bent outward at maturity, firm, not dotted, length less than twice width or beak thin-edged. VIII. STELLULATAE
    - b' Spikes not all similar in appearance, the lowest usually carpellate, sometimes peduncled.
      - k Scales with rough awns; achenes indented on one side; scales merely brown on sides. XXIII. CRYPTOCARPAE
      - k' Scales obtuse to acuminate; achenes not indented on one side; perigynium biconvex, plano-convex, or flattened, usually with short beak; bracts sheath-less or nearly so; scales dark.
        - l Perigynium-tip twisted or bent at maturity; carpellate spikes often curved. XXIII. CRYPTOCARPAE
        - l' Perigynium-tip not twisted; carpellate spikes erect; perigynium biconvex or flattened. XXIV. ACUTAE
  - a' Stigmas 3; achene 3-angled or terete.
    - m Style jointed with the achene, deciduous from mature achene.
      - n Margins of staminate scales overlapping around axis of spikes or somewhat united; spike 1 per culm, or additional ones on slender almost basal peduncles.
        - o Perigynium beakless, with blunt, usually notched, apex. I. POLYTRICHOIDEAE
        - o' Perigynium beaked; lowest carpellate scale leaflike. XI. PHYLLOSTACHYAE
      - n' Margins of staminate scales not overlapping, not united; spikes 2 or more per culm, uppermost usually wholly or partly staminate, lowest usually carpellate.
        - p Bract at base of inflorescence without, or with very short, sheath.
          - q Perigynia or blades or sheaths pubescent or puberulent, or perigynia scabrous.
            - r Terminal spike carpellate above or, if wholly staminate, then perigynium beakless. XIX. VIRESCENTES
            - r' Terminal spike wholly staminate; perigynium beaked, pubescent, sometimes minutely so; beak straight.
              - s Culms, blades, and sheaths pubescent. XIII. TRIQUETRAE



- s' Culms and blades glabrous; sheaths usually glabrous.
  - t Carpellate spikes globose or oblong, usually 1 cm long or less, not more than 3 cm apart; plants low; perigynium stipitate. XII. MONTANAE
  - t' Carpellate spikes 1.5-5 cm long, cylindrical, far apart. XX. HIRTAE
- q' Perigynia, blades, and sheaths glabrous.
  - u Perigynium with evident beak; carpellate spikes linear-cylindric, the lower long-peduncled and drooping; perigynium 2-edged, later bulging with 3-angled achene. XVIII. GRACILLIMAE
  - u' Perigynium beakless or almost beakless; terminal spike carpellate above, staminate below.
  - v Perigynium as wide as long, obovoid, cross-wrinkled. XXI. SHORTIANAE
  - v' Perigynium ellipsoid, green or whitish, papillate, not cross-wrinkled. XXII. ATRATAE
- p' Bract at base of inflorescence with long closed sheath.
  - w Bract at base of inflorescence bladeless or with rudimentary blade; blades 10-25 mm wide; sheaths red-tinged. XV. LAXIFLORAE
  - w' Bract at base of inflorescence with well-developed blade.
    - x Perigynia densely hairy; lateral spikes far apart, subsessile. XX. HIRTAE
    - x' Perigynia glabrous or puberulent or with a few hairs near beak, ascending; carpellate spikes oblong- to linear-cylindric.
      - y Terminal spike carpellate above, staminate below; perigynia beakless or short-beaked, lateral spikes usually drooping. XVIII. GRACILLIMAE
      - y' Terminal spike staminate or, if rarely not, then perigynia obviously beaked; carpellate spikes short, linear or oblong, ascending or erect, if rarely drooping, then perigynia sharply 3-angled.
        - z Nerves of perigynia impressed, many, fine. XVII. OLIGOCARPAE
        - z' Nerves of perigynia raised.
          - aa Perigynia rounded at base, subterete, symmetric. XVI. GRANULARES
          - aa' Perigynia tapering to base, 3-angled, often asymmetric.
            - bb Carpellate scales usually white or pale with green centers; leaf-blades flat, 2-40 mm wide. XV. LAXIFLORAE
            - bb' Carpellate scales red or purple; leaf-blades sometimes plicate or rolled, usually 4 mm wide or less. XIV. PANICEAE
  - m' Style not jointed with achene, persistent.
    - cc Body of perigynium obovoid, truncate at top; spike sometimes 1. XXVII. SQUARROSAE
    - cc' Body of perigynium not obovoid and truncate.
      - dd Perigynia firm, sometimes with long out-curved teeth, sometimes pubescent; basal sheaths usually red. XXVI. PALUDOSAE
      - dd' Perigynia papery, inflated, usually glabrous.
        - ee Awns of carpellate scales rough, as long as or longer than blade of scales.
          - ff Perigynia about 10-nerved. XXVIII. VESICARIAE
          - ff' Perigynia 12-20-nerved. XXV. PSEUDOCYPHEREAE
        - ee' Awns of carpellate scales absent or shorter than blades of scales or not rough.
          - gg Perigynia usually less than 10 mm long; nerves 12 or fewer. XXVIII. VESICARIAE
          - gg' Perigynia 10 mm long or more; nerves more than 12. XXIX. LUPULINAE

#### I. POLYTRICHOIDEAE

One species in Franklin Co. 1. *C. leptalea*

#### II. DIVISAE

One species in Franklin Co. 2. *C. praeagrabilis*

#### III. BRACTEOSAE (PHAESTOGLOCHIN)

a Leaf-sheaths tight, usually neither green and white mottled nor septate-nodulose.

- b Perigynium spongy at base.
  - c Perigynium-beak smooth-margined; scales acuminate to cuspidate; blades 1-3 mm wide; lower spikes separate. 5. *C. retroflexa* var. *texensis*
  - c' Perigynium-beak serrate-margined; scales obtuse, white with green midvein; blades 3 mm or less wide; spikes separate. 6. *C. rosea*
- b' Perigynium not spongy at base; spikes contiguous.
  - d Perigynium widest near truncate base, 2-3.5 mm long; blades 1-3 mm wide; inflorescence oblong to ovoid. 4. *C. leavenworthii*
  - d' Perigynium widest at about middle, base rounded or tapering, 2.5 mm long; blades 1-4 mm wide; spikes in a dense ovoid head. 3. *C. cephalophora*
- a' Leaf-sheaths loose, green and white mottled, septate-nodulose; perigynia green, longer than the scales. 7. *C. sparganioides*,
  - e Top of inner band of leaf-sheath firm; stigmas long, var. *aggregata*
  - e' Top of inner band of leaf-sheath fragile; stigmas short.
  - f Spikes usually contiguous; inflorescence to 4 cm long, var. *cephaloidea*
  - f' At least lower spikes separated; inflorescence to 15 cm long, var. *sparganioides*

#### IV. MULTIFLORAE

- a Leaves usually equaling or overtopping culm; beak of perigynium  $\frac{1}{2}$  as long as body or more. 8. *C. vulpinoidea* var. *vulpinoidea*
- a' Leaves usually shorter than culm; beak of perigynium less than half as long as body (*C. annectens*). 8. *C. vulpinoidea* var. *ambigua*

#### V. VULPINAE

- a Beak of perigynium not longer than body. 11. *C. conjuncta*
- a' Beak of perigynium longer than body.
  - b Thin band of leaf-sheath fragile, prolonged at top, usually cross-wrinkled. 9. *C. stipata*
  - b' Thin band of leaf-sheath firm, concave or truncate at top, usually not cross-wrinkled. 10. *C. laevivaginata*

#### VI. PANICULATAE

- a Perigynium obovoid, biconvex, abruptly narrowed to beak. 12. *C. decomposita*
- a' Perigynium ovoid or lance-ovoid, gradually tapering to beak. 13. *C. diandra*

#### VII. HELEONASTES

One species in Franklin Co. 14. *C. canescens*

#### VIII. STELLULATAE

One species in Franklin Co. 15. *C. atlantica*

#### IX. DEWEYANAE

One species in Franklin Co. 16. *C. bromoides*

#### X. OVALES

- a Perigynium lanceolate, gradually tapering from near base to tip of beak, at least 3 times as long as wide.
  - b Spikes acute at both ends, 1.5-2.5 cm long; perigynium 7-10 mm long. 17. *C. muskingumensis*
  - b' Spikes and perigynium shorter; perigynium not more than 2 mm wide; sheaths green-striped on ventral side. 18. *C. tribuloides*

- a' Perigynium lanceolate to broadly ovate, less than 3 times as long as wide, usually, but not always, abruptly narrowed to beak.
- c Tips of perigynia at maturity strongly spreading, beak usually twisted at base; wing ending abruptly at about middle of achene; sheaths loose; blades 3-7 mm wide. 19. *C. cristatella*
- c' Tips of perigynia not strongly spreading, beak not twisted.
  - d Scales awn-tipped, narrower and somewhat shorter than the perigynia; spikes often with an elongate staminate base. 24. *C. straminea*
  - d' Scales not awn-tipped, not reaching to tip of perigynium-beak.
    - e Perigynium not more than 2 mm wide; sheaths prolonged ventrally, green and white mottled.
      - f Blades mostly 4-6 mm wide; inflorescence rarely moniliform, if so, straight; perigynium about 7-nerved on upper face. 21. *C. normalis*
      - f' Blades mostly less than 4 mm wide; inflorescence moniliform, arching; spikes with long staminate bases; style bent just above achene. 22. *C. festucacea*
    - e' Perigynium more than 2 mm wide, abruptly narrowed to beak.
      - g Spikes subacute at tip and base; blades 2-3 mm wide; inner side of sheath green. 23. *C. suberecta*
      - g' Spikes usually rounded at tip; inner side of sheath partly hyaline. 20. *C. brevior*

#### XI. PHYLLOSTACHYAE

- a Body of perigynium and of achene oblong; staminate scales 6-12, tapering or rounded at tip; carpellate flowers 3-10. 25. *C. willdenowii*
- a' Body of perigynium and of achene globose; staminate scales 8-20, truncate and erose at tip; carpellate flowers 2-4. 26. *C. jamesii*

#### XII. MONTANAE

- a Culms very short, much exceeded and often concealed by the leaves growing in dense low basally fibrillose tufts; spikes near-basal, staminate spike terminal, alone or associated with a pistillate spike. 30. *C. umbellata*
- a' Culms not as above; spikes all borne close together above the middle of the stem, the terminal one staminate, the lateral ones pistillate.
  - b Body of perigynium about as long as wide, subglobose.
    - c With long rhizomes; lower sheaths strongly fibrillose; achene-tip not bent. 29. *C. pennsylvanica*
    - c' Without long rhizomes; lower sheaths not or little fibrillose; achene-tip bent. 28. *C. communis*
  - b' Body of perigynium longer than wide, not hidden by scales; spikes separated; stem erect to ascending. 27. *C. albicans* var. *albicans*

#### XIII. TRIQUETRAE

One species in Franklin Co. 31. *C. hirtifolia*

#### XIV. PANICEAE

- a Blades gray-green or glaucous, stiff; carpellate spikes dense, 5-10 mm thick. 32. *C. meadii*
- a' Blades green, thin; carpellate spikes 3-5 mm thick, lower perigynia remote. 33. *C. tetanica* (See a".)
- a" Blades green, not thick; lower sheaths bladeless, red; perigynia 2-3-ranked. 34. *C. woodii*

#### XV. LAXIFLORAE

- a Perigynia acutely angled above, tapering to short base, many-nerved.
  - b Blade of lowest bract-sheath not more than 3 times as long as sheath.
    - c Sheaths red-purple; perigynium 5-6.5 mm long, beak conic. 39. *C. careyana*
    - c' Sheaths green; perigynium 2.5-4.5 mm long, beak short. 40. *C. platyphylla*
  - b' Blade of lowest bract-sheath more than 3 times as long as sheath; peduncles of carpellate spikes slender, drooping.

- d Carpellate spike with 1 or 2 staminate flowers at base; rosette blades 6-12 mm wide, often glaucous. **42. *C. laxiculmis***
- d' Carpellate spike with no staminate flowers at base, perigynia alternate; rosette blades usually 5 mm wide or less. **41. *C. digitalis***
- a' Perigynia long-tapering to base, its 3 angles obtuse.
  - e Culm winged; rosette leaves to 3.5 cm wide; carpellate scales fan-shaped, truncate, whitish with green midvein, shorter than perigynia, awnless. **38. *C. albursina***
  - e' Culm not winged; carpellate scales with long or short awn.
    - f Flowerless shoots with culms; perigynia strongly asymmetric.
      - g Staminate spike short and sessile, often hidden; carpellate spikes short and densely-flowered; perigynium-beak short, abruptly bent. **37. *C. blanda***
      - g' Staminate spike usually long-peduncled; carpellate spike not crowded, perigynia gradually tapering to conspicuous outwardly curved beak. **36. *C. gracilescens***
    - f' Flowerless shoots without culms; perigynia not strongly asymmetric, beak not much curved, whitish. **35. *C. laxiflora***

#### XVI. GRANULARES

One species in Franklin Co. **43. *C. granularis***

#### XVII. OLIGOCARPAE

- a Carpellate spikes dense; perigynium-beak short.
  - b Leaves usually green; carpellate spikes 3-20-flowered. **46. *C. amphibola***
  - b' Leaves glaucous; carpellate spikes 7-60-flowered. **47. *C. flaccosperma***
- a' Perigynia few or remote in spikes, with definite beaks.
  - c Bract-sheath glabrous; achene-beak not bent. **45. *C. oligocarpa***
  - c' Bract-sheath hispid; achene-beak bent. **44. *C. hitchcockiana***

#### XVIII. GRACILLIMAE

- a Blades pubescent. **50. *C. davisii***
- a' Blades glabrous.
  - b Perigynium ovate, beak prominent, curving. **48. *C. prasina***
  - b' Perigynium ellipsoid, beakless. **49. *C. gracillima***

#### XIX. VIRESCENTES

- a Perigynia glabrous. **53. *C. complanata***
- a' Perigynia pubescent.
  - b Carpellate spikes subglobose to short-cylindric; achene-tip bent. **52. *C. swanii***
  - b' Carpellate spikes linear-cylindric; achene-tip not bent. **51. *C. virescens***

#### XX. HIRTAE

One species in Franklin Co. **54. *C. pellita***

#### XXI. SHORTIANAE

One species in Franklin Co. **55. *C. shortiana***

#### XXII. ATRATAE

One species in Franklin Co. 56. *C. buxbaumii*

### XXIII. CRYPTOCARPAE

- a Pistillate scales obtuse, sides blackish or deep purple-brown. 57. *C. torta*
- a' Pistillate scales awned, sides coppery-brown; sheaths smooth. 58. *C. crinita* var. *crinita*

### XXIV. ACUTAE

- a Carpellate spikes usually 1-3 cm long, rarely staminate at tip, scales spreading at maturity; lower sheaths bladeless, rarely fibrillose; perigynium somewhat inflated. *C. haydenii* Dew., treated under 59. *C. aquatilis*
- a' Carpellate spikes to 6 cm long or more, sometimes staminate at tip; scales not spreading.
  - b Perigynium flattened, obovate or elliptic; lower sheaths with blades; blades rough toward apex. 59. *C. aquatilis*
  - b' Perigynium biconvex; lower sheaths bladeless.
    - c Basal sheaths often fibrillose; lowest carpellate spike usually remote. 61. *C. stricta*
    - c' Basal sheaths not fibrillose; carpellate spikes usually overlapping. 60. *C. emoryi*

### XXV. PSEUDOCYPHEREAE

- a Teeth of perigynium outwardly curved, 1-2 mm long. 63. *C. comosa*
- a' Teeth of perigynium erect, 1 mm long or less. 62. *C. hystericina*

### XXVI. PALUDOSAE

- a Perigynia pubescent and sheaths glabrous; beaks and teeth prominent. 66. *C. trichocarpa*
- a' Perigynia and sheaths glabrous; teeth less than 1 mm long.
  - b Nerves of perigynium conspicuous, raised; ligule twice as long as wide; lower sheaths fibrillose. 64. *C. lacustris*
  - b' Nerves of perigynium faint, impressed; ligule not twice as long as wide; lower sheaths not fibrillose. 65. *C. hyalinolepis*

### XXVII. SQUARROSAE

- a Carpellate scales long-awned, exceeding perigynia; terminal spikes usually wholly staminate; bracts as long as entire culm. 67. *C. frankii*
- a' Carpellate scales awnless or short-awned, shorter than perigynia; terminal spike carpellate above; bracts shorter than culm.
  - b Spike usually solitary; perigynia-beaks spreading or reflexed; style bent at base. 68. *C. squarrosa*
  - b' Spikes one or more; perigynia-beaks ascending; style straight or bent above base. 69. *C. typhina*

### XXVIII. VESICARIAE

- a Pistillate scales with a slender awn at least as long as the body. 73. *C. lurida*
- a' Pistillate scales acute to acuminate or short-awned.
  - b Achenes constricted on one side; perigynia 5 mm wide or more. 71. *C. tuckermanii*
  - b' Achenes not constricted on one side; perigynia less than 4 mm wide.
    - c Perigynia ascending; lower sheaths fibrillose; stem sharply angled above; leaves not conspicuously septate-nodulose. 70. *C. vesicaria*
    - c' Perigynia spreading to horizontal; lower sheaths not fibrillose; stems bluntly angled above; leaves conspicuously septate-nodulose, spongy at base. 72. *C. rostrata*

### XXIX. LUPULINAE

- a Carpellate spikes spherical.
  - b Perigynia smooth, shining, usually 12 or fewer to a spike; achene angled, angles blunt. 75. *C. intumescens*

- b' Perigynia usually hairy below middle, dull, usually more than 12 to a spike; achene obscurely angled.

74. *C. grayi*

- a' Carpellate spikes oblong or cylindrical.  
c Achenes as long as wide, sides concave, angles prominently knobbed. 77. *C. lupuliformis*  
c' Achenes longer than wide, sides flat or slightly concave. 76. *C. lupulina*

1. *Carex leptalea* Wahlenb.

Sedge

Stigmas 3; achene 3-angled; margins of staminate scales overlapping around axis of spike; perigynium beakless, with a blunt notched apex; both the staminate and carpellate flowers appear as one terminal spike per culm. Syn.: *C. polytrichoides* Muhl.

REFERENCES: Sullivant 1840:53; Selby & Craig 1890:17; Braun 1967:247 (in swamps and boggy woods, and on wet cliffs) (illus. p. 248).

HERBARIUM RECORDS: 1840—Cols., Sullivant; [ca. 1840]—Cols., Sullivant (URB); 23 Jun 1891—Cols., Werner.

2. \**Carex praegracilis* W.Boott

Freeway Sedge

Naturalized (native of W North America)

Perigynium 2.5-3.0 mm long, beak about a third as long as the body (does not appear to be close to 10 perigynia in a spike); culms rough below the spikes. Open saline habitats along verges of major highways.

REFERENCES: Cusick 1984:103-106; Reznicek & Catling 1987:205-216.

HERBARIUM RECORD: 26 May 1982—median of Rt. I-71, uncommon, 0.15-0.2 mi. S of Delaware Co. line, Sharon Twp., Galena Quad., Cusick 21608.

NOTE: The gross dimensions of the plant (except for the above perigynium dimension) fits *Carex praegracilis*. Not treated by Braun (1967).

3. *Carex cephalophora* Muhl.

Sedge

Stigmas 2; achene lenticular; perigynium widest at about middle; inflorescence contiguous, ovoid, short, about 1-2 cm long, broadened near base; spikes compact, contiguous; perigynium 2.5-3.0 mm long.

REFERENCES: Sullivant 1840:52; Selby & Craig 1890:17; Selby 1891a:111a (#870 Re-collected); Braun 1967:229 (illus. p. 228).

HERBARIUM RECORDS: 1840—Cols., Sullivant; [ca. 1840]—Cols., Sullivant (URB); May 1891—Cols., Werner (CLM); 21 May 1891—Cols., Werner (CLM); 22 May 1899—Big Darby, Selby; 24 Oct 1902—Alum Creek Station, W. Kellerman 3995; 7 Jun 1907—Worthington, W. Kellerman; 3 Jun 1988—Highbanks Metro Park (Delaware Co.), woods directly N of Franklin/Delaware Co. line, Watts 422 (OS, OWU); 11 Jun 1989—Highbanks Metro Park (Delaware Co.), common in woods directly N of Franklin/Delaware Co. line, Watts 476; 19 May 1992—Battelle-Darby Creek Metro Park, oak woods W of Big Darby Creek N of Gardner Rd., Pleasant Twp., Watts 619.

4. †*Carex leavenworthii* Dewey

Sedge

Stigmas 2; achene lenticular; terminal spike with staminate flowers at tip and carpellate flowers at base; culms tufted, firm; leaf-sheaths tight; perigynium plano-convex, widest near truncate base, 2.5-3.0 mm long, inflorescence oblong to ovoid, spikes contiguous.

REFERENCE: Braun 1967:229 (in woods and woodland borders, or occasionally on roadsides) (illus. p. 228).

HERBARIUM RECORD: 8 Jun 1931—Westerville, Hicks.

5. †*Carex retroflexa* Muhl. var. *texensis* (Torr.) Fernald

Texas Sedge

Stigmas 2; achene lenticular; terminal spike with staminate flowers at tip and carpellate flowers at base; spikes usually fewer than 10, all on main axis of inflorescence, sometimes not separated; culms tufted, firm; perigynium spongy at base, plano-convex, nerveless; perigynium-beak smooth-margined; scales acuminate to cuspidate. Lawns. Syn.: *C. texensis* (Torr.) L.H.Bailey

REFERENCES: Braun 1967:227 (occasional in lawns of open grassy places); Stuckey & Roberts 1982:45 (first reported for Ohio from a lawn in Franklin Co. by Schaffner (1929) and by Waller (1929), both authors considered it an introduction).

HERBARIUM RECORDS: 17 May 1930—growing under trees in Goodale Park, Cols., J. H. Schaffner; 4 Jun 1986—Piedmont Rd., local, shaded lawns, E of N. High St., NW Cols. Quad., Cusick 25332; 12 Jun 1986—Greenlawn Cemetery, frequent shaded lawns under pines, SW Cols. Quad., Cusick 25352 (MU).

6. *Carex rosea* Schkuhr

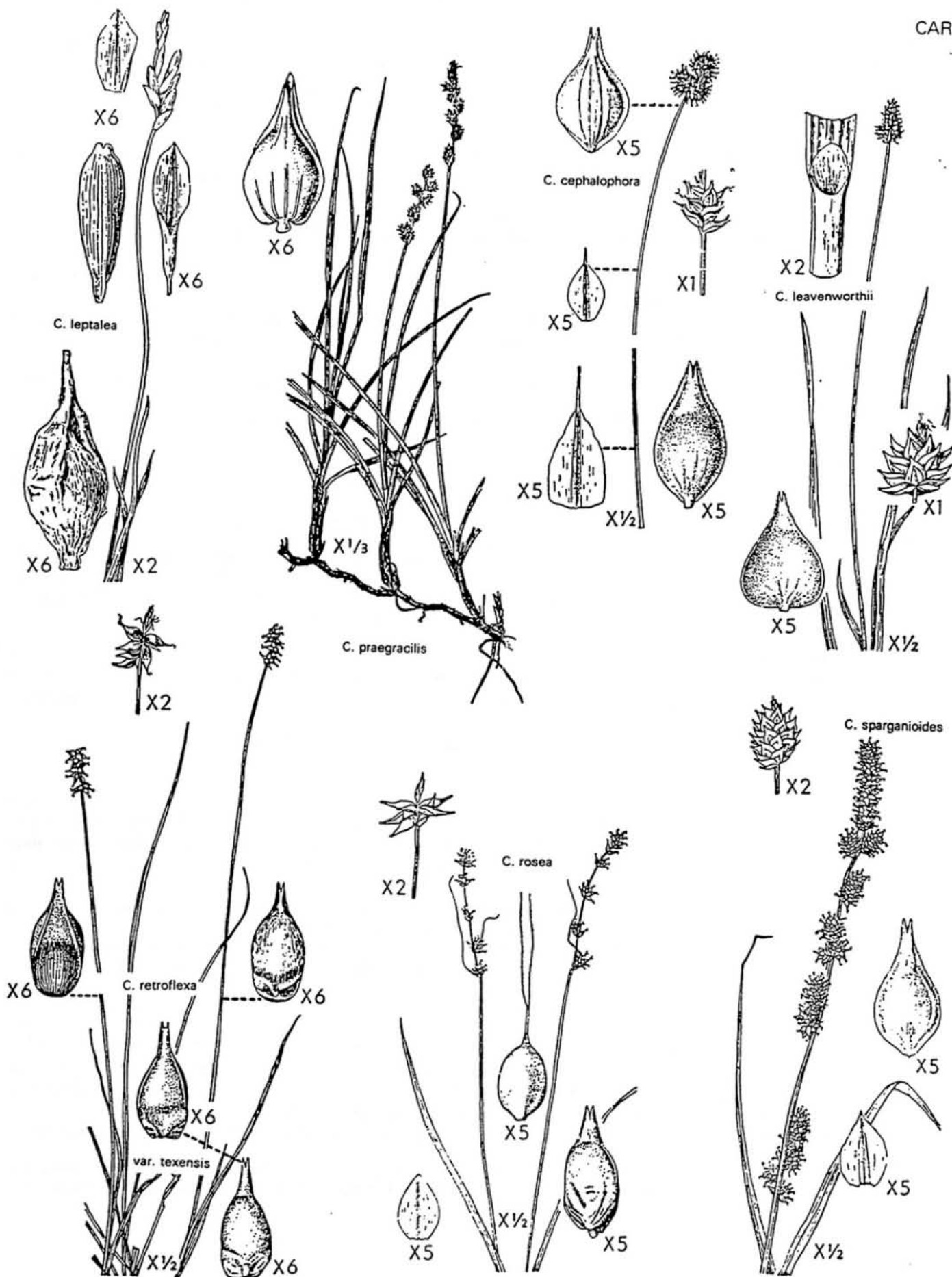
Sedge

Culms tufted, erect or ascending, slender; stigmas 2, slender, recurved, pale-deep red; achene lenticular; terminal spike with staminate flowers at tip and carpellate flowers at base; spikes all on main axis of inflorescence, fewer than 10, separate; perigynium about 3 mm long, plano-convex, spongy at base, beak serrate-margined; scales white with green midvein, obtuse; stems erect; blades 1.0-2.5 mm wide, pale-deep green. Syn.: *C. convoluta* Mack.

REFERENCES: Riddell 1836:19 (Cols., Lapham); Sullivant 1840:53; Selby & Craig 1890:17; Selby 1891a:111a (#901 Re-collected); Braun 1967:227 (woodland species) (illus. p. 228).

HERBARIUM RECORDS: 1840—Cols., Sullivant; [ca. 1840]—Cols., Sullivant (URB); 15 May 1891—Worthington, Selby; 17 May 1891—Cols., Werner (CLM); 21 May 1892—Alum Creek Station, Werner; 27 May 1893—Cols., W. Kellerman; 11 May 1895—Alum Creek, W. Kellerman; 9 May

CAREX



1899—Alum Creek, *W. Kellerman*; 2 Jun 1901—Worthington, *W. Kellerman*; 4 Jun 1931—Westerville, *Hicks*; 10 May 1977—woods, OSU property on Kenny Rd., Cols., *W. Carr 184*; 3 Jun 1988—Highbanks Metro Park, open areas in field directly N of Franklin/Delaware Co. line, *Watts 432* (OS, OWU); 21 May 1990—Highbanks Metro Park (Delaware Co.), S side of exit rd., approx. 150 yards W of Rt. 23, open moist ditch, *Watts 554* (OS, OWU).

7. *Carex sparganioides* Muhl.

Sedge

Stigmas 2; achene lenticular; terminal spike with staminate flowers at tip and carpellate flowers at base; spikes usually fewer than 10, all on main axis of inflorescence, at least lower spikes separated; perigynium usually plano-convex, green, longer than the scales; inflorescence to 12 cm long.

Three varieties are recognized:

var. *sparganioides*

Top of inner band of leaf-sheath fragile; stigmas short; at least lower spikes separated; inflorescence to 15 cm long.

Woods.

REFERENCES: Sullivant 1840:53; Craig 1890:107; Selby & Craig 1890:17; Selby 1891a:111a (#903 Re-collected); Braun 1967:230 (in woods) (illus. p. 228).

HERBARIUM RECORDS: 1839 & 12 Jun 1839—Worthington, *J. Paddock Collection* (ILL); 1840—Cols., *Sullivant*; 1891—Cols., *Werner* (CLM); May 1891—Cols., *Werner* (CLM); 26 May 1891—Cols., *Werner* (CLM); 21 May 1892—Alum Creek Station, *Werner*; 8 May 1896—Cols., *W. Kellerman*; 9 May 1899—Alum Creek, *W. Kellerman*; 22 May 1903—Big Darby, *W. Kellerman*; 22 May 1937—Prairie Twp., *Gordon*; 24 May 1963—woods along W bank of Olentangy R., N of Dodridge St., Cols., *Cusick*; 22 May 1988—Highbanks Metro Park (Delaware Co.), N of northern reservable shelter picnic area, W of entrance rd., open area in woods, *Morawetz* (OS, OWU).

†var. *aggregata* (Mack.) Gleason

Glomerate Sedge

Stigmas long; top of inner band of leaf-sheath firm. Thickets, yards and weeds in lawns. Syn.: *C. aggregata* Mack.

REFERENCE: Braun 1967:230 (illus. p. 228).

HERBARIUM RECORDS: 21 May 1891—Cols., *Werner*; 23 May 1963—dike along Olentangy R. at Sewage Disposal Plant, OSU, *Cusick*; 24 May 1963—thickets along Olentangy R., W bank, N of Dodridge St., Cols., *Cusick*; 4 Jun 1965—along fence of small yard, Neil Ave. between Eleventh Ave. and Tenth Ave., Cols., *Weishaup*; May 1972—along Forsythe Ave., weed in lawn, Cols., *D. Keil 9266*; 21 Jun 1977—Pickerington Marsh Area, disturbed woods N of Bowen Rd. just W of Fairfield Co. line, NE ¼ sect. 18, Madison Twp., *Cusick 16786* (KE); 27 May 1984—weedy tree lawn, E. 13th Ave., 1 blk. E of N. High St., SW Cols. Quad., *Cusick 23441*.

†var. *cephaloidea* (Dewey) J. Carey

Thin-leaf Sedge

Top of inner band of leaf-sheath fragile; stigmas short; spikes usually contiguous; inflorescence to 4 cm long. Syn.:

*C. cephaloidea* Dewey

REFERENCES: Selby 1891a:111a; Jones 1943:88; McCance 1984:A-67.

HERBARIUM RECORD: 21 May 1891—Cols., *Werner* (CLM).

NOTE: Not mapped for Franklin Co. by Braun 1967:230.

8. *Carex vulpinoidea* Michx.

Sedge

Stigmas 2; achene lenticular; spikes similar in appearance, at least the terminal spike with staminate flowers at tip and carpellate flowers at base; culms tufted, firm; spikes many, usually some attached to lateral branches of main axis; inner band of leaf-sheath cross-wrinkled or red-dotted; perigynia flat, pale; bracts of inflorescence usually several.

Two varieties are recognized:

†var. *vulpinoidea*

Leaves usually equaling or overtopping culm; beak of perigynium ½ as long as body or more. Syn.: *C. multiflora*

Muhl., *C. setacea* Dewey

REFERENCES: Sullivant 1840:53; Craig 1890:107; Selby & Craig 1890:17; Jones 1943:90; Braun 1967:231 (illus. p. 234).

HERBARIUM RECORDS: 24 Jul 1838 & 4 Jun 1839—Worthington, *J. Paddock Collection* (ILL); 1840—Cols., *Sullivant*; [ca. 1840]—Cols., *Sullivant* (URB); 2 Jul 1890—Cols., *E. Evans*; 2 Jul 1890—OSU grounds near Cols., *E. Green*; 2 Jul 1890—Cols., *E. V. Wilcox* (WOOS); 13 Jul 1892—Cols., *Bogue*; 22 May 1899—Big Darby, *Selby*; 25 Jun 1902—ravine, Cols., *W. Kellerman*; 11 Jul 1926—Blacklick Woods Metropolitan Park, Truro Twp., *E. Thomas*; 25 Jun 1977—Pickerington Marsh, intersection of Wright Rd. & Bowen Rd., 3 mi. W of Pickerington & 3 mi. N of Canal Winchester, Sect. 18, Madison Twp., Sect. 17, Violet Twp., Franklin/Fairfield Co. line, *Eu. Wright*; 12 Nov 1984—Gahanna Woods State Nature Preserve, swampy area nearest Taylor Station Rd. (VI), growing at border of trees and open swampy area, *Tyrrell*.

NOTE: There are Sullivant specimens labeled *Carex vulpinoidea* that were determined as *Carex laevivaginata* and *Carex stipata*. Sullivant's specimen that is *Carex vulpinoidea* has also his published name, *Carex multiflora* Muhl.

†var. *ambigua* Boott

Leaves usually shorter than culm; beak of perigynium less than half as long as body. Syn.: *C. annectens*

(E.P.Bicknell) E.P.Bicknell

REFERENCES: Braun 1967:231 (usually represented by the typical var.) (illus. p. 234); McCance 1984:A-59 (var. *xanthocarpa* (E.P.Bicknell) Wiegand).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; 9 May 1891—Big Darby, *Selby*; 20 Aug 1932—Red Hills opposite Central College, *Chapman*; 16 Jul 1972—0.3 mi. N jct. Henderson Rd. & Rt. 315, marshy region of old field, Cols., *Mossman 1092*; 16 Jul 1990—Highbanks Metro Park (Delaware Co.), open field directly N of Franklin/Delaware Co. line, ¼ mi. W of Rt. 23, *Watts 526*; 12 Jun 1992—Pickerington Pond, locally common in low muddy ground along shores of kettle lake, Madison Twp., Reynoldsburg Quad., *McCormac 4708*.



9. *Carex stipata* Muhl.

Sedge

Stigmas 2; achene lenticular; spikes similar in appearance, at least the terminal spike with staminate flowers at tip and carpellate flowers at base; perigynium base spongy or corky, spikes all on main axis or some on lateral branches; perigynium tapering from base to apex, beak longer than body; thin band of leaf-sheath fragile, prolonged at top, usually cross-wrinkled.

REFERENCE: Braun 1967:233 (illus. p. 234).

HERBARIUM RECORDS: [ca. 1840]—Cols., *Sullivant* (URB); 15 May 1891—Worthington, *Selby*; 21 May 1892—Cols. & Alum Creek Station, *Werner*; 2 Jun 1897—Cols., *W. Kellerman*; 21 May 1977—common in swamp along Olentangy R., just N of Lane Ave. bridge, Cols., *W. Carr* 231; 22 May 1986—OSU campus, along the Olentangy R., S of Drake Union, Cols., *Taylor-Lehman* 61; 7 Jun 1991—Boyer Park at end of Park St., E of Rt. 3, Westerville, Blendon Twp., *Lowden* 4664.

NOTE: *Selby* & *Craig* 1890:17 and *Kellerman* & *Werner* 1893:231 reference to *Carex stipata* are treated under *Carex laevivaginata*.

10. *Carex laevivaginata* (Kük.) Mack.

Sedge

Stigmas 2; achene lenticular; perigynium tapering from base to apex; beak of perigynium longer than body; thin band of leaf-sheath firm, concave or truncate at top, usually not cross-wrinkled. Syn.: *C. stipata* var. *laevivaginata* Kük.

REFERENCES: *Selby* & *Craig* 1890:17; *Kellerman* & *Werner* 1893:231 (frequent along the line of the brook, in the woods and along the river, Aug 1890); Braun 1967:235.

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; 15 May 1896—Cols., *W. Kellerman*; 20 May 1907—Big Darby, *W. Kellerman*.

NOTE: What *Selby* & *Craig* (1890) and *Kellerman* & *Werner* (1893) treated as *Carex stipata* Muhl. are here considered to be *Carex laevivaginata*.

11. *Carex conjuncta* Boott

Sedge

Stigmas 2; achene lenticular; inner band of leaf-sheath cross wrinkled and red-dotted; perigynium ovate, 3.5-4.0 mm long, tapering towards apex; beak of perigynium not longer than body.

REFERENCES: Boott 1862:222 (Type locality, Cols., *Sullivant*); *Craig* 1890:108; *Selby* 1891a:111a; Braun 1967:233 (open woods, creek valleys, and ditches) (illus. p. 234).

HERBARIUM RECORDS: 13 Jun 1889—Cols., *Bailey*; 26 May 1891—Cols., *Werner*; 17 May 1896—Cols., *W. Kellerman*; 26 May 1911—Westerville, *Hanawalt*.

12. †*Carex decomposita* Muhl.

Cypress-knee sedge, Large-panicled Sedge

Stigmas 2; achene lenticular; inflorescence compound, paniculate; scales triangular-ovate, about equaling the body of the perigynium; perigynia dark at maturity, biconvex, broad-obovoid, tapering at base, rounded at the summit to a rough-margined beak about a third as long as the body, strongly several-nerved in the basal half on the lower side of perigynium. Swamps.

REFERENCES: *Sullivant* 1840:52; *Selby* & *Craig* 1890:17; *Stuckey* & *Roberts* 1977:30; *Stuckey* & *Roberts* 1982:33 (a southern species of swamp and bog habitats ... it was obtained in 1838 in a cat-tail swamp 3 mi. W of Cols. in Franklin Co.); *Tyrrell* 1987a:31-32; *Tyrrell* 1987b:15-16; ODNR-DNAP 1996.

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; [ca. 1840]—Cols., *Sullivant* (URB); 6 Nov 1984 & 23 Apr 1985—Gahanna Woods State Nature Preserve, in the largest swamp site (V) in the SW corner of the preserve and swamp site (IV-A) S of the boardwalk area, *Tyrrell*; 1 Jun 1990—Gahanna Woods State Nature Preserve, W side of Taylor Station Rd., approx. ¼ mi. S of Havens Corners Rd., uncommon & local, approx. 30 plants in shallow water on edge of woodland buttonbush swamp, Jefferson Twp., New Albany Quad., *McCormac* 2518 (CLM).

NOTE: Not mapped for Franklin Co. by Braun 1967:232.

13. †*Carex diandra* Schrank

Lesser Panicled Sedge

Stigmas 2; achene lenticular; perigynium dark at maturity, biconvex, ovate to lanceolate, rounded at base, tapering to beak; upper edge of inner band of leaf-sheath pale; inflorescence paniculate. Syn.: *C. paniculata* L. var. *teretiuscula* Wahlenb., *C. teretiuscula* Gooden.

REFERENCES: *Sullivant* 1840:53; *Selby* & *Craig* 1890:17; Braun 1967:232 (illus. p. 234); *Stuckey* & *Roberts* 1977:30; *Stuckey* & *Roberts* 1982:33; *McCance* 1984:A-71.

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; [ca. 1840]—Cols., *Sullivant* (URB); 17 May 1931—Baumgardner's Pond, Jackson Twp., *Gordon*; 1 Jun 1931—near Shadesville Rd., *Bartley* & *Pontius*.

14. *Carex canescens* L. var. *disjuncta* Fernald

Sedge

Stigma 2; achene lenticular; perigynia plano-convex; culms slender; spikes more than 3, slightly separated, usually with more than 10 flowers; leaves glaucous.

REFERENCE: Braun 1967:236 (illus. p. 234).

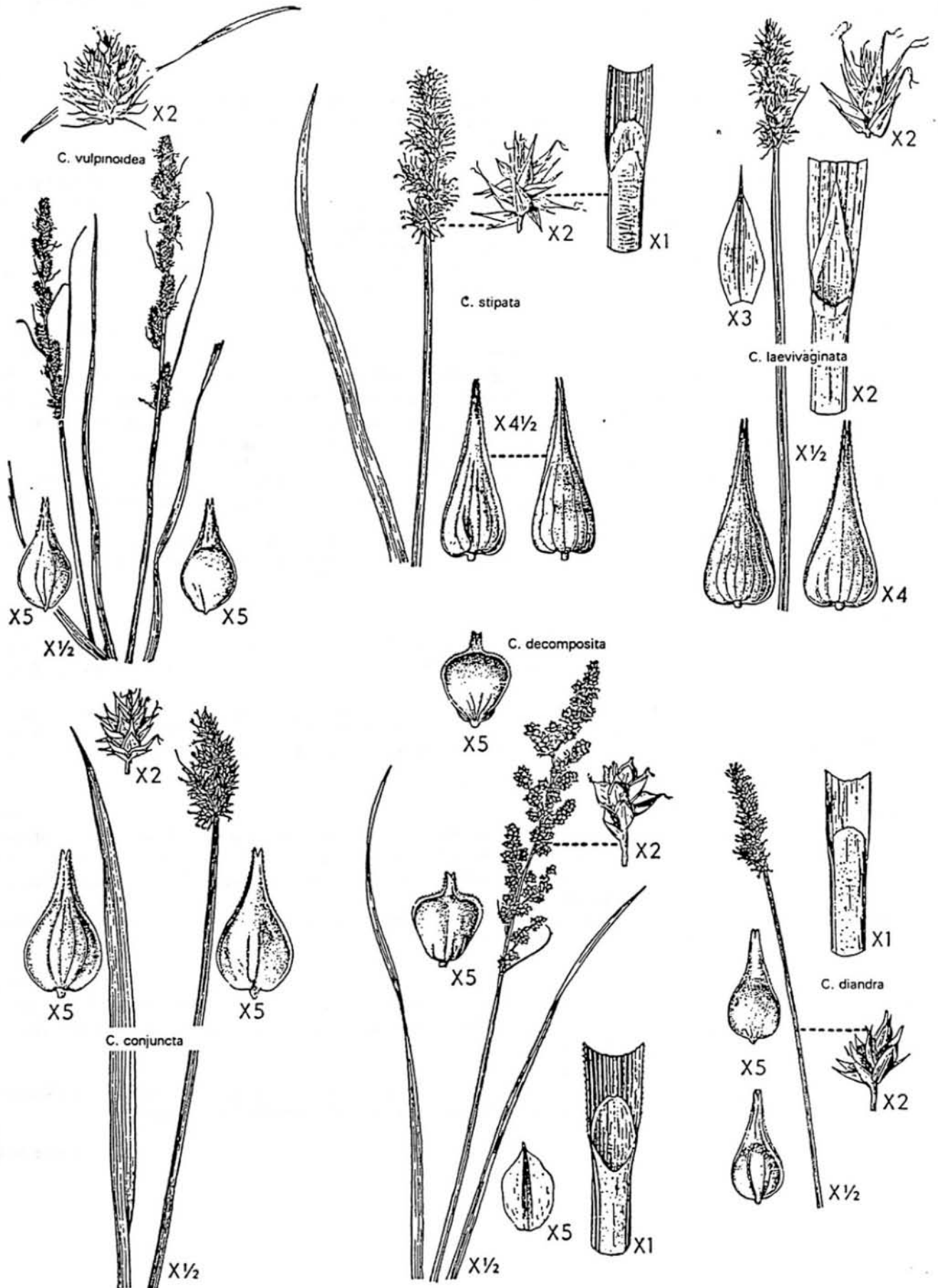
HERBARIUM RECORD: 1891—Cols., *Werner*.

15. †*Carex atlantica* L.H. Bailey

Prickly Bog Sedge

Stigmas 2; achene lenticular; perigynium broadly ovate, width 2/3-3/4 length, base truncate or cordate, lower half spongy, strongly bent outward at maturity, firm, widest near base, both faces strongly nerved, on lower face the lateral

CAREX



nerves strongly bowed outward at base; beak serrulate; perigynium-teeth obvious, to 0.5 mm long; scales 2/3 length of body or more. Syn.: *C. howei* Mack., *C. incompta* E.P.Bicknell  
REFERENCES: Sullivant 1840:53 (*Carex stellulata* Gooden.); Selby & Craig 1890:17 (*Carex echinata* Murray var.?, *Carex stellulata* Gooden.).  
HERBARIUM RECORDS: 1840—Cols., Sullivant; [ca. 1840]—Cols., Sullivant (URB).  
NOTE: Not mapped for Franklin Co. by Braun 1967:238.

16. *Carex bromoides* Willd.

Sedge

Stigmas 2; achene lenticular; perigynium 4.0 mm long, narrowly lanceolate, strongly nerved, base corky.  
REFERENCES: Sullivant 1840:52; Selby & Craig 1890:17; Selby 1891a:111a (#867 Re-collected); Braun 1967:239 (illus. p. 234).  
HERBARIUM RECORDS: 1840—Cols., Sullivant; [ca. 1840]—Cols., Sullivant (URB).

17. †*Carex muskingumensis* Schwein.

Muskingum Sedge

Stigmas 2; achene lenticular; perigynium lanceolate, tapering from near base to tip of beak, 7-10 mm long, flat, scalelike, margin winged; spikes acute at both ends, 1.5-2.5 cm long. Syn.: *C. arida* Schwein. & Torr.  
REFERENCES: Sullivant 1840:52, 62; Selby 1891a:111a; Braun 1967:241 (on floodplains and in swampy woods) (illus. p. 242).  
HERBARIUM RECORDS: 1840—Cols., Sullivant; [ca. 1840]—Cols., Sullivant (URB); 1842—Cols., Sullivant; 15 Sep 1932—Westerville, Camp.  
NOTE: In addition, both Sullivant (1840) and Selby (1891) used the name *Carex scoparia* Schkuhr with this taxon.

18. *Carex tribuloides* Wahlenb.

Blunt Broom Sedge

Blades wider than 3 mm; sheaths green-striped on ventral side; stigmas 2; achene lenticular; spikes similar in appearance, staminate flowers at base of spikes; perigynium lanceolate, very flat, scalelike, margin winged to about middle of achene, base not thick or corky, gradually tapering from near base to tip of beak, at least 3 times as long as wide, not more than 2 mm wide; inflorescence not moniliform. Syn.: *C. tribuloides* var. *crinata* L.H.Bailey  
REFERENCES: Craig 1890:108 (*Carex lagopodioides* Schkuhr); Selby & Craig 1890:17 (#914 & 915); Braun 1967:241 (illus. p. 241).  
HERBARIUM RECORDS: 24 Jul 1838 & 12 Jun 1839—Worthington, J. Paddock Collection (ILL); 1 Jul 1891—Georgesville, Werner, 7 & 12 Jul 1892—Cols., Bogue; 11 Jul 1926—Blacklick Woods Metropolitan Park, Truro Twp., E. Thomas; 30 Jun 1963—E bank of Olentangy R., W of French Field House, Cusick; 25 Jun & 30 Jul 1977—Pickerington Marsh, intersection of Wright Rd. & Bowen Rd., 3 mi. W of Pickerington & 3 mi. N of Canal Winchester, Sect. 18, Madison Twp., Sect. 17, Violet Twp., Franklin/Fairfield Co. line, Eu. Wright; 29 May 1984—SE corner of State Fairgrounds, N of E. 11th Ave., SE Cols. Quad., Cusick 23442; 6 Nov 1984—Gahanna Woods State Nature Preserve, border of large buttonbush swamp at SW corner of the preserve (V), Tyrrell; 23 Jun 1987—Woodland Memorial Park, 1 mi. S of Rt. 161 on I-71, in the Forest Park subdivision, Sharon Twp., T. Lammers & Lewis 6125.

19. *Carex cristatella* Britton

Sedge

Inflorescence dense, spikes almost spherical; stigmas 2; achene lenticular; perigynium broadly ovate, tips at maturity spreading, usually twisted at base of beak, wing ending at about middle of achene; sheaths loose. Syn.: *C. cristata* Schwein., a preoccupied name  
REFERENCES: Sullivant 1840:52; Craig 1890:108; Braun 1967:243 (in swamps, wet woods, along streams and roadside-ditches) (illus. p. 242).  
HERBARIUM RECORDS: 1840—Cols., Sullivant; [ca. 1840]—Cols., Sullivant (URB); 1890—Franklin Co., Selby; 1 Jul 1891—Georgesville, Werner (CLM, OS); 16 Jul 1972—marshy region of old field, 0.3 mi. N jct. Henderson Rd. & Rt. 315, Cols., Mossman 1091; Summer 1988—along the Olentangy R., OSU campus, Cols., Delong.

20. †*Carex brevior* (Dewey) Mack.

Sedge

Stigmas 2; achene lenticular; terminal spike with staminate flowers at base or scattered among the carpellate flowers; perigynium flat, lanceolate to broadly ovate, more than 2 mm wide, scalelike, broadest near base, margin winged; spikes rounded at apex and base; scales reaching only to base of perigynium-beak. Syn.: *C. molesta* Mackenz.  
REFERENCE: Braun 1967:246 (dry open woods and ditches) (illus. p. 244).  
HERBARIUM RECORDS: [ca. 1840]—Cols., Sullivant (mixed with *Carex suberecta*); 27 Jun 1892—near sidewalk on E. Ninth Ave., Cols., Werner; 22 May 1963—E shore of Olentangy R. behind OSU Hospital, Cusick.

21. *Carex normalis* Mack.

Sedge

Stigmas 2; achene lenticular; perigynium not more than 2 mm wide, lanceolate, flat, margin winged, about 7-nerved on upper face; sheaths prolonged ventrally; blades mostly 4-5 mm wide; spikes not densely crowded in a compact inflorescence; inflorescence slightly moniliform but straight.  
REFERENCE: Braun 1967:245 (woodland species) (illus. p. 244).  
HERBARIUM RECORDS: May 1891—Cols., Werner (CLM, OS); 19 May 1891—Cols., Werner (CLM); 24 May 1963—berm, Dodridge St. at bridge over Olentangy R., Cusick; 7 Jun 1991—Boyer Park at end of Park St., E of Rt. 3, Westerville, Blendon Twp., Lowden 4671.

22. †*Carex festucacea* Schkuhr

Fescue Sedge

Stigmas 2; achene lenticular; perigynium with suborbicular body, flat, firm, margin winged to base; perigynia less than 2 mm wide and 4 mm long; inflorescence usually moniliform; spikes narrowed to base; blades less than 4 mm wide. Syn.: *C. straminea* Schkuhr, misapplied, *C. straminea* var. *festucacea* Tuck.

REFERENCE: Sullivant 1840:52-53.

HERBARIUM RECORD: 1840—Cols., Sullivant.

NOTE: Not mapped for Franklin Co. by Braun 1967:245 (wet woods, shaded ponds, and ditches) (illus. p. 244).

23. †*Carex suberecta* (Olney) Britton Prairie Straw Sedge

Stigmas 2; achene lenticular; spikes similar in appearance, sessile, at least the terminal spike with staminate flowers at base, perigynium very flat, scalelike, margin winged, base not thick or corky; scales not reaching to tip of perigynium-beak; perigynium more than 2 mm wide, abruptly narrowed to beak, spikes subacute at tip and base; blades 2 mm wide.

REFERENCES: Jones 1943:90; Braun 1967:246 (illus. p. 244); Stuckey & Roberts 1977:31 (marsh); Stuckey & Roberts 1982:35; McCance 1984:A-98.

HERBARIUM RECORDS: [ca. 1840]—Cols., Sullivant; 1922—Big Darby Twp., E. Thomas.

24. †*Carex straminea* Willd. Straw Sedge

Stigmas 2; achene lenticular; spikes similar in appearance, sessile; terminal spike with staminate flowers at base; perigynium very flat, scalelike, margin winged, base not thick or corky, lanceolate to broadly ovate less than 3 times as long as wide, widest at middle, beak half as long as body or longer; scales acuminate to awn-tipped; spikes with long staminate base. Syn.: ? *C. straminea* var. *brevior* Dewey, *C. straminea* var. *straminea*

REFERENCES: Selby & Craig 1890:17; Selby 1891a:111a (#907 Re-collected).

HERBARIUM RECORD: 1840—Cols., Sullivant.

NOTE: Some but not all of the scales on Sullivant's specimen are acuminate to awn-tipped. Perhaps Selby & Craig's (1890) var. *brevior* belongs here. Not mapped for Franklin Co. by Braun 1967:246 (illus. p. 244).

25. †*Carex willdenowii* Schkuhr Willdenow's Sedge

Stigmas 3; achene 3-angled; style jointed with the achene; margins of staminate scales overlapping around axis of spike; perigynium beaked, oblong; lowest carpellate scale leaflike; staminate scales 6-12, tapering or rounded at tip.

REFERENCES: Sullivant 1840:53, 62; Selby & Craig 1890:17.

HERBARIUM RECORDS: 1840—Cols., Sullivant; [ca. 1840]—Cols., Sullivant (URB).

NOTE: Not mapped for Franklin Co. by Braun 1967:249 (in dry oak woods, clearings and prairie patches) (illus. p. 248). Sullivant's specimens are mixed with *Carex jamesii*.

26. *Carex jamesii* Schwein. Sedge

Stigmas 3; achene globose; margins of staminate scales united around axis of spike; staminate scales 8-11, truncate and erose at tip; carpellate flowers 2-3; lowerst carpellate scale leaflike; perigynium globose, beak prominent, erect.

REFERENCES: Selby 1891a:111a; Braun 1967:247 (of rich woods) (illus. p. 248).

HERBARIUM RECORDS: 1840—Cols., Sullivant; [ca. 1840]—Cols., Sullivant (URB); 17 May 1891—Cols., Werner (CLM); 16 May 1980—woods along limestone bluffs, W bank Scioto R., just S of Grigg's Dam, Norwich Twp., SW ¼ NW Cols. Quad., W. Carr 2742 (MU).

NOTE: Sullivant's specimens are mixed with *Carex willdenowii*.

27. *Carex albicans* Willd. var. *albicans* Sedge

Stigmas 3; achene 3-angled; body of perigynium longer than wide; perigynium pubescent, sometimes minutely so; perigynium stipitate; stems erect. Woods. Syn.: *C. artitecta* Mack.

REFERENCE: Braun 1967:250 (a common woodland species) (illus. p. 248).

HERBARIUM RECORDS: 1890—Franklin Co., Selby; 7 May 1892—Georgesville, Werner; 21 May 1892—Cols., Werner; 1 May 1898—Cols., W. Kellerman; 29 Apr 1961—Flint Ravine, Cusick; 6 May 1962—Sinclair Woods, just N of Morse Rd., about 1 mi. E of High St., Sharon Twp., Weishaup; 9 May 1988—Highbanks Metro Park (Delaware Co.), mound bluffs woods, Watts 420; 13 May 1989—occasional on mesic wooded slope on W side of Big Darby Creek, ¼ mi. S of Rt. 665, Pleasant Twp., Harrisburg Quad., McCormac 552; 20 Apr 1991—SE corner of jct. of Rt. 665 & Graessle Rd., dry upland woods, common, Pleasant Twp., Harrisburg Quad., McCormac 3471.

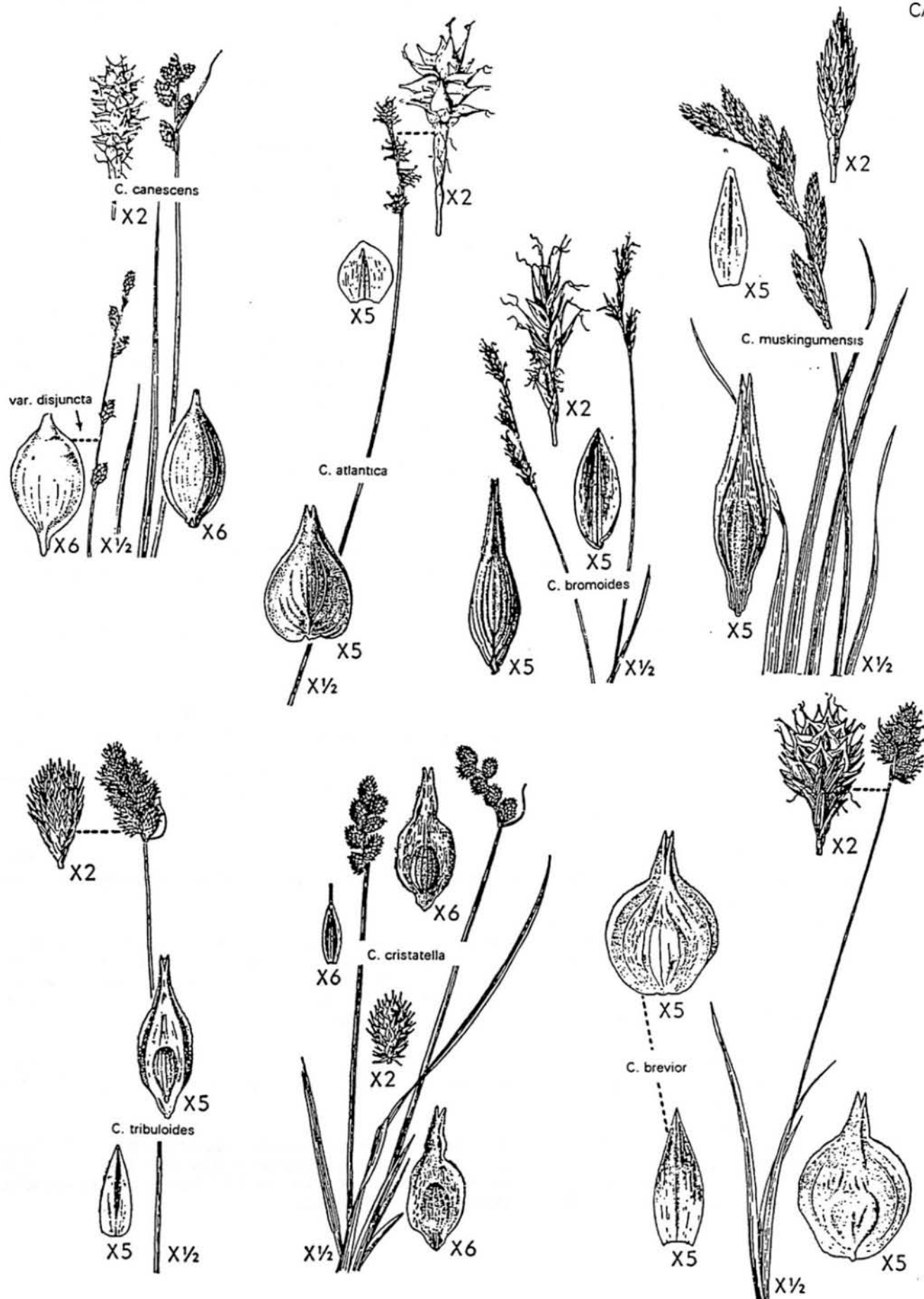
28. *Carex communis* L.H.Bailey Sedge

Stigmas 3; achene 3-angled; perigynium body about as long as wide, subglobose, pubescent, beak straight; achene tip bent; terminal spike wholly staminate; plants low.

REFERENCE: Braun 1967:250 (illus. p. 248).

HERBARIUM RECORDS: 1840—Cols., Sullivant; [ca. 1840]—Cols., Sullivant (URB); 1890—Franklin Co., Selby; 4 May 1892—Cols., Werner; 6 May 1892—Georgesville, Werner; Jan 1893—Cols., Werner; 4 May 1895—Georgesville, W. Kellerman; 15 May 1901—Worthington; 11 Jun 1989—Highbanks Metro Park (Delaware Co.), directly N of the county line, common in woods, Watts 463 (OS, OWU); 12 May 1992—Highbanks Metro Park (Delaware Co.), dry upland oak woods just N of Franklin/Delaware Co. line, Watts 617.

CAREX



29. *Carex pensylvanica* Lam.

Sedge

Stigmas 3; achene 3-angled; style jointed with the achene; bract at base of inflorescence without sheath; perigynia pubescent, stipitate, beak straight; body of perigynium subglobose about as long as wide; terminal spike wholly staminate; culms and blades glabrous; lower sheaths strongly fibrillose; achene-tip not bent.

REFERENCES: Sullivant 1840:53; Craig 1890:108 (sparingly SW of the woods along the fence, 14 May 1882, 15 Apr 1888); Selby & Craig 1890:17; Braun 1967:250 (Ohio plants belong to the typical var.; often forms extensive mats in dry oak woods) (illus. p. 248).

HERBARIUM RECORDS: 1840—Cols., Sullivant (mixed with *Carex communis*); Apr 1889—Cols., Craig; 7 May 1892—Georgesville, Werner; 3 May 1911—Gordon's Run, near Cols., Stover; 23 Apr 1935—Indian Springs, Cols., Gordon; 9 Apr 1967—woods along S bank of Darby Creek, approx. ½ mi. SW of Darbydale, Pleasant Twp., Stuckey 3412; 18 Apr 1970—Blendon Woods City Park, E of Worthington on Rt. 161, on wooded hillsides along small creek, Blendon Twp., Roberts 140; 5 Apr 1986—Highbanks Metro Park (Delaware Co.), closed forest on shale bank, Wusberger; 11 Jun 1989—Highbanks Metro Park (Delaware Co.), open field N of Franklin/Delaware Co. line, Watts 478 (OS, OWU).

30. †*Carex umbellata* Schkuhr

Clustered Sedge

Culms very short, much exceeded by the leaves; sheaths filamentose; leaves numerous and conspicuous, at flowering time 1.5 to 2.5 mm wide; terminal spike staminate, sessile or short-peduncled; carpellate scales nearly as long and wider than the perigynia but not concealing them; perigynia minutely pubescent, short-stipitate, tapering or contracted at base, the beak 2-edged; achenes triangular; stigmas 3, style jointed with achene.

REFERENCE: Andreas 1989:124.

HERBARIUM RECORDS: 20 Apr 1990—Highbanks Metro Park, approx. 100 yards S of Franklin/Delaware Co. line, common in open oak woods on shale bluffs on E bank of Olentangy R., Sharon Twp., Watts 507; 20 Apr 1990—Highbanks Metro Park (Delaware Co.), open oak woods on shale bluffs approx. 100 yards N of the Franklin/Delaware Co. line, Watts 508 (OS, OWU); 20 Apr 1991—summit of slump bluffs at SE corner of jct. Rt. 665 & Graessle Rd., rare & local in dry open soil, Pleasant Twp., Harrisburg Quad., McCormac 3470; 5 May 1992—Battelle-Darby Creek Metro Park, dry prairie bluffs above Big Darby Creek E bank, W of main picnic area, Pleasant Twp., Watts 616.

NOTE: Not treated by Braun (1967).

31. †*Carex hirtifolia* Mack.

Sedge

Stigmas 3; achene 3-angled; terminal spike wholly staminate; perigynium beaked, pubescent, beak straight; culms, blades and sheaths pubescent. Syn.: *C. pubescens* Muhl.; hybridizes with *C. gracillima* Schwein. producing *C. × sullivantii* Boott

REFERENCES: Sullivant 1840:53; Boott in Gray 1842:29 (*Carex × sullivantii* Boott in A.Gray; Type locality, in sylvaticis prope Columbium Sullivant); Selby & Craig 1890:17; Kellerman & Werner 1893:230 (rather abundant in the woods, Aug 1890); Braun 1967:253 (a common woodland species) (illus. p. 252); Stuckey & Roberts 1982:44.

HERBARIUM RECORDS: 1840—Cols., Sullivant; [ca. 1840]—Cols., Sullivant (URB); 11 May 1895—Alum Creek, W. Kellerman; 4 Jul 1972—Alton-Darby Creek Rd. & Cole Rd., uncommon in woods, D. Keil 9342; 3 Jun 1988—Highbanks Metro Park (Delaware Co.), woods N of Franklin/Delaware Co. line, E of bluffs, Watts 433; 3 Jun 1992—Gahanna Woods State Nature Preserve, common in beech-maple woods, SW corner of Havens Corner Rd. & Taylor Station Rd., Jefferson Twp., Reynoldsburg Quad., McCormac 4661.

32. †*Carex meadii* Dewey

Mead's Sedge

Stigmas 3; achene 3-angled; style jointed with the achene; terminal spike staminate; carpellate spikes short, oblong; perigynia tapering to base, nerves raised; carpellate scales reddish-purple; carpellate spikes dense, 5-7 mm thick, leaf-blades gray-green. Syn.: *C. tetanica* var. *meadii* (Dewey) L.H.Bailey

REFERENCES: Jones 1943:90; Braun 1967:255 (calcareous soil of meadows and prairies) (illus. p. 252); Stuckey & Roberts 1982:34 (calcareous meadows, depressions, and prairies).

HERBARIUM RECORDS: 1840—Cols., Sullivant; [ca. 1840]—Cols., Sullivant (URB); May & Jun 1860 [1840]—Darby Plains, 15-20 mi. W of Cols., Sullivant; May & Jun 1840—near Cols., Darby Plains, 15-20 mi. W of Cols.

33. †*Carex tetanica* Schkuhr

Slender Millet Sedge

Stigmas 3; achene 3-angled; style jointed with the achene; terminal spike staminate; nerves of perigynia raised; perigynia tapering to base, 3-angled; leaf-blades plicate, green; carpellate spikes 3-5 mm thick, lower perigynia remote.

REFERENCES: Sullivant 1840:53; Selby & Craig 1890:17; Braun 1967:255 (illus. p. 252).

HERBARIUM RECORDS: May & Jun 1840—near Cols., Darby plains 15-20 mi. W of Cols., Sullivant (mixed & filed with *Carex meadii*); 19 May 1891—Cols., Beardslee.

34. †*Carex woodii* Dewey

Wood's Sedge

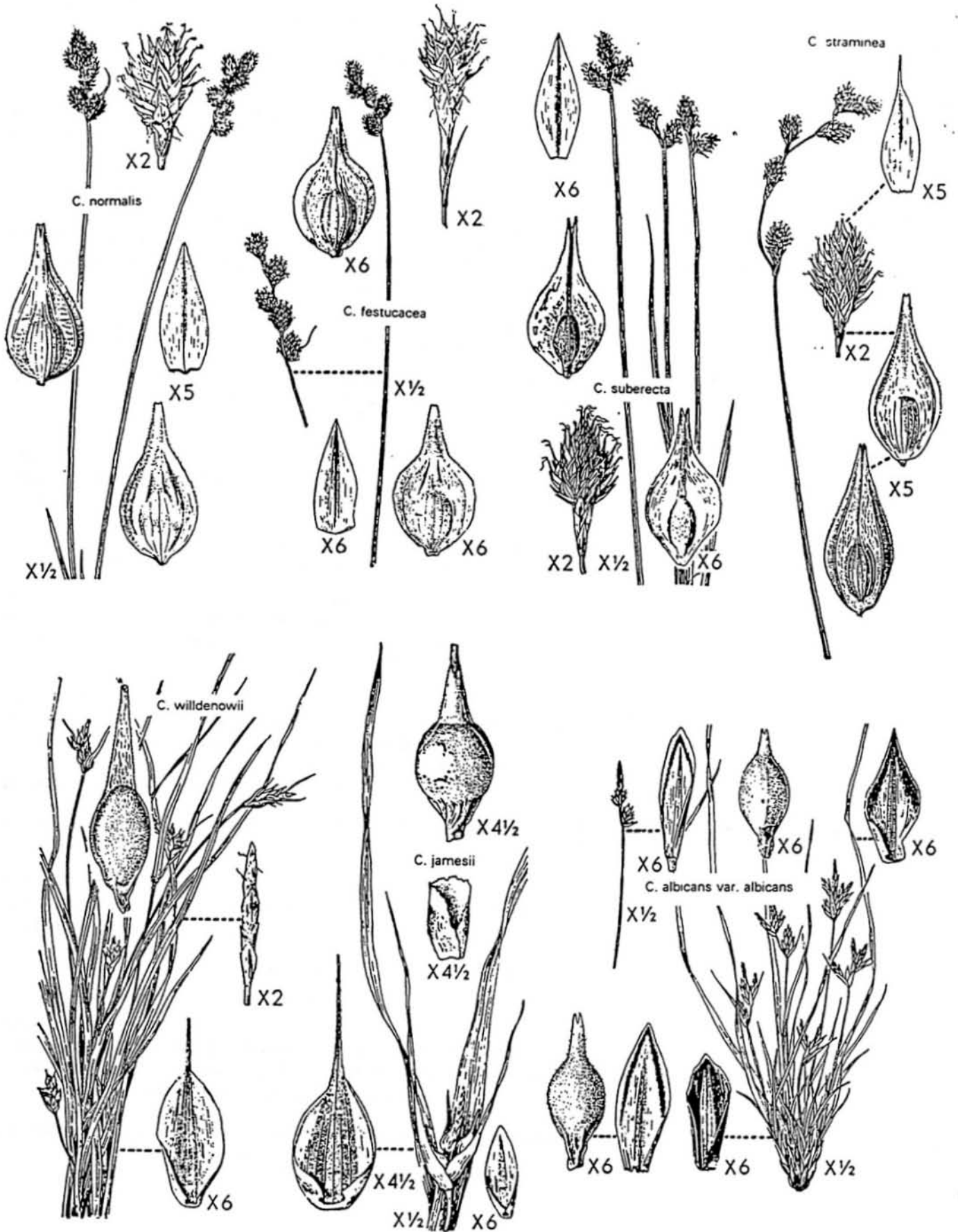
Stigmas 3; achene 3-angled; style jointed with the achene; terminal spike staminate; nerves of perigynia raised; perigynia tapering to base, 3-angled; lower sheaths bladeless, red; stolons purplish; perigynia 2-3 ranked; leaf-blades to 4 mm wide, white-lineolate beneath. Syn.: *C. tetanica* Schkuhr var. *woodii* (Dewey) A.W.Wood

REFERENCES: Braun 1967:254 (open woods); McCance 1984:A-101.

HERBARIUM RECORDS: 2 May 1898—Cols., W. Kellerman; 13 May 1927—Red Hills, Blendon Twp., Gordon & Waller; 29 Apr 1961—Flint Ravine, woods, Cusick; 6 May 1962—Sinclair Woods, just N of Morse Rd., about 1 mi. E of High St., Weishaup.

NOTE: All specimens have white dotted lines on undersurface of leaf-blades; see Mackenzie 1935:235.

CAREX



35. *Carex laxiflora* Lam.

Sedge

Stigmas 3; achene 3-angled; style jointed with the achene; terminal spike staminate; nerves of perigynia raised; perigynia long-tapering to base; carpellate scales with long or short awn, perigynia with small straight or curved beak with whitish orifice; leaf-blades beneath with longitudinal broken lines of very fine whitish dots or streaks. Syn.: *C. anceps* Muhl., *C. laxiflora* var. *intermedia* Boott, *C. laxiflora* var. *latifolia* Boott, *C. laxiflora* var. *patulifolia* (Dewey) J. Carey

REFERENCES: Sullivant 1840:52-53; Selby & Craig 1890:17; Selby 1891a:111a (#885 Re-collected); Kellerman & Werner 1893:230 (in the clump of timber at the N end of the lagoons, Jun 1891); Braun 1967:260 (a common and extremely variable species) (illus. p. 261).

HERBARIUM RECORDS: 16 May & 7 Jun 1839—Worthington, *J. Paddock Collection* (ILL); 1840—Cols., *Sullivant*; 26 May [year?]-Cols., *Loomis*; 1890?—Franklin Co., *Selby*; 15 May 1891—Worthington, *Selby*; 17 May 1891—Worthington Woods, Cols., *Werner*; 7 May 1892—Big Darby, *Selby*; 7 May 1892—Georgesville, *Werner*; 15 May 1892—Worthington, *Selby*; 21 May 1892—Cols., *Werner*; 27 Jun 1892—Wyandot Grove, *Selby*; 24 May 1963—woods on floodplain of Olentangy R., W bank, at Dodridge St. dam, *Cusick*; 9 May 1988—Highbanks Metro Park (Delaware Co.), mound bluff woods, *Watts 417* (OWU); 8 May 1989—Overbrook Drive Ravine, between N. High St. & Cooke Rd., Clinton Twp., *Lowden 4007*; 16 May 1989—RR tracks at Highland Dr., W of Olentangy River Rd., Clinton Twp., *Lowden 4069*; 11 Jun 1989—Highbanks Metro Park (Delaware Co.), edge of woods directly N of Franklin/Delaware Co. line, *Watts 471* (OWU).

NOTE: Some specimens have long staminate peduncles and are difficult to distinguish from *Carex gracilescens*.

36. *Carex gracilescens* Steud.

Sedge

Stigmas 3; achene 3-angled; perigynia strongly asymmetric, long-tapering to base, its 3 angles obtuse; carpellate scales with long or short awn; staminate spike usually long-peduncled; carpellate spike not crowded, perigynia gradually tapering to conspicuous outwardly curved beak.

REFERENCES: Sullivant 1840:52 (incorrectly determined as *Carex anceps* Muhl.); Braun 1967:263 (illus. p. 261).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; 17 May 1891—Worthington Woods & Cols., *Werner* (CLM, OS); 4 May 1895—Georgesville, *Osburn*; 21 May 1900—Gordon's Run, *Detmers*; 30 Apr 1960—Flint Ridge, N, Worthington, *Cusick*; 9 May 1977—disturbed woods, Pickerington Marsh area, between Bowen Rd. & Wright Rd., Madison Twp., *Cusick* (MU, OS).

NOTE: Sullivant's specimen is mixed with *Carex albursina* and incorrectly labeled as *Carex anceps* which is a synonym of *Carex laxiflora*.

37. *Carex blanda* Dewey

Sedge

Stigmas 3; achene 3-angled; perigynia long-tapering to base, its 3 angles obtuse; carpellate scales awned; perigynium-beak short, abruptly bent; bract-sheaths with erose or serrulate white edges.

REFERENCE: Braun 1967:262 (illus. p. 261).

HERBARIUM RECORDS: 16 May 1839—Worthington, *J. Paddock Collection* (ILL); 17 May 1891—Worthington Woods, *Werner* (CLM, OS); 17 May 1891—Cols., *Werner* (CLM); 21 May 1891—W side of Olentangy R., N of Lane Ave. bridge, *Werner*; 27 Jun 1892—Wyandot Grove, *Selby* (CLM, OS); 2 Jun 1907—Worthington, *W. Kellerman*; 10 Jun 1990—McOwen Rd. jct. with Dixon Rd., woody swampy area, Franklin/Licking Co. line, Jefferson Twp., *Lowden 4385*.

38. *Carex albursina* E. Sheld.

Sedge

Stigmas 3; achene 3-angled; perigynia long-tapering to base; culm winged; rosette leaves to 4.0 cm wide; carpellate scales fan-shaped, awnless, whitish with green midvein and shorter than perigynia. Syn.: *C. laxiflora* Lam. var. *latifolia* Boott

REFERENCES: Selby & Craig 1890:17; Braun 1967:260 (a common woodland species) (illus. p. 261).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; [ca. 1840]—Cols., *Sullivant* (URB); 1891—Franklin Co., *Selby*; 17 May 1891—Worthington Woods, near Cols., *Werner* (CLM, OS); 17 May 1891—Cols., *Werner* (CLM); 7 May 1892—Georgesville, *Werner*; May 1893—Cols., *Werner*; 17 Jun 1896—Cols., *W. Kellerman*; 11 Jun 1989—Highbanks Metro Park (Delaware Co.), woods directly N of Franklin/Delaware Co. line, E of bluffs, *Watts 474* (OS, OWU).

39. *Carex careyana* Torr.

Sedge

Stigmas 3; perigynia acutely 3-angled above, tapering to short base, many-nerved; sheaths red-purple; perigynium 5-6.5 mm long, beak short. Woods. Syn.: *C. careyana* Dewey

REFERENCES: Sullivant 1840:52, 62 (grows abundantly on the hillside, 3 mi. W of Cols., immediately N of the National Rd.; I have heard of but one other locality for this plant); Selby & Craig 1890:17; Selby 1891a:111a (#869 Re-collected); Braun 1967:259 (illus. p. 257).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; 17 May 1891—Worthington Woods, Cols., *Werner* (CLM, OS); 21 May 1900—Gordon's Run, *Detmers*; 6 May 1962—Sinclair Woods, just N of Morse Rd. & about 1 mi. E of High St., *Weishaupt*.

40. *Carex platyphylla* J. Carey

HERBARIUM RECORD: 13 May 1989—frequent on mesic wooded slopes on W side of Big Darby Creek, ¼ mi. S of Rt. 665, Pleasant Twp., Harrisburg Quad., *McCormac 556*.

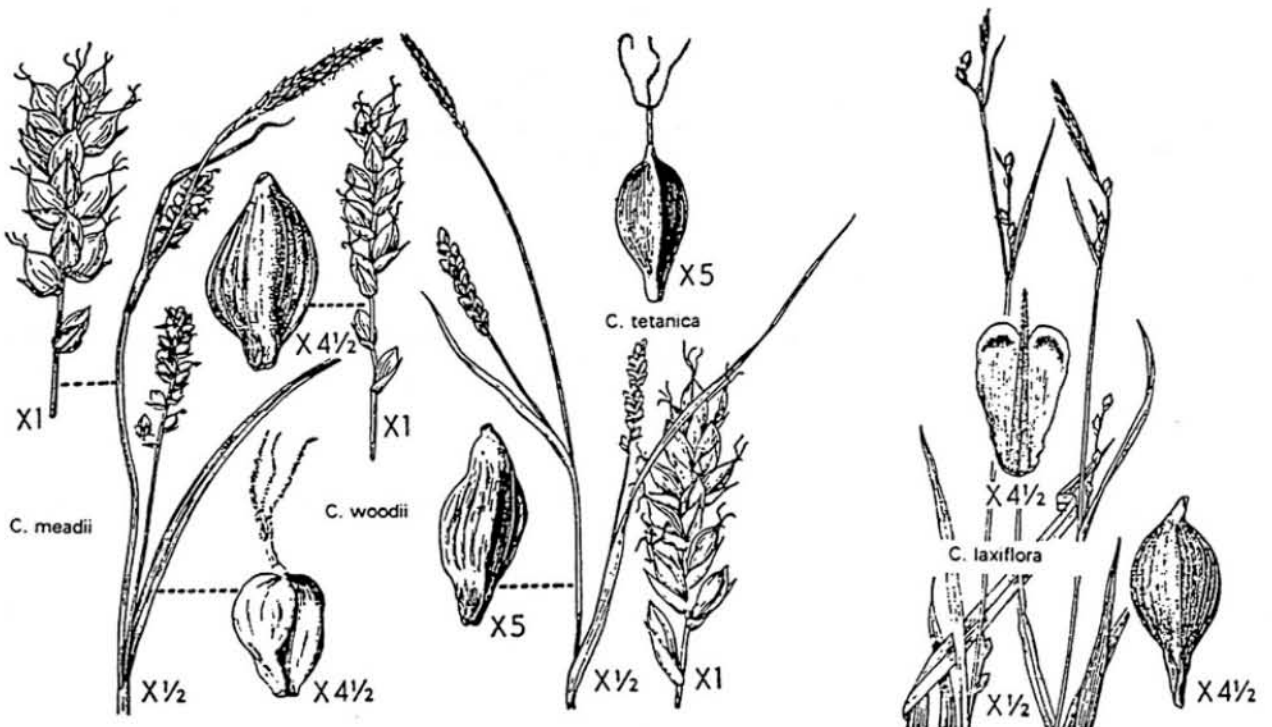
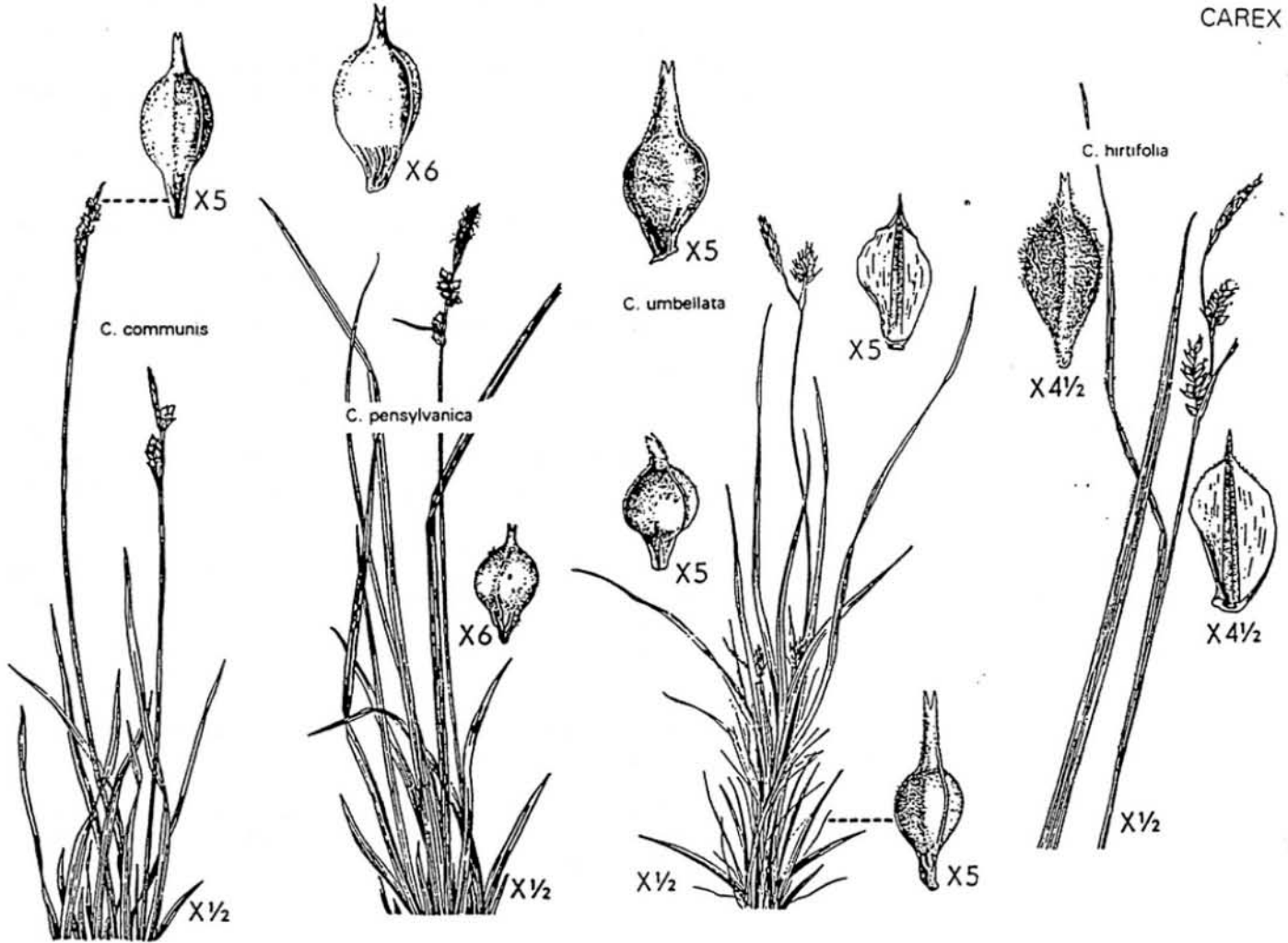
NOTE: Not mapped for Franklin Co. by Braun 1967:259 (illus. p. 258).

41. *Carex digitalis* Willd.

Sedge



CAREX



Stigmas 3; achene 3-angled; perigynia acutely angled above, tapering to short base, many-nerved; terminal spike staminate; carpellate spike with no staminate flowers at base; perigynia alternate.

REFERENCE: Selby 1891a:111a (#873a).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; 17 May 1891—Cols., *Werner*.

NOTE: Not mapped for Franklin Co. by Braun 1967:259 (illus. p. 257). Weishaupt noted on the *Sullivant* specimen, "I'm not sure what species this is, perigynia have too long bases for *digitalis*, it seems to me, and it doesn't appear to be *oligocarpa*."

42. *Carex laxiculmis* Schwein.

Sedge

Stigmas 3; achene 3-angled, terminal spike staminate; carpellate spike with 1 or 2 staminate flowers at base. Syn.:

*C. digitalis* Willd. var. *copulata* L.H.Bailey

REFERENCES: Selby 1891a:111a (#873b); Braun 1967:259 (illus. p. 258).

HERBARIUM RECORDS: 1 Jul 1891—Georgesville, *Werner* (CLM, OS); 5 Jul 1891—Cols., *Werner*; 21 May 1892—Alum Creek Station, *Werner*.

43. *Carex granularis* Muhl. var. *granularis*

Sedge

Stigmas 3; achene 3-angled; terminal spike staminate, sessile or short-stalked; nerves of perigynia raised; perigynia rounded at base, 1.5-2.0 mm wide, subterete, symmetric; culms tufted.

REFERENCES: *Sullivant* 1840:52; Craig 1890:108; Selby & Craig 1890:17; Braun 1967:263 (in moist woods, swamps, roadside ditches, and prairie patches) (illus. p. 261).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; [ca. 1840]—Cols., *Sullivant* (URB); May 1891—Cols., *Werner*; 17 May 1891—Cols., *Werner* (CLM); 5 Jun 1901—Franklin Twp., *W. Kellerman*; 20 May 1907—Big Darby, *W. Kellerman*; 25 May 1907—Cols., *W. Kellerman*.

44. *Carex hitchcockiana* Dewey

Sedge

Stigmas 3; achene 3-angled; bract at base of inflorescence with long closed hispid sheath and well-developed blade; terminal spike staminate; nerves of perigynia impressed, many, fine; perigynia few in spikes; achenes with bent-apiculate tip.

REFERENCES: *Sullivant* 1840:52; Selby & Craig 1890:17; Selby 1891a:111a (#882 Re-collected); Braun 1967:264 (illus. p. 266).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; [ca. 1840]—Cols., *Sullivant* (URB); 17 May 1891—Worthington Woods, Cols., *Werner*; 17 May 1891—Cols., *Werner* (CLM).

45. *Carex oligocarpa* Schkuhr

Sedge

Stigmas 3; achene 3-angled; style joined with achene; terminal spike staminate; nerves of perigynia impressed, many, fine; perigynia 5-8, beaked, somewhat remote in spikes; bract-sheath glabrous; achene-beak not bent.

REFERENCES: *Sullivant* 1840:53; Selby & Craig 1890:17; Selby 1891a:111a (#894 Re-collected); Braun 1967:264.

HERBARIUM RECORDS: 1839—Cols., *Sullivant*; [ca. 1840]—Cols., *Sullivant* (URB); May 1891—Cols., *Werner*; 17 May 1891—Worthington Woods, Cols., *Werner* (CLM); 21 May 1891—Cols., *Werner* (CLM, OS); 22 May 1900—storage dam, Scioto R., Cols., *Detmers*; 25 May 1927—Scioto R., NW of Cols., *Gordon*.

46. *Carex amphibola* Steud. var. *turgida* Fernald

Sedge

Stigmas 3; achene 3-angled; nerves of perigynia impressed, many, fine; perigynium-beak short; pistillate scales awned; carpellate peduncles and margins of bract-sheaths smooth. Thickets and stream banks. Syn.: *C. grisea* Wahlenb., *C. grisea* var. *angustifolia* Boott

REFERENCES: Selby 1891a:111a (#881 a & b); *Kellerman & Werner* 1893:230 (#445a near the river, May 1891); Braun 1967:265 (illus. p. 266).

HERBARIUM RECORDS: 16 May 1839—Worthington, *J. Paddock Collection* (ILL); May & 17, 21 May 1891—Cols., *Werner* (CLM, OS); 27 May 1893—Alum Creek, Cols., *W. Kellerman*; 15 Jun 1896—Cols., *W. Kellerman*; 10 May 1899—Franklin Co., *Fullmer*; 21 May 1902—Big Darby, *W. Kellerman*; 30 May 1960—dike along Olentangy R., W of OSU Stadium D, *Cusick*; 23 May 1963—dike of Olentangy R. at sewage disposal plant, OSU, Cols., *Cusick*; 24 May 1963—thickets along Olentangy R., E bank, N of Lane Ave., Cols., *Cusick*; 21 May 1971—just N of Hudson St. on N Olentangy River Rd., old field succession area, occasional along trails, *Wagner, Duncan, Young, Stevenson, Roberts & D. Keil 2749 & 7249*; 22 May 1988—Highbanks Metro Park (Delaware Co.), open area in woods, *Morawetz* (OWU); 29 May 1988—Highbanks Metro Park (Delaware Co.), wet woods ¼ mi. E of Olentangy R., ¼ mi. S of Powell Rd., *Morawetz* (OS, OWU); 3 Jun 1988—Highbanks Metro Park (directly N of Franklin/Delaware Co. line), woods E of bluffs, *Watts 435* (OS, OWU); 6 Jun 1989—Turkey Run, S of Highland Dr. between Olentangy River Rd. & Pegg Ave., Clinton Twp., *Lowden 4119*; 19 May 1992—Battelle-Darby Creek Metro Park, dry oak woods, ¼ mi. N of Gardner Rd. & ¼ mi. W of Big Darby Creek, Pleasant Twp., *Watts 618*.

47. †*Carex flaccosperma* Dewey

Glaucous Sedge, Blue-green Sedge

Syn.: *C. flaccosperma* Dewey var. *glaucodea* (Tuck.) Kük., *C. glaucodea* Tuck.

REFERENCE: Selby 1891a:111a.

NOTE: No specimens seen from Franklin Co. Not mapped for Franklin Co. by Braun 1967:265 (illus. p. 266).

48. *Carex prasina* Wahlenb.

Sedge

Stigmas 3; achene 3-angled; bract at base of inflorescence with a very short sheath; carpellate spikes linear-cylindric, the lower long-peduncled and drooping; perigynium 2-edged, ovate, glabrous, later bulging with 3-angled achene; perigynium-beak prominent, curving; blades and sheaths glabrous.

REFERENCES: Selby 1891a:111a; Braun 1967:267 (in wet woods or along small streams in woods) (illus. p. 266).

HERBARIUM RECORD: 17 May 1891—Cols., *Werner* (CLM, OS).

49. *Carex gracillima* Schwein.

Sedge

Stigmas 3; achene 3-angled; blades glabrous; perigynium ellipsoid, beakless; bract at base of inflorescence with long closed sheath; terminal spike carpellate above, staminate below. Syn.: *C. gracillima* × *pubescens* L.H.Bailey

REFERENCES: Sullivant 1840:52; Selby & Craig 1890:17; Selby 1891a:111a (#878 Re-collected); Braun 1967:267 (wet woods and shaded swamps) (illus. p. 266).

HERBARIUM RECORDS: 12 Jun 1839—Worthington, *J. Paddock Collection* (ILL); 1840—Cols., *Sullivant*; [ca. 1840]—Cols., *Sullivant* (URB); 17 May 1891—Cols., *Werner* (CLM, OS); 27 May 1893—Cols. & Alum Creek, *W. Kellerman*; 11 Jun 1989—Highbanks Metro Park (Delaware Co.), moist wood edge of county line, *Watts* 471.

50. *Carex davisii* Schwein. & Torr.

Sedge

Stigmas 3; achene 3-angled; terminal spike carpellate above, staminate below; perigynia with beak; sheaths and leaf blades often pubescent; pistillate scales long-attenuate or awned, equaling or exceeding perigynia; lateral spikes sessile or short-peduncled.

REFERENCES: Sullivant 1840:52; Selby & Craig 1890:17; Braun 1967:268 (a woodland species of neutral or calcareous soil) (illus. p. 266).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; [ca. 1840]—Cols., *Sullivant* (URB); May 1891—Cols., *Werner* (CLM, OS); 27 May 1893—Cols., *W. Kellerman*; 17 May 1896—Cols., *W. Kellerman*; 14 Jun 1930—W of Cols., *J. H. Schaffner*; 22 Jun 1936—along RR in ditch, Perry Twp., *J. H. Schaffner*; 4 Jul 1972—woodlot, Alton-Darby Creek Rd. & Cole Rd., common on forest floor, *D. Keil* 9341; 5 Jun 1987—along the E bank of the Olentangy R., between the Lane Ave. & Dodridge St. bridges, in Tuttle Park, scattered in disturbed woods on floodplain, Cols., *T. Lammers* 6116; 30 May 1990—0.5 mi. W of Hoover Rd., N Side of Orders Rd., open woody field border, Jackson Twp., *Lowden* 4356.

NOTE: In Weishaupt (1971) must take "style jointed with the achene." I could not see the joint.

51. *Carex virescens* Muhl.

Sedge

REFERENCES: Sullivant 1840:53; Selby & Craig 1890:17; Selby 1891a:111a (#919 Re-collected).

NOTE: No specimens seen from Franklin Co. Not mapped for Franklin Co. by Braun 1967:273 (illus. p. 272).

52. *Carex swanii* (Fernald) Mack.

Stigmas 3; achene 3-angled; style jointed with the achene; terminal spike carpellate above; perigynia pubescent; carpellate spikes subglobose to short-cylindric; achene-tip bent.

HERBARIUM RECORD: 1840—Cols., *Sullivant*.

NOTE: Not mapped for Franklin Co. by Braun 1967:273 (illus. p. 272). Perigynia look to me more like *Carex virescens*, but Braun's 1967:273 dimensions fit *Carex swanii*.

53. *Carex complanata* Torr. & Hook.

Sedge

Stigmas 3; achene 3-angled; terminal spike staminate only at base; perigynia glabrous, flattened on upper side, beakless; blades pubescent. Syn.: *C. hirsuta* Willd., *C. hirsutella* Mack., *C. triceps* Michx. var. *hirsuta* (Willd.) L.H.Bailey

REFERENCES: Sullivant 1840:52; Selby & Craig 1890:17; Braun 1967:273 (usually in open woods, clearings, and dry fields) (illus. p. 272).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; [ca. 1840]—Cols., *Sullivant* (URB); 1 Jul 1891—Georgesville, *Werner* (CLM); 12 Aug 1897—Rocky Fork Creek, *Osburn*; 3 Jun 1988—Highbanks Metro Park (Delaware Co.), open field area directly N of Franklin/Delaware Co. line, ¼ mi. W of Rt. 23, *Watts* 431 (OS, OWU); 13 Jun 1990—Gahanna Woods Park, prairie area, W of Taylor Station Rd., Jefferson Twp., *Lowden* 4398; 12 Jun 1992—Pickerington Pond, locally common in low muddy ground along shores of kettle lake, Madison Twp., Reynoldsburg Quad., *McCormac* 4710.

54. *Carex pellita* Muhl.

Sedge

Stigmas 3; achene 3-angled; terminal spike wholly staminate; perigynium pubescent, beaked; teeth of perigynium 0.5-1.0 mm long; carpellate spikes cylindric, far apart; culms and blades glabrous; blade 2-4 mm wide, flat, scabrous; tip of achene not bent. Syn.: *C. lanuginosa* Michx., misapplied

REFERENCES: Sullivant 1840:52; Braun 1967:274 (illus. p. 272).

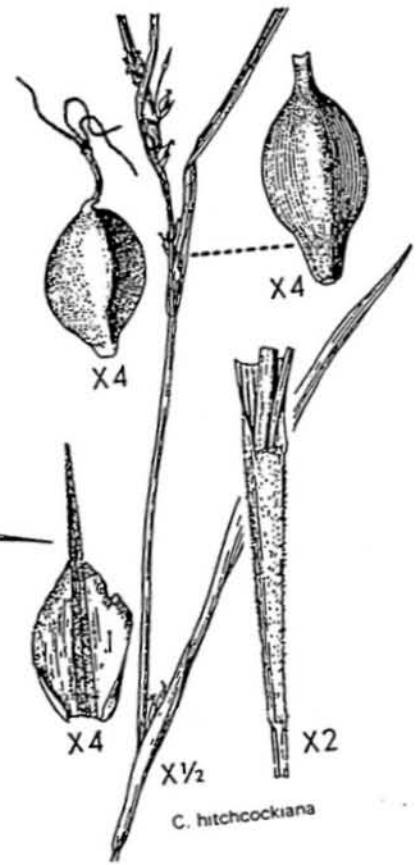
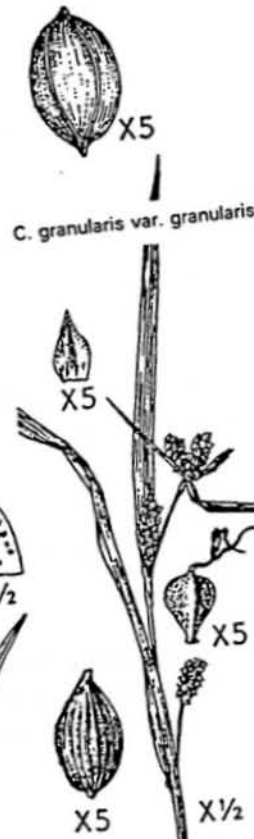
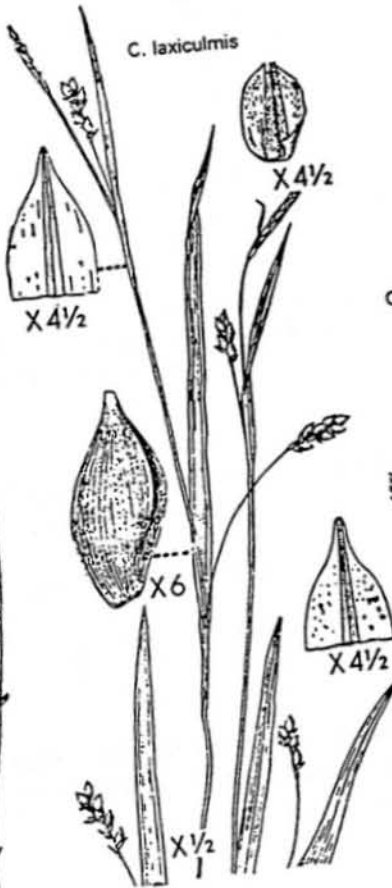
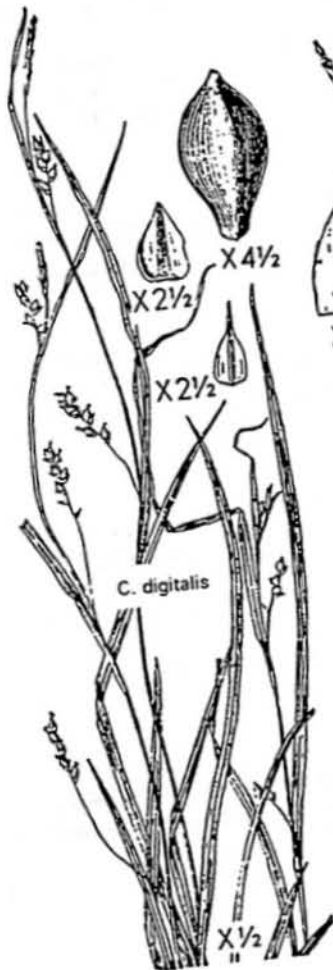
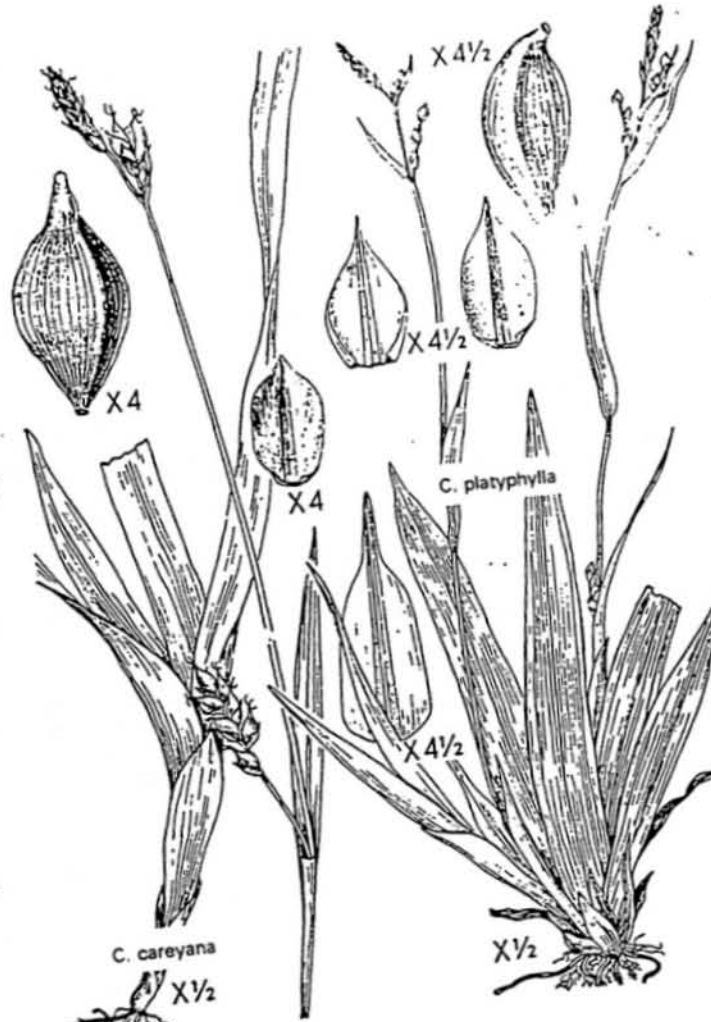
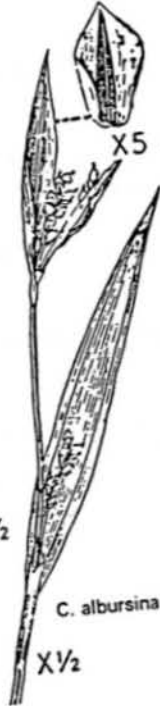
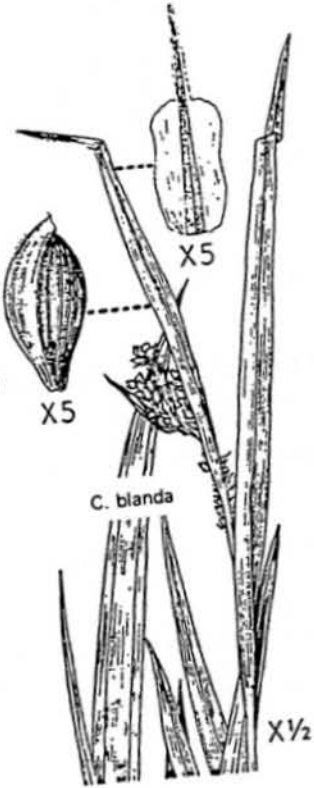
HERBARIUM RECORDS: 1840—Cols., *Sullivant*; [ca. 1840]—Cols., *Sullivant* (URB); 21 May 1892—Cols. & Alum Creek Station, *Werner*; 2 Jun 1897—Cols., *W. Kellerman*; 20 May 1902—Big Darby, *W. Kellerman*.

55. *Carex shortiana* Dewey

Sedge

Stigmas 3; achene 3-angled; style jointed with the achene; perigynium as wide as long, brown, obovoid, cross-wrinkled, almost beakless, glabrous; terminal spike carpellate above, staminate below; carpellate scales with green midrib; blades and sheaths glabrous. Syn.: *C. shortii* Torr.

CAREX



REFERENCES: Sullivant 1840:53; Selby & Craig 1890:17; Selby 1891a:111a (#902 Re-collected); Kellerman & Werner 1893:231 (plentiful in woods and various other places; it is the most common *Carex* in the low ground at the W extremity of the lake, Jun 1891); Braun 1967:275 (stream or pond borders, roadside ditches, and open woods) (illus. p. 276).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; [ca. 1840]—Cols., *Sullivant* (URB); May 1891—Cols., *Werner* (CLM); 2 Jun 1897—Cols., *W. Kellerman*; 17 May 1898—Cols., *W. Kellerman*; 17 May 1899—Franklin Co., *Fullmer*; 3 Jun 1988—Highbanks Metro Park (Delaware Co.), ¼ mi. W of Rt. 23, open wet areas in field directly N of Franklin/Delaware Co. line, *Watts 436* (OS, OWU); 7 Jun 1991—Boyer Park at end of Park St., E of Rt. 3, Westerville, Blendon Twp., *Lowden 4672*; 3 Jun 1992—Gahanna Woods State Nature Preserve, locally common in moist areas in fields, SW corner of Havens Corner Rd. & Taylor Station Rd., Jefferson Twp., Reynoldsburg Quad., *McCormac 4658*.

56. †*Carex buxbaumii* Wahlenb.

Brown Bog Sedge

HERBARIUM RECORD: 29 Jun 1891—Big Darby, *Selby*.

NOTE: Not mapped for Franklin Co. by Braun 1967:277 (of wet meadows and swamps) (illus. p. 276).

57. *Carex torta* Boott

Sedge

Stigmas 2; achene lenticular; spikes not all similar in appearance; terminal spike staminate; perigynium plano-convex, short beaked, tip bent at maturity; carpellate spikes often curved; scales dark.

REFERENCES: Selby 1891a:111a; Braun 1967:278 (illus. p. 276).

HERBARIUM RECORDS: 4 May 1892—Cols., *Werner*; 6 May 1899—Franklin Co., *Fullmer*; 29 Apr 1961—Flint Ravine, along stream, *Cusick*.

58. *Carex crinita* Lam. var. *crinita*

Sedge

Stigmas 2; achene lenticular; spikes not all similar in appearance; scales with long rough awns; achenes indented on one side; lower sheaths smooth.

REFERENCES: Sullivant 1840:52; Craig 1890:108; Selby & Craig 1890:17; Braun 1967:279 (illus. p. 280).

HERBARIUM RECORDS: 12 Jun 1839—Worthington, *J. Paddock Collection* (ILL); 1840—Cols., *Sullivant*; [ca. 1840]—Cols., *Sullivant* (URB); 8 Jun 1931—Westerville, *Hicks*; 11 Nov 1984—Gahanna Woods Nature Preserve, at border of large buttonbush swamp at SW corner of the preserve (V), *Tyrell*; 29 May 1988—Highbanks Metro Park (Delaware Co.), day camp fields, woodland stream/marshy area, *Morawetz 73* (OS, OWU); 7 Jun 1991—Boyer Park at end of Park St., E of Rt. 3, Westerville, Blendon Twp., *Lowden 4666*.

59. †*Carex aquatilis* Wahlenb. var. *altior* (Rydb.) Fernald

Water Sedge

Stigmas 2; achene lenticular; spikes not all similar in appearance, the lowest carpellate; scales dark; perigynium short beaked, flattened, obovate or elliptic; blades rough toward apex.

HERBARIUM RECORD: 16 May 1962—Darby Creek at Camp Jackerty [Camp Ken-Jockey Girl Scout Camp, off Rt. 40 on Hubbard Rd., Big Darby Creek], *Bartley* (BHO).

NOTE: Perigynia appear to be immature, hardly more than 1 mm wide, thus varietal status of this specimen hard to determine. Not mapped for Franklin Co. by Braun 1967:278. McCormac considers the above specimen to be †*Carex haydenii*? J. McCormac 3/16/92. Hyaline auricles at base of sheaths; suborbicular, apiculate perigynia not fibrillose at base of plant; leaves not triply conduplicate. Selby & Craig 1890:17 cited *Carex stricta* Lam. var. *decora* L.H.Bailey, which Braun 1967:279 considers a synonymy of *Carex haydenii* Dewey.

60. *Carex emoryi* Dewey

Sedge

Stigmas 2; achene lenticular; perigynium biconvex, short beaked; scales dark; upper spikes completely staminate; carpellate spikes sometimes staminate at tip; carpellate spikes usually overlapping. Syn.: *C. stricta* Lam. var. *emoryi* Mack. & Rydb.

REFERENCE: Braun 1967:279 (illus. p. 276).

HERBARIUM RECORDS: 15 May 1932—shallow water along Big Darby Creek, *Gordon*; 16 May 1962—on a wet gravel bar in Darby Creek at Camp Jockerty, *Bartley*; 23 May 1963—E shore of Olentangy R. behind OSU Hospital, *Cusick*; 14 May 1977—swamp along Olentangy R. just N of Lane Ave. bridge, Cols., *W. Carr 191*; 5 Jun 1992—Highbanks Metro Park (Delaware Co.), sandbar on W side of Olentangy R. across from scenic study site at S end of Big Meadows picnic area, *Watts 622*.

61. *Carex stricta* Lam.

Stigmas 2; achene lenticular; spikes not all similar in appearance, the lowest usually carpellate; scales dark, obtuse to acuminate; perigynium biconvex; carpellate spikes up to 7 cm long, sometimes staminate at tip; lowest carpellate spike somewhat remote; basal sheaths often fibrillose.

REFERENCES: Sullivant 1840:52 (*Carex acuta* L.); Selby & Craig 1890:17; Kellerman & Werner 1893:231 (lowland adjoining the lagoons, Jun 1891).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; [ca. 1840]—Cols., *Sullivant* (URB); 22 May 1899—Island in Big Darby, *Selby* (OS, WOOS).

NOTE: The name *Carex acuta* L. is on Sullivant's specimen labels. Not mapped for Franklin Co. by Braun 1967:278 (illus. p. 276).

62. *Carex hystericina* Muhl.

Sedge

Stigmas 3; achene 3-angled; style not jointed with achene; perigynia membranous, rounded in cross section, scarcely stipitate, inflated, glabrous, less than 1 cm long; awn of carpellate scales as long as or longer than blades of scales; perigynium 14-18 nerved, teeth erect, less than 1 mm long.

CAREX



REFERENCES: Sullivant 1840:52; Selby & Craig 1890:17; Braun 1967:282 (illus. p. 280).

HERBARIUM RECORDS: 1840—Cols., Sullivant; [ca. 1840]—Cols., Sullivant (URB); 2 Jun 1897—Cols., W. Kellerman; 20 May 1902—Big Darby, W. Kellerman; 24 May 1902—swamp, Cols., W. Kellerman.

63. *Carex comosa* Boott

Sedge

Stigmas 3; achene 3-angled; style not jointed with achene; perigynia 14-18 nerved, papery, inflated; teeth of perigynium outwardly curved, 1-2 mm long; mature perigynia obliquely stipitate; awns of carpellate scales rough, as long as blades of scales. Syn.: *C. pseudo-cyperus* L. var. *americana* Hochst.

REFERENCES: Sullivant 1840:53; Selby & Craig 1890:17; Braun 1967:281 (illus. p. 280).

HERBARIUM RECORDS: 1840—Cols., Sullivant; [ca. 1840]—Cols., Sullivant (URB); 20 Jul 1902—Cols., W. Kellerman; 4 Jun 1931—Westerville, Hicks; 26 Apr 1933—bog at Baumgardner's Pond, Chapman; 7 Jun 1991—Boyer Park at end of Park St., E of Rt. 3, Westerville, Blendon Twp., Lowden 4665.

64. *Carex lacustris* Willd.

Sedge

Stigmas 3; achene 3-angled; style not jointed with achene; perigynia glabrous, firm, with somewhat out-curved teeth, less than 1 mm long; nerves of perigynium conspicuous, raised; ligule twice as long as wide; sheaths glabrous, lower sheaths fibrillose; usually reddish-purple toward base. Syn.: *C. riparia* Curtis

REFERENCES: Sullivant 1840:52; Selby & Craig 1890:17.

HERBARIUM RECORDS: 1840—Cols., Sullivant; [ca. 1840]—Cols., Sullivant (URB).

NOTE: Not mapped for Franklin Co. by Braun 1967:283 (illus. p. 284).

65. *Carex hyalinolepis* Steud.

Sedge

Stigmas 3; achene 3-angled; perigynia glabrous, firm, teeth less than 1 mm long; nerves of perigynium faint, impressed; ligule shorter than in the similar *Carex lacustris* Willd.

REFERENCE: Braun 1967:283 (illus. p. 284).

HERBARIUM RECORDS: 11 Jul 1926—Blacklick Woods Metropolitan Park, Truro Twp., E. Thomas; 5 Jul 1991—Blacklick Woods Metro, Buttonbush Nature Trail, Reynoldsburg, Rawlings 5.

NOTE: Rawlings' specimen has perigynia with nerves somewhat raised but not as prominent as in *Carex lacustris*.

66. †*Carex trichocarpa* Muhl.

Hairy-fruited Sedge

Stigmas 3; achene 3-angled; style not jointed; perigynia firm, pubescent, with long out-curved teeth; sheaths glabrous.

REFERENCES: Sullivant 1840:53; Selby & Craig 1890:17; Selby 1891a:111a (#917 Re-collected); Braun 1967:285 (illus. p. 284).

HERBARIUM RECORDS: 1840—Cols., Sullivant; [ca. 1840]—Cols., Sullivant (URB); May 1891—Cols., Werner (CLM, OS).

67. *Carex frankii* Kunth

Sedge

Stigmas 3; achene 3-angled; body of perigynium obovoid; carpellate scales long-awned, exceeding perigynia; terminal spikes usually wholly staminate; leafy bracts as long as entire culm.

REFERENCES: Sullivant 1840:53 (*Carex stenolepis* Torr.); Selby & Craig 1890:17 (*Carex stenolepis* Torr.); Kellerman & Werner 1893:231 (*Carex stenolepis* Torr.; this is the most common *Carex* along the brook between High St. & Neil Ave.; it is occasionally met with in the woods and other damp localities, 2 Aug 1890); Braun 1967:285 (illus. p. 284).

HERBARIUM RECORDS: 1840—Cols., Sullivant; [ca. 1840]—Cols., Sullivant (URB); 1889?—OSU, Cols., Craig; 9 Aug 1890—OSU near Cols., Hine; 14 Sep 1890—Cols., E. V. Wilcox; 12 Jul 1892—Cols., Bogue; 11 Jul 1898—Cols., J. H. Schaffner; 20 Aug 1899—Hayden Falls, Selby; 22 Aug 1899—S Cols., Selby (OS, WOOS); 7 & 9 Sep 1899—Worthington, Selby; 25 Jun 1977—Pickerington Marsh, intersection of Wright Rd. & Bowen Rd., 3 mi. W of Pickerington & 3 mi. N of Canal Winchester, Sect. 18, Madison Twp., Sect. 17, Violet Twp., Franklin/Fairfield Co. line, Eu. Wright; [ca. 1982]—Blendon Woods, Owens; 6 Nov 1984—Gahanna Woods State Nature Preserve, swampy area nearest Taylor Station Rd. (VI), growing at border of trees and open swampy area, Tyrrell; 9 Jul 1987—wet margin of pond in woodlot on West Campus, SW of Scott Hall, OSU campus, Cols., T. Lammers & Lewis 6175; 17 Jul 1987—open wet areas, Highbanks Metro Park (Delaware Co.), Watts; Summer 1988—along Big Darby Creek between I-70 and Little Darby Creek, Galloway Quad., Delong; 5 Aug 1989—Godown Rd., wet drainage ditch between Commerce Pl. and LeAnne Marie Circle, Perry Twp., Lowden 4251; 11 Aug 1989—Trabue-Murphy Landing along the Scioto R., S of Fishinger Rd. Bridge, Lowden 4274; 7 Jun 1991—Boyer Park at end of Park St., E of Rt. 3, Westerville, Blendon Twp., Lowden 4663; 5 Jul 1991—Blacklick Woods Metro, field outside Walter A. Tucker Nature Interpretation Center, Reynoldsburg, Rawlings 3.

68. *Carex squarrosa* L.

Sedge

Stigmas 3; achene 3-angled; style not jointed with achene, bent at base; body of perigynium obovoid, truncate at top; carpellate scales awnless or short-awned, shorter than perigynia; terminal spike carpellate above; spike usually solitary, carpellate above, staminate below. Open fields.

REFERENCES: Sullivant 1840:53; Selby & Craig 1890:17; Selby 1891a:111a (#904 Re-collected); Braun 1967:285 (illus. p. 284).

HERBARIUM RECORDS: 12 Jun 1839—Worthington, J. Paddock Collection (ILL); 1840—Cols., Sullivant; 25 Jun 1893—Cols., Werner (CLM); 6 Aug 1987—Highbanks Metro Park (Delaware Co.), open fields-wet areas, Watts; 29 May 1988—Highbanks Metro Park (Delaware Co.), marsh in secondary woods, Morawetz (OS, OWU); 2 Jun 1988—Highbanks Metro Park, Franklin/Delaware Co. line, moist areas, Watts 439 (OS, OWU).

CAREX





69. *Carex typhina* Michx.

Sedge

Stigmas 3; achene 3-angled; style not jointed with achene; body of perigynium obovoid, truncate at top; spikes one or more; perigynia-beaks ascending; style straight.

REFERENCE: Braun 1967:286 (illus. p. 284).

HERBARIUM RECORDS: 12 Jun 1839—Worthington, R. Harbor near Alum Creek, *J. Paddock Collection* (ILL); [ca. 1840]—Cols., *Sullivant* (URB); 6 Nov 1984—Gahanna Woods State Nature Preserve, at border of large buttonbush swamp at SW corner of the preserve (V), *Tyrrell*.

70. *Carex vesicaria* L.

Sedge

Stigmas 3; achene 3-angled; style not jointed with achene; perigynia less than 10 mm long, nerves about 12; awns of carpellate scales shorter than blades of scales; blades about 4 mm wide; perigynia less than 4 mm wide, ascending; stem sharply angled above. Syn.: *C. monile* Tuck.

REFERENCES: Sullivant 1840:53; Selby & Craig 1890:17.

HERBARIUM RECORD: [ca. 1840]—Cols., *Sullivant* (URB).

NOTE: Not mapped for Franklin Co. by Braun 1967:289 (illus. p. 288).

71. *Carex tuckermanii* Boott

Sedge

Stigmas 3; style not jointed with achene; perigynia papery, inflated, glabrous, ovoid, about 10 mm long, about 5 mm wide, nerves 12 or fewer; leaf blades 3-4 mm wide; carpellate spikes oblong to cylindrical; achenes constricted on one side.

REFERENCE: Braun 1967:289 (illus. p. 288).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; 1892—Cols. & Alum Creek, *Odebrecht*; 11 Jul 1926—Blacklick Woods Metropolitan Park, Truro Twp., *E. Thomas*.

72. †*Carex rostrata* Stokes

Beaked Sedge

Stigmas 3; perigynia less than 10 mm long, less than 4 mm wide, papery, inflated; nerves of perigynia 12 or fewer; awns of carpellate scales absent or shorter than blades; leaf blades flat, conspicuously septate-nodulose; carpellate spikes oblong to cylindrical; perigynia spreading to horizontal. Syn.: ? *C. bullata* Schkuhr, *C. rostrata* var. *utriculata* (Boott) L.H.Bailey, *C. utriculata* Boott

REFERENCES: Sullivant 1840:52; Selby & Craig 1890:17; Jones 1943:90; Braun 1967:289 (illus. p. 288); McCance 1984:A-91.

HERBARIUM RECORDS: Jun 1891—Cols., *Werner*; 22 May 1986—OSU Campus, E bank of Olentangy R., near bridge by Drake Union Shelter House, Cols., *Hollander 043*.

NOTE: Perhaps Sullivant's (1840) and Selby & Craig's (1890) *Carex bullata* belongs here.

73. *Carex lurida* Wahlenb.

Sedge

Stigmas 3; achene 3-angled, style not jointed with achene; perigynia papery, inflated, glabrous, perigynia shorter than 1 cm, about 10-nerved, 40 or more per spike, beak shorter than body; awns of carpellate scales shorter than blades of scales; leaf blades 3-6 mm wide.

REFERENCES: Sullivant 1840:53 (*Carex tentaculata* Muhl.); Craig 1890:108 (*Carex tentaculata* Muhl.); Selby & Craig 1890:17; Kellerman & Werner 1893:231 (*Carex tentaculata* Muhl.; in the woods and timber belt along the river and lagoons, Aug 1890); Braun 1967:287 (illus. p. 288).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; [ca. 1840]—Cols., *Sullivant* (URB); Jun 1891—Cols., *Werner* (CLM); 28 Jun 1892—Cols. *Bogue*; 8 Jul 1892—Cols., *Bogue*; 6 Aug 1897—Hamilton Twp., *W. Kellerman*; 190 ?—N Cols., *W. Kellerman*; 24 Jun 1901—Cols., *W. Kellerman*; 9 Jun 1902—N Cols., *W. Kellerman*; 18 & 29 Jul 1902—Cols., *Bailey*; 1 Aug 1902—Cols., *W. Kellerman*; 11 Jul 1926—Blacklick Woods Metropolitan Park, Truro Twp., *E. Thomas*; Summer 1977—Pickerington Marsh, intersection of Wright Rd. & Bowen Rd., 3 mi. W of Pickerington & 3 mi. N of Canal Winchester, Sect. 18, Madison Twp., Sect. 17, Violet Twp. Franklin/Fairfield Co. line, *Eu. Wright*; 7 Jun 1991—Boyer Park at end of Park St., E of Rt. 3, Westerville, *Lowden 4659*.

74. *Carex grayi* J.Carey

Sedge

Stigmas 3; achene obscurely 3-angled; carpellate spikes spherical; perigynia papery, inflated, hairy or glabrous, usually more than 12 to a spike, radiating in all directions; achene obscurely angled.

REFERENCES: Craig 1890:108 (rich moist soil in the woods, not abundant); Selby & Craig 1890:17; Braun 1967:290 (illus. p. 291).

HERBARIUM RECORDS: 1889?—NE of Cols., *Craig*; 22 May 1899—Franklin Co., *Selby*; 7 Sep 1899—Worthington, *Selby*; 11 Jun 1908—E of town, Cols., *Stover*; [ca. 1982]—Sharon Woods, [David B. Owens]; Summer 1988—along Big Darby Creek between I-70 and Little Darby Creek, Galloway Quad., *Delong*; 10 Jun 1991—Boyer Park at end of Park St., E of Rt. 3, Westerville, Blendon Twp., *Lowden 4683*.

NOTE: The Delong and Lowden specimens are the only ones with hairy perigynia.

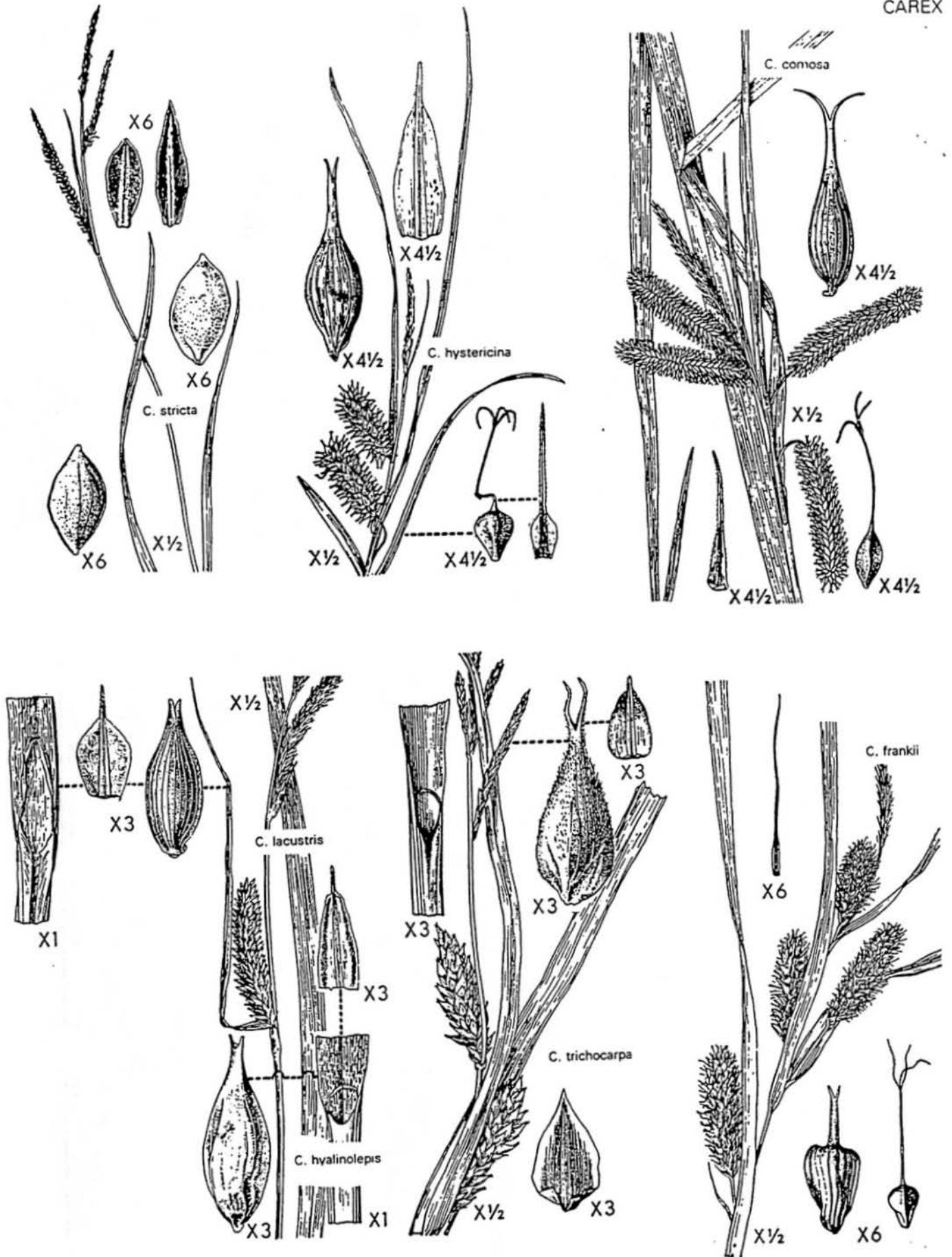
75. *Carex intumescens* Rudge

Sedge

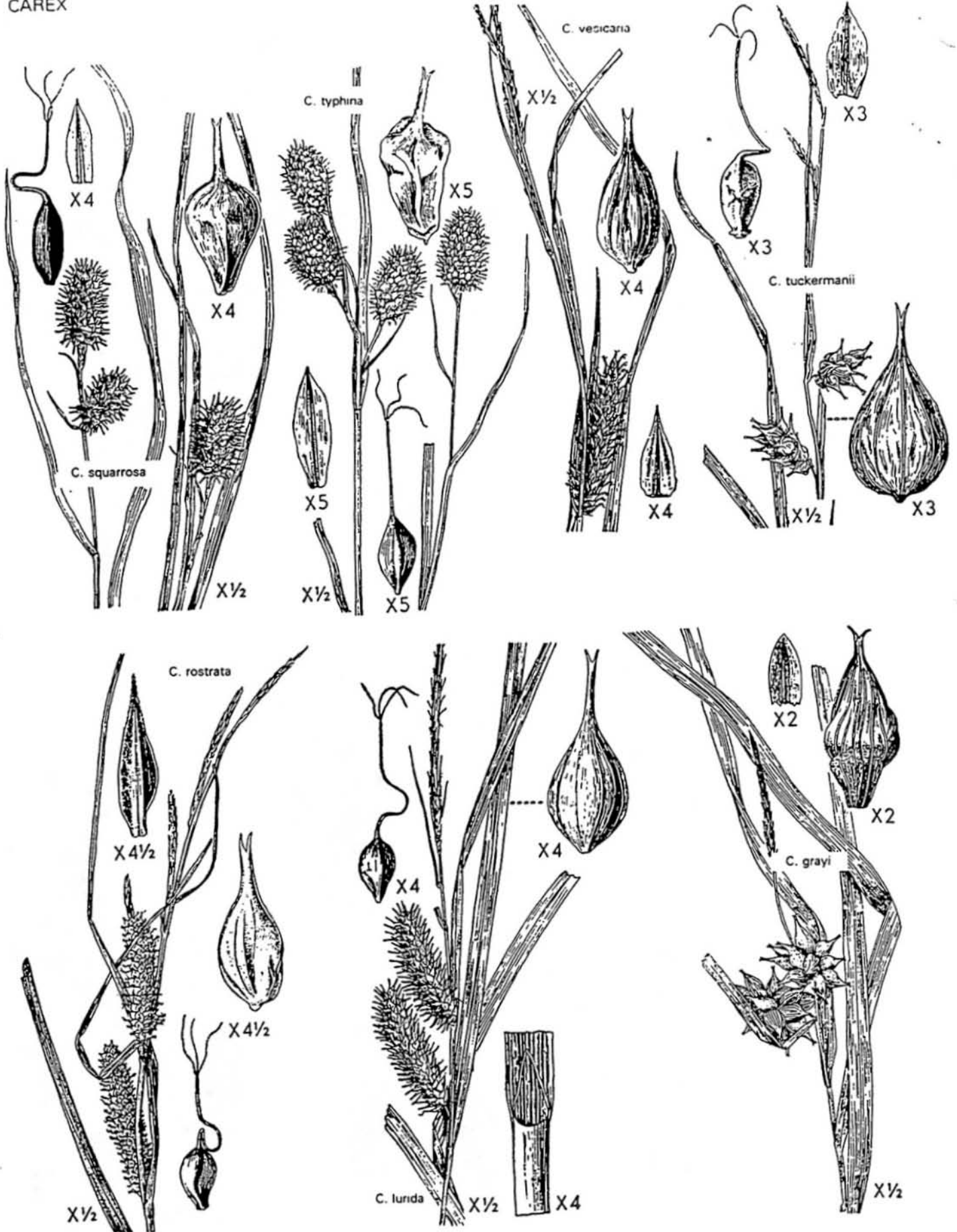
Similar to *Carex grayi*; perigynia glabrous, shiny, usually spreading-ascending, usually 12 or fewer to a spike; achene angled, angles blunt. Syn.: *C. intumescens* var. *globularis* A.Gray

REFERENCES: Sullivant 1840:52; Selby & Craig 1890:17; Selby 1891a:111a (#884 Re-collected); Braun 1967:290 (illus. p. 291).

CAREX



CAREX



HERBARIUM RECORDS: 1840—Cols., *Sullivant*; [ca. 1840]—Cols., *Sullivant* (URB); 24 Jun 1890—Olentangy R., Cols., *E. Evans*; 1890? & 1891?—Franklin Co., *Selby*; May 1891—Worthington, *Selby*; Jun 1892—Cols., *Addison*; 6 Aug 1892—Cols., *Werner*; 10 Jul 1932—Taylor's Woods, *Chapman*; 25 May 1971—Don Scott Woods, damp soil in woods, *D. Keil* 7324; 4 Jul 1972—woodlot, Alton-Darby Creek Rd. & Cole Rd., *D. Keil* 9339; 23 Jun 1987—Woodland Memorial Park, 1 mi. S of Rt. 161 on I-71, in Forest Park subdivision, Sharon Twp., *T. Lammers & Lewis* 6126; Summer 1988—along Big Darby Creek between I-70 & Little Darby Creek, Galloway Quad., *Delong*; 31 May 1990—Tuttle Park, E bank of Olentangy R., open woody area, N of Hudson St., Clinton Twp., *Lowden* 4371; 10 Jun 1990—McOwen Rd., woody swampy area, jct. of Dixon Rd., Franklin/Licking Co. line, Jefferson Twp., *Lowden* 4382.

76. *Carex lupulina* Muhl.

Sedge

Similar to *Carex lupuliformis*; blades 4-15 mm wide; carpellate spike 20-35 mm thick, perigynia 20-75; achenes longer than wide, sides at most only slightly concave, angles very little thickened at bend. Syn.: *C. lupulina* var. *polystachya* Schwein. & Torr.

REFERENCES: *Sullivant* 1840:53; *Craig* 1890:108; *Selby & Craig* 1890:17; *Braun* 1967:291 (illus. p. 291).

HERBARIUM RECORDS: 1840—Cols., *Sullivant*; [ca. 1840]—Cols., *Sullivant* (URB); 1890—Franklin Co., *Selby*; 11 Jul 1926—Blacklick Woods Metropolitan Park, Truro Twp., *E. Thomas*; 10 Jun 1990—McOwen Rd., woody swampy area, jct. with Dixon Rd., Franklin/Licking Co. line, Jefferson Twp., *Lowden* 4386.

77. †*Carex lupuliformis* Sartwell

False Hop Sedge

Stigmas 3; achene 3-angled; style not jointed with achene; perigynia numerous, papery, inflated, glabrous, 10-15 mm long, nerves more than 12; carpellate spikes oblong or cylindrical; achenes nearly as long as wide, the sides diamond-shaped and concave, angles knobbed.

REFERENCE: ODNR-DNAP 1996.

HERBARIUM RECORDS: 2 Aug 1839—2 m [mi.] E of Worthington, *J. Paddock* Collection (ILL); 5 Sep 1891—Cols., *Werner* (CLM, OS); 6 Aug 1897—Hamilton Twp., *W. Kellerman*; 11 Nov 1984—Gahanna Woods State Nature Preserve, at border of large buttonbush swamp at SW corner of the preserve (V), *Tyrrell*; 6 Aug 1987—Highbanks Metro Park (Delaware Co.), open wet fields, *Watts*.

NOTE: Not mapped for Franklin Co. by *Braun* 1967:292 (illus. p. 291).

## POACEAE, Grass Family

Herbaceous or rarely woody; rhizomes present or absent; internodes hollow or solid, nodes solid; leaves alternate, 2-ranked, linear to lanceolate, parallel-veined, consisting of sheath and blade, the ligule at junction of blade and sheath; unit of inflorescence a spikelet consisting of an axis (rachilla) bearing 2 rows of scales, the 2 lowest empty, these called the first (lower) and second glumes; scales above the glumes called lemmas; in axil of lemma another scale with back to rachilla, the palea; between lemma and palea, subtended by palea, the flower; lemma, palea, and flower parts constituting a floret; spikelet may contain one to many florets; if rachilla is jointed or articulated below each floret, florets fall at maturity from glumes and pedicel; if joint is in pedicel below glumes, the whole spikelet falls as a unit. Flowers hypogynous, bisporangiate, with sometimes some monosporangiate flowers present, too, or rarely all monosporangiate, the species then monoecious or dioecious; perianth none or of 2 or 3 small scales (lodicules); stamens usually 3 (sometimes 1, 2, or 6-many); carpels 3, united; ovary 1-loculed; stigmas 2, usually plumose; seed 1; fruit a grain or rarely a utricle, a nut, or a berry. (Gramineae, nom. altern.)

Cultivated or garden species include: *Coix lachryma-jobi* L. (Job's-tears, cultivated to escaped), blades to 4 cm wide; peduncles in leaf-axils, each bearing a beadlike involucre within which are 2 vestiges and a spikelet of 1 carpellate flower and 1 lemma; staminate inflorescence protruding from orifice of involucre; staminate spikelets 2-flowered (1 Oct 1902—Cols., *J. H. Schaffner*; 20 May 1930—Cols., *Hicks*). Not mentioned for Franklin Co. by *Braun* 1967:174. *Zea mays* L. (Corn, Indian Corn, Maize; cultivated), tall coarse annual; stem solid; staminate spikelets 2-flowered, in pairs, in a one-sided spikelike raceme, the racemes in terminal panicle (tassel); carpellate spikelets usually 2-flowered (1 flower vestigial), in double rows on 1 or more lateral branches (cob), spikelets and cob forming the ear, which is covered with husks; glumes of carpellate spikelet firm, lemma and palea hyaline, style a long silk (189—Cols., [*J. H. Schaffner*]; [1909]—near Cols. (cult.), *A. Crane*; Sep 1913—Cols., cult., *L. Humphrey*; 15 Feb 1927—OSU Bot. Greenhouse, Cols., cult., *J. H. Schaffner*; 1930—Cols. [*J. H. Schaffner*]; 10 Dec 1932—Cols., *J. H. Schaffner*; 10 Mar 1933—OSU Bot. Greenhouse, Cols., cult., *J. H. Schaffner*; Winter-Spring 1936—OSU Greenhouse, Cols., cult., *J. H. Schaffner*). Not mentioned for Franklin Co. by *Braun* 1967:174. †*Chasmanthium latifolium* (Michx.) Yates (Wild Oats, cultivated), blades 1-2 cm wide; panicle drooping; spikelets very flat, large, florets several to many, closely imbricated, lemmas about 1 cm long, striate-nerved, keeled, lowest empty; palea shorter than lemma, keel winged; stamen 1; flowers cleistogamous (18 Aug 1939—Botanic Gardens, OSU, Cols., *Dore*); Syn.: *Uniola latifolia* Michx. Not mapped for Franklin Co. by *Braun* 1967:88 (woods and steep banks) (illus. p. 87). *Buchloe dactyloides* (Nutt.) Engelm. (Buffalo

Grass; introduced, perhaps a waif), plants dioecious; staminate spikes 1-3, articulation above the thin glumes, spikelets 2-flowered; carpellate spikes short and head-like, subtended by the dilated many-nerved bases of the two uppermost leaves, the highly modified second glumes ending in 3 triangular lobes are visible from the outside (Aug 1939—lawn at OSU, Cols. Dore). Not treated by Braun (1967). *Tripsacum dactyloides* (L.) L. (Gama-grass, Sesame-grass; garden escape), staminate spikelets above the pistillate ones in the same inflorescence; pistillate flowers sunken in hardened joints of lower portion of same rachis as the terminal staminate spikelets (9 Aug 1939—Botanic Garden, OSU, Cols., Dore). Not treated by Braun (1967).

A very recent introduction in Ohio is *Sclerochloa dura* (L.) P.Beauv., a European plant that is located sparingly in much of the western United States. A low spreading annual, usually under 1 dm tall; spikelets 3-flowered, the third floret sterile; lemmas rounded at the tip, hyaline-margined, with 5 prominent nerves. This new state record has been collected by Allison Cusick in at least seven counties in western Ohio from compacted soil along roadways or berms at fairgrounds and parks. In Franklin County, Cusick collected it along mowed edges of the county's fairgrounds, Norwich St., Hilliard Quad. (Cusick 33073).

Stated lengths of lemmas and glumes do not include awns.

- a Spikelets enclosed in prickly burs. **54. CENCHRUS**
- a' Spikelets not enclosed in prickly burs.
  - b Florets monosporangiate, the staminate and carpellate in different spikelets on same plant; vestigial florets may be present, also.
    - c The two kinds of spikelets in different parts of same inflorescence.
      - d Carpellate spikelets surrounded by beadlike involucre from top of which staminate part of inflorescence protrudes. *Coix lachrymajobi* L., Job's-tears
      - d' Spikelets not covered with beadlike involucre; upper branches of terminal panicle bearing carpellate spikelets; lower branches bearing staminate spikelets. **2. ZIZANIA**
    - c' The two kinds of spikelets in different inflorescences, the staminate in terminal panicle (tassel), the carpellate in rows on one or more axillary branches. *Zea mays* L., Corn
  - b' Florets bisporangiate; some monosporangiate and/or vestigial ones may be present, also.
    - e Spikelets in definite rows on a rachis; inflorescence a single spike or spikelike raceme or a cluster of spikes or spikelike racemes. **KEY A**
    - e' Spikelets not in definite rows; inflorescence an open or a narrow panicle, sometimes dense and spikelike.
      - f Spikelet with 2 or more bisporangiate florets. **KEY B**
      - f' Spikelet with 1 bisporangiate floret; 1 or more staminate and/or vestigial florets may be present, also. **KEY C**

#### KEY A. SPIKELETS IN ROWS ON A RACHIS

- a Single spikelets or groups of spikelets in 2 rows on opposite sides of rachis; inflorescence a single spike or spikelike raceme, not one-sided.
  - b Spikelets solitary at each node of rachis.
    - c Spikelet with edge to rachis. **9. LOLIUM**
    - c' Spikelet with side to rachis.
      - d Glumes ovate; lemma ovate, asymmetric, awned or awnless; spikelets 2-5-flowered. **35. TRITICUM**
      - d' Glumes and lemmas lanceolate or narrower.
        - e Spikelets several-flowered; lemma symmetric, awned or awnless; glumes lanceolate.
          - f Spikelets crowded on rachis, spreading, each reaching almost to tip of one next above on same side. **33. AGROPYRON**
          - f' Spikelets ascending or appressed, more remote, each sometimes overlapping base of one next above on same side but not reaching to its tip.
            - g Without rhizomes; anthers 1-2.5 mm long. **30. ELYMUS**
            - g' With rhizomes; anthers 3-7 mm long. **31. ELYTRIGIA**
          - e' Spikelet 2-flowered; lemma long-awned, ciliate keel on one side of center; glumes linear. **34. SECALE**
    - b' Spikelets 2 or more at each node of rachis (sometimes fewer at base of spike), lateral ones sometimes awnlike.

- h Spikelets usually 3 at each node of rachis, each with a perfect floret or lateral ones vestigial. **32. HORDEUM**
- h' Spikelets 2 at each node of rachis, each containing 1 or more perfect florets; or spikelets more than 2 at each node, then each spikelet 2-6-flowered. **30. ELYMUS**
- a' Single spikelets or groups of spikelets in rows, usually on one side of rachis; spikes or spike-like racemes clustered or, if rarely solitary, then one-sided.
- i Glumes absent or vestigial; spikelet laterally flattened, its edges formed by keel of lemma and of palea; lemma awnless. **1. LEERSIA**
- i' At least one glume well developed.
- j Spikelets laterally flattened or articulation above glumes (rarely whole spike falling entire); both glumes present; staminate or vestigial florets, when present, above perfect florets.
- k Inflorescence-branches attached at, or also near, tip of peduncle.
- l Lemma of perfect floret and of rudimentary floret both awned. **45. CHLORIS**
- l' Lemmas awnless.
- m Spikes 5 mm wide; spikelet with 2-several perfect florets. **42. ELEUSINE**
- m' Spikes 2-3 mm wide; spikelet with 1 perfect floret. **46. CYNODON**
- k' Inflorescence-branches racemously attached along an elongate axis.
- n Panicle-branches reflexed, about 2 cm long, falling entire. **48. BOUTELOUA**
- n' Panicle-branches appressed or erect or, if spreading, more than 2 cm long.
- o Spikelets closely imbricated, with 1 perfect floret and no vestigial florets; articulation below glumes; panicle-branches erect or appressed. **47. SPARTINA**
- o' Spikelets more distant; articulation above glumes; panicle-branches slender, many, spreading, or branches long and ascending. **40. LEPTOCHLOA**
- j' Spikelets not laterally flattened, sometimes dorsally flattened; articulation below glumes; one glume sometimes absent; a staminate or a vestigial floret below perfect floret; sometimes whole spikelet vestigial.
- p Lemma and palea of bisporangiate floret firmer than glumes; below this floret are lower lemma and 1 or 2 glumes, all membranous; if spikelets in pairs, both of pair containing a perfect floret.
- q Both glumes present; lemma of perfect floret pointed or awned, its sides, but not its tip, inrolled around palea. **50. ECHINOCHLOA**
- q' Second glume present; first glume absent or minute.
- r Spikelet flattened, apex acute; rachis not wider than rows of spikelets attached to it; lemma of perfect floret not inrolled around palea. **53. DIGITARIA**
- r' Spikelet plano-convex, apex blunt, or rachis wider than rows of spikelets; lemma of perfect floret hard, margins inrolled. **51. PASPALUM**
- p' Glumes firmer than lemmas; spikelets in pairs, 1 sessile, containing a perfect floret, the other pedicel and vestigial or containing a staminate floret.
- s Each peduncle bearing 1 raceme. **58. SCHIZACHYRIUM**
- s' Each peduncle bearing 2-6 racemes. **57. ANDROPOGON**

KEY B. SPIKELETS NOT IN ROWS, EACH CONTAINING TWO  
OR MORE BISPORANGIATE FLORETS

- a At least 1 glume overtopping body of lemma just above it; or lower lemma awned about middle of back or below; or both characters present.
- b Glumes about 2 cm long, 7-11-nerved, usually exceeding upper lemma; lemma awnless or awned from back; panicle open. **17. AVENA**
- b' Glumes shorter, with fewer nerves.
- c Lower lemma awned from base of terminal teeth, awn bent and spiral at base; spikelets several-flowered; each glume overtopping floret just above it. **36. DANTHONIA**
- c' Lower lemma awned from middle of back or below; spikelet 2-flowered; articulation above glumes.
- d Panicle open, spreading, bases of branches naked; both florets of spikelet perfect; lower glume not more than 5 mm long. **20. DESCHAMPSIA**
- d' Panicle narrow, the whorled branches usually bearing spikelets to base; lower floret staminate, upper perfect, both lemmas awned; longer glume 7-9 mm long. **16. ARRHENATHERUM**
- a' Neither glume overtopping body of lemma just above it; lemmas awned above middle or awnless.

- e Articulation below glumes, sometimes in pedicel some distance below.
- f Rachilla prolonged behind uppermost palea bearing 2-3 empty lemmas enfolded in a club-shaped mass; sheaths closed. **14. MELICA**
- f' Upper lemmas not in a club-shaped mass; sheaths open; articulation in pedicel below glumes. **19. SPHENOPHOLIS**
- e' Articulation above glumes (except in *Eragrostis*, with continuous rachilla).
- g Hairs of rachilla equaling or exceeding body of lemma; tall stout plants of wet places. **37. PHRAGMITES**
- g' Hairs of rachilla, if present, much shorter than body of lemma.
- h Panicle dense and spikelike, axis and branches densely short-hairy; lemma 3-4 mm long, awnless or with short awn from just below tip. **18. KOELERIA**
- h' Panicle not dense and spikelike or, if rarely so, then axis and branches not densely short-hairy.
- i Spikelets nearly sessile in dense one-sided clusters at ends of the few panicle-branches. **12. DACTYLIS**
- i' Spikelets not in dense one-sided clusters at ends of panicle-branches.
- j Lemma 5-many-nerved.
- k Lemma 2-toothed at apex, usually awned from base of teeth or just below; sheaths closed.
- l Callus of lemma bearded; tip of ovary glabrous. **15. SCHIZACHNE**
- l' Callus of lemma not bearded but body of lemma may be hairy; tip of ovary pubescent. **29. BROMUS**
- k' Lemma not 2-toothed at apex but apex may be erose.
- m Lemma keeled, awnless.
- n Lemma folded very flat lengthwise, many-nerved; spikelet 2-4 cm long, laterally flattened. *Chasmanthium latifolium* (Michx.) Yates, Wild Oats
- n' Lemma not folded flat, usually with tuft of long soft hairs at base (web); when, rarely, web is absent, then both keel and marginal nerves pubescent; leaf-blades boat-shaped at tip. **11. POA**
- m' Lemma rounded on back or keeled only at tip; web absent.
- o Lemma awned or acute at tip, the 5 nerves obscure; sheaths of awnless species open.
- p Anthers 3, exposed, open-pollinated; tufted perennials. **7. FESTUCA**
- p' Anther 1 (less often 2, rarely 3); cleistogamous dwarf annuals. **8. VULPIA**
- o' Lemma not awned, usually not acute but, if rarely so, then nerves conspicuous and more than 5.
- q Lemma 7-9-nerved; sheaths closed; plants of moist, swamp, or aquatic habitats. **13. GLYCERIA**
- q' Lemma 5-nerved (a few may be 7-nerved); sheaths open; habitats dry or moist, sometimes saline, swampy, or aquatic. **10. PUCCINELLIA**
- j' Lemma 1-3-nerved.
- r Lateral nerves or midnerve of lemma or both pubescent; or, if rarely all nerves are glabrous, then lemma with tuft of long soft hairs at base (web).
- s Lemma not toothed at apex, not awned, often with web at base; blades with boat-shaped tip. **11. POA**
- s' Lemma toothed at apex; all 3 nerves excurrent as short awns. **39. TRIDENS**
- r' Nerves of lemma glabrous or scabrous; no web at base of lemma.
- t Lemma 6-10 mm long, with sharp point, lemma and palea separated at maturity by turgid beaked grain; tall plants of woodlands. **3. DIARRHENA**
- t' Lemma 3 mm long or less; low to moderately tall plants of various habitats. **41. ERAGROSTIS**

**KEY C. SPIKELETS NOT IN ROWS, EACH CONTAINING ONE BISPORANGIATE FLORET**

- a Staminate and vestigial flowers absent.
- b Glumes absent or minute.
- c Glumes absent; spikelet laterally flattened, its edges formed by keel of lemma and of palea; lemma awnless. **1. LEERSIA**

CAREX  
CHASMANTHIUM  
TRIPSACUM

