

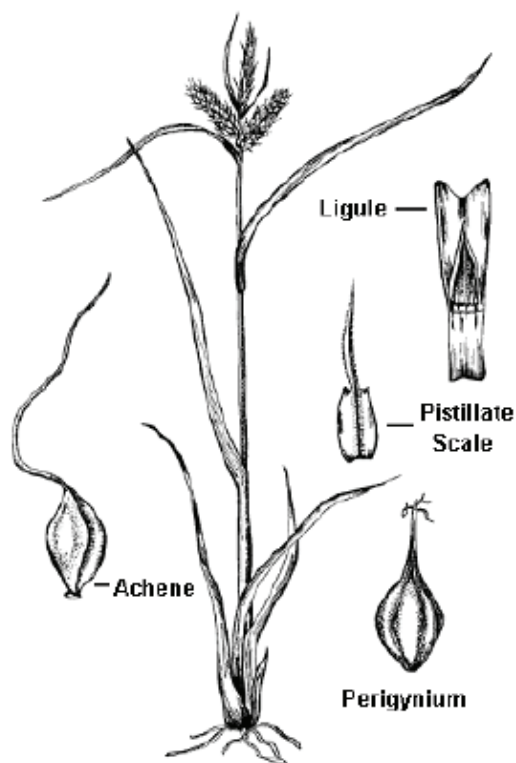


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Common Wetland Delineation Sedges of the Northeast

Robert Lichvar

June 2005



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**COMMON WETLAND DELINEATION SEDGES
OF THE NORTHEAST**

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June 2005

Introduction

This field guide is intended to assist in identifying 16 of the most common *Carex* (sedge) species observed during wetland delineations. An additional 26 species that are similar in appearance to these common sedges are included and distinguished. This guide to common sedges is designed to take to the field and key sedges with a 10× hand lens.

Over years of teaching sedges for wetland delineation purposes, I have used a variety of approaches. Most commonly we “overloaded” the students with botanical keys with extreme terminology to teach students that they could key a *Carex* if they had to! But, in the end, I felt that they didn’t learn the common sedges well enough to identify them on a daily basis. So for several years I’ve been compiling matrices and looking for those patterns that field botanists impress us with when they so capably place a sedge into a group, which greatly simplifies identification.

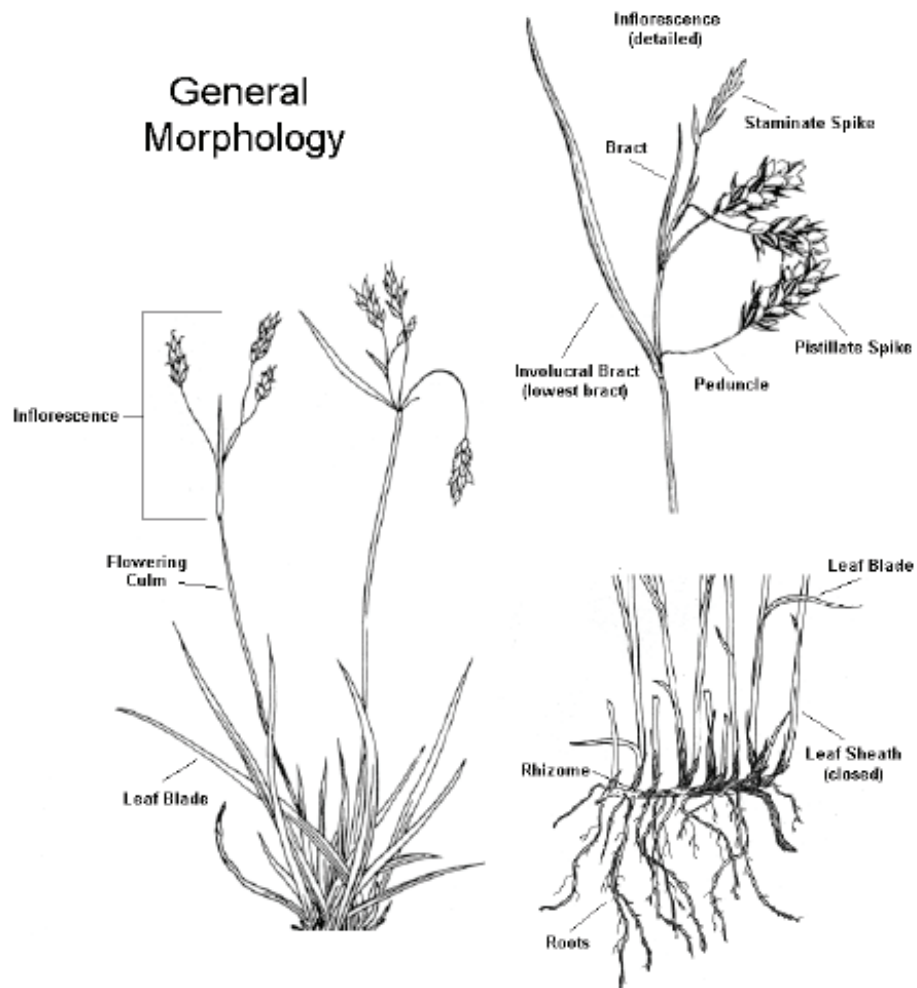
Meanwhile, Dave Murray (Univ. of Alaska) made those observations and developed a set of keys for the sedges of Alaska (Tande and Lipkin 2003). In those keys Murray captured that field aspect that I was trying to develop but couldn’t quite see. The following “group keys” to sedges follow Murray’s leads, with minor modifications, to place sedges into five major visual groups. Unlike traditional sedge keys, the number of stigmas and the perigynia shape are avoided until later in the individual keys, if they are needed at all. I attempted to use characters that can be seen in the field and that also sort other related “look-alike” species into the same key couplet. Other look-alike species are then distinguished on the description page of the common species keyed. The other similar species are supported by illustrations for comparison purposes.

My goal here is to present the major groups of sedges, as distinguished by growth form, by using field-oriented keys for learning the common sedges. Once a new student of *Carex* is comfortable with the groups in the field, they can then move on and identify other sedges they may encounter later using more technical manuals.

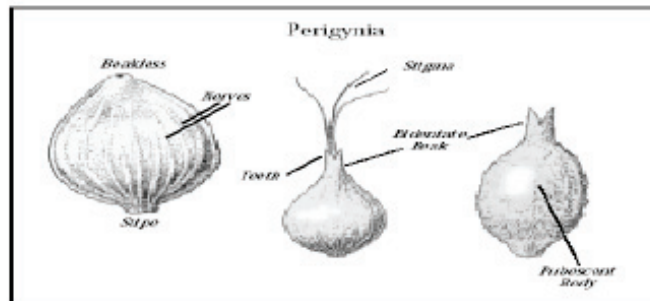
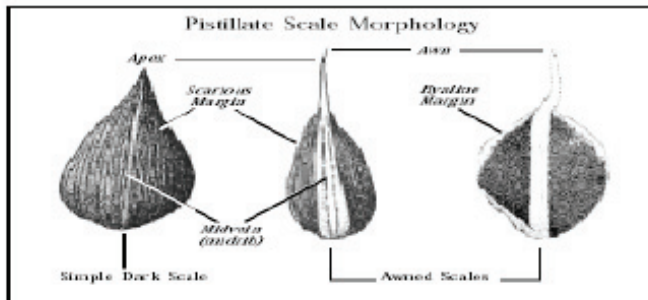
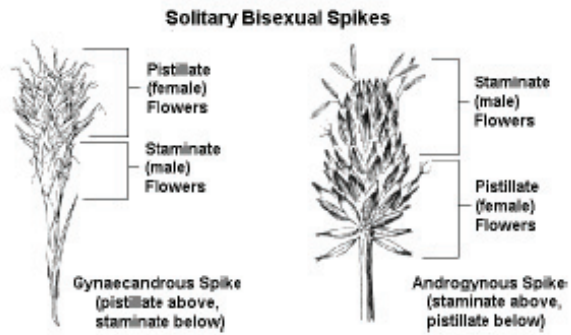
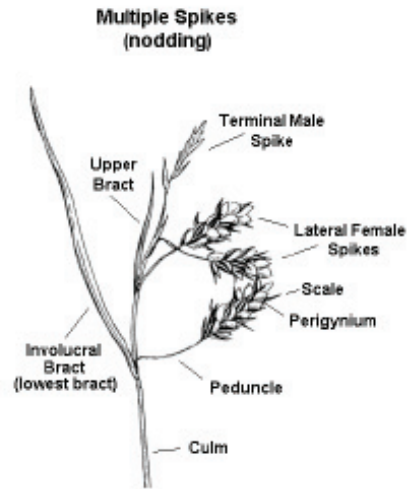
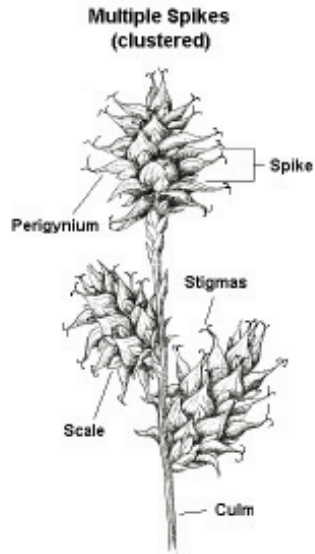
Format of the Guide

Labeled *Carex* illustrations provide basic terminology and morphological features used in keying sedges. Those are followed by a key to the major growth form groups and a table depicting the general shapes of the five major sedge groups. Following the keys, in alphabetical order, are illustrations and species descriptions. The description section is intended for field use and to distinguish other look-alike species. The nomenclature of this guide follows Gleason and Cronquist (1991).

General Morphology



Inflorescence Morphology



Group Key (to common sedges in the field)

1. Spikelets (sometimes referred to as spikes) clustered at the apex and appearing like a single spike
 2. Spikelet single **Key 1**
 2. Spikelets multiple **Key 2**
1. Spikelets scattered along the axis of the inflorescence and not clustered
 3. Upper staminate spikes (1) 2–4; if 1 staminate terminal spike, then pistillate spike pendulant and perigynium beakless or nearly so **Key 3**
 3. Upper staminate spikes 1 and not as above
 4. Lateral pistillate spikes with most peduncles as long or longer than the spikes, spikes pendent **Key 4**
 4. Lateral pistillate spikes with most peduncles shorter than the spikes (or sessile), spikes erect **Key 5**

Key Group 1 Single Spike	Key Group 2 Multiple Clusters	Key Group 3 (1) 2–4 Male Spikes, Mostly Sessile	Key Group 4 Nodding	Key Group 5 Single Sessile Male Spike
				

Key 1. Spikelet sessile and single

1. Perigynia strongly reflexed, more than 5 mm long *C. pauciflora*
1. Perigynia ascending, less than 5 mm long *C. leptalea*

Key 2. Spikelets sessile and multiple

1. Leaf sheaths not cross-corrugated; spikelets androgynous (staminate above)
 2. Subglobose to ovoid spikelets with ascending perigynia *C. scoparia*
 2. Globose spikelets with spreading perigynia (star-like spikelet clusters) *C. echinata*

1. Leaf sheaths cross-corrugated; spikelets gynecandrous (pistillate above)

3. Pistillate scales awnless; sheath strongly cross corrugated..... *C. stipata*

3. Pistillate scales awned; sheath finer cross corrugated..... *C. vulpinoidea*

Key 3. Upper staminate spikes (1) 2–4; if 1 staminate terminal spike, then
pistillate spike pendulant and perigynium beakless or nearly so

1. Pistillate spike pedunculate (nodding) *C. crinita*

1. Pistillate spike sessile or nearly so and erect or ascending

2. Perigynium pubescent..... *C. lasiocarpa*

2. Perigynium not pubescent

3. Pistillate spikes less than 1 cm wide..... *C. stricta*

3. Pistillate spikes 1–1.5 cm wide

4. Perigynium slender ovoid and gradually tapering
to beak..... *C. lacustris*

4. Perigynium ovoid and abruptly beaked..... *C. rostrata*

Key 4. Lateral pistillate spikes with most peduncles as long as or longer than
the spikes, spikes pendent (nodding)

1. Base of culm greenish and roots covered with yellow-brown
tomentum, bract of lowermost pistillate spike with
well-developed sheath..... *C. paupercula*

1. Base of culm purplish and roots lacking tomentum, bract of
lowermost pistillate spike sheathless or nearly so..... *C. debilis*

Key 5. Lateral spikes with most peduncles shorter than the spikes,
spikes erect

1. Perigynium more than 1 cm long, more than 3 mm wide,
and much inflated (bladder sedges)..... *C. intumescens*

1. Perigynium less than 1 cm long, less than 3 mm wide,
and not highly inflated

2. Pistillate spikes ascending to divergent *C. lurida*

2. Pistillate spikes mostly pendulant (nodding) *C. comosa*

Indicator Status of Common Sedges and Their Look-alikes			
	Common Species	Look-alikes	Indicator Status*
Key Group 1 Single Spike	<i>C. leptalea</i>		OBL
		<i>C. capitata</i>	FAC
	<i>C. pauciflora</i>		OBL
		<i>C. dioica</i>	OBL
Key Group 2 Multiple Clusters	<i>C. echinata</i>		OBL
		<i>C. atlantica</i>	FACW
		<i>C. interior</i>	OBL
	<i>C. scoparia</i>		FACW
		<i>C. bebbi</i>	OBL
		<i>C. cristatella</i>	FACW
		<i>C. festucacea</i>	FAC
		<i>C. canescens</i>	OBL
	<i>C. stipata</i>		OBL
		<i>C. canescens</i>	OBL
		<i>C. laevivaginata</i>	OBL
	<i>C. vulpinoidea</i>		OBL
Key Group 3 (1) 2-4 Male Spikes, Mostly Sessile		<i>C. annectans</i>	FACW
	<i>C. crinata</i>		OBL
		<i>C. gynandra</i>	OBL
	<i>C. lacustris</i>		OBL
	<i>C. lasiocarpa</i>		OBL
		<i>C. houghtoniana</i>	UPL
		<i>C. pellita (= lanuginosa)</i>	OBL
	<i>C. rostrata</i>		OBL
	<i>C. stricta</i>		OBL
		<i>C. aquatilis</i>	OBL
Key Group 4 Nodding		<i>C. lenticularis</i>	OBL
	<i>C. debilis</i>		FAC
		<i>C. arctata</i>	UPL
		<i>C. capillaris</i>	FACW
	<i>C. paupercula</i>		OBL
		<i>C. limosa</i>	OBL
Key Group 5 Single Sessile Male Spike		<i>C. rariflora</i>	OBL
	<i>C. comosa</i>		OBL
		<i>C. hystericina</i>	OBL
		<i>C. pseudocyperus</i>	OBL
	<i>C. intumescens</i>		FACW
		<i>C. folliculata</i>	OBL
		<i>C. grayi</i>	FACW
		<i>C. lupulina</i>	OBL
	<i>C. lurida</i>		OBL
		<i>C. flava</i>	OBL
		<i>C. viridula</i>	OBL

* OBL = Obligate; FACW = Facultative Wetland; FAC = Facultative; UPL = Upland; see Reed, P.B. (1988) National list of plant species that occur in wetlands: National summary. Biology Report 88(24), U.S. Fish and Wildlife Service, Washington, D.C.

Carex comosa Boott

Bristle/Bottlebrush Sedge

Key Group 5: Single Sessile Male Spike



Carex comosa Boott

Bristle/Bottlebrush Sedge

Field Aspect – Stout stems to 10 dm, the lowest bract surpassing and sometimes several times as long as the inflorescence; terminal spike staminate to males or females on top; pistillate spikes 2–7, loose, nodding; perigynia inflated with a long, bristle-like beak; stigmas 3

Technical – Stems 3–10 dm, stout; leaves long, flat blades 3–9 mm wide; bracts surpassing and sometimes several times as long as inflorescence; staminate spike terminal or androgynous or gynaeandrous; pistillate spikes 2–7, loose and more or less nodding and grouped together; scales rough awn tipped, 2–6 mm; perigynia more or less reflexed, inflated with a long, bristle-like beak; stigmas 3

Habitat – Pond margins, wet meadows, and swamps

Look-alike Species – *C. comosa* is one of several large, leafy-headed sedges. The following key will separate other similar species.

1. Mature perigynia spreading to ascending, nearly round in cross section, abruptly narrowed to a beak..... *C. hystericina*
1. Mature perigynia more or less reflexed, obtusely trigonous, very gradually tapering to a beak.
 2. Teeth of perigynium arched and divergent, beak greater than 1.2 mm long..... *C. comosa*
 2. Teeth of perigynium straight and erect, beak less than 1 mm..... *C. pseudocyperus*



Carex comosa



Carex hystericina

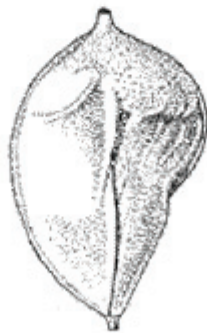


Carex pseudocyperus

Carex crinita L.

Fringed Sedge

Key Group 3: (1) 2–4 Males Spikes, Mostly Sessile



Perigynia



Achene



Scale



Ligule

***Carex crinita* L.**

Fringed Sedge

Field Aspect – A tall, densely tufted sedge with broad leaves and bracts that are leaf-like; the pistillate spike nodding but on short peduncles; the upper leaves rough to touch

Technical – Tufted; 4–16 dm tall; culms reddish at base; leaves 7–13 mm wide; bracts leaf-like; staminate spikes mostly 1 (sometimes 2–3) and terminal; pistillate spikes 2–5, 4–11 cm long; scales rough awned, 10 mm long; perigynium greenish, faintly nerved, 2.2–4.3 mm long; minute beak; stigmas 2.

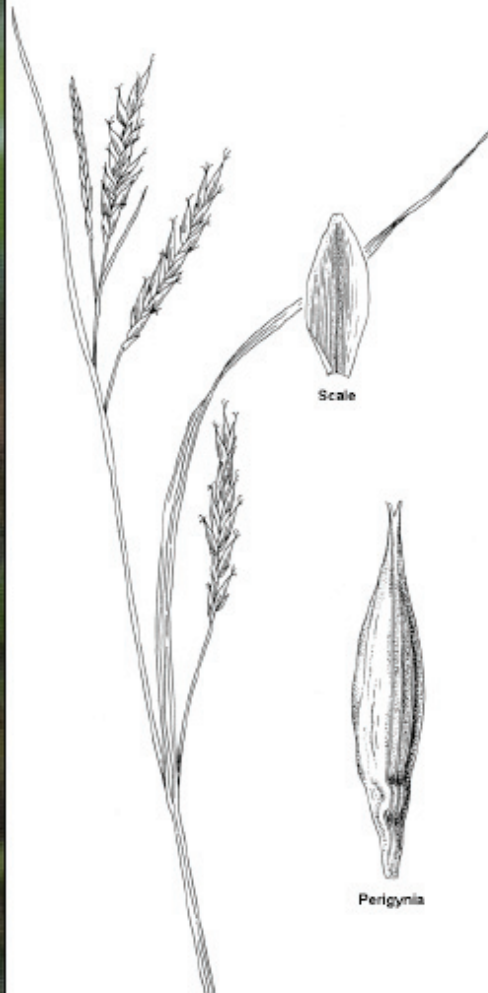
Habitat – Woods, marshes, and low wet woods

Look-alike Species – *C. crinita* in recent floras has been split into two species. The rough, hispidulous-leaved species is treated as *C. gynandra*.

Carex debilis Michx.

Weak Sedge

Key Group 4: Nodding



***Carex debilis* Michx.**

Weak Sedge

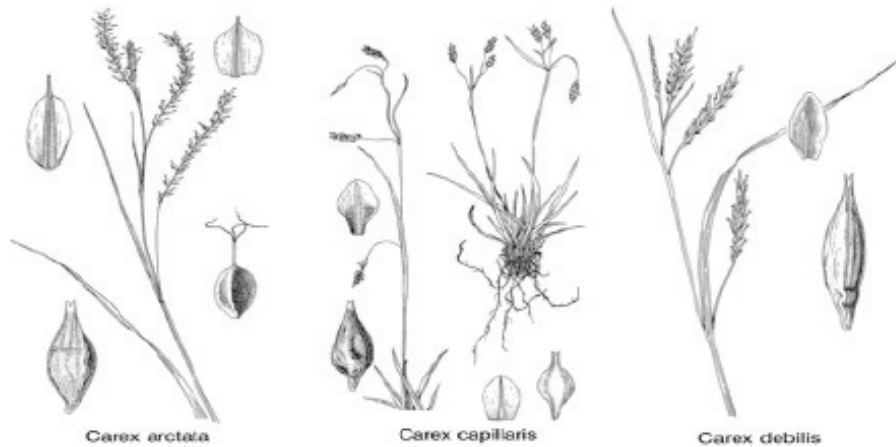
Field Aspect – One of the nodding woodland sedges scattered in mesic woods and forested wetlands; purplish base; terminal spike staminate and nodding pistillate spikes that are loosely flowered

Technical – Tufted to 1 m, purplish at base; leaves 2–4 mm wide; staminate spike 2–4 cm, very slender; pistillate spike 2–4, well separated, nodding, 3–6 cm long and 4 mm wide; scales half as long as the perigynium; perigynium narrowly ovoid, 4.7–8.3 mm long with a conspicuous midvein; beaked; stigmas 3.

Habitat – Moist to dry woodlands

Look-alike Species – There are several nodding woodland sedges that are common in the Northeast. These can be separate by the following key:

1. Pistillate spikes less than 1.5 cm long; stems drab or brown at base *C. capillaris*
1. Pistillate spikes greater than 1.5 cm long; stems reddish-tinged at base
 2. Pistillate scales with tipped awns..... *C. arctata*
 2. Pistillate scales lacking awn tips..... *C. debilis*



Carex echinata Murray

Star Sedge

Key Group 2: Multiple Clusters



Carex echinata

***Carex echinata* Murray**

Star Sedge

Field Aspect – 1–6 dm tall in tufts; culms somewhat weak and scabrous on the angles, with sessile, small, and few-flowered spikelets that have reflexed perigynia resembling a star pattern

Technical – Stems tufted, 1–6 dm; leaves 3–6 per stem, mostly basal, 1–2.5 mm wide; spikes sessile, 1.5–2.5 cm long, terminal gynecandrous and laterals pistillate, lower spike separated from the upper clusters; scales ovate acute to blunt; perigynia 2.8–3.5 mm long and 1.2–1.7 mm wide, 2–12 nerved; beak flattened and serrulate

Habitat – Wet meadows, swamps, and wet woods

Look-alike Species – *C. echinata* is a member of the Stellulatae Tribe, in which the members share the reflexed perigynia in the spikes, giving it that star appearance. Separation of species in this group is technical and requires measuring various aspects of the perigynia.

1. Beak of perigynia strongly toothed, the teeth 0.3–0.7 mm long *C. echinata*
1. Beak of perigynia with short teeth less than 0.3 mm long
2. Leaves 1–2 mm wide, shorter than the stem *C. interior*
2. Leaves less than 1 mm wide, equaling or exceeding the stem in length *C. atlantica*



Carex atlantica



Carex echinata

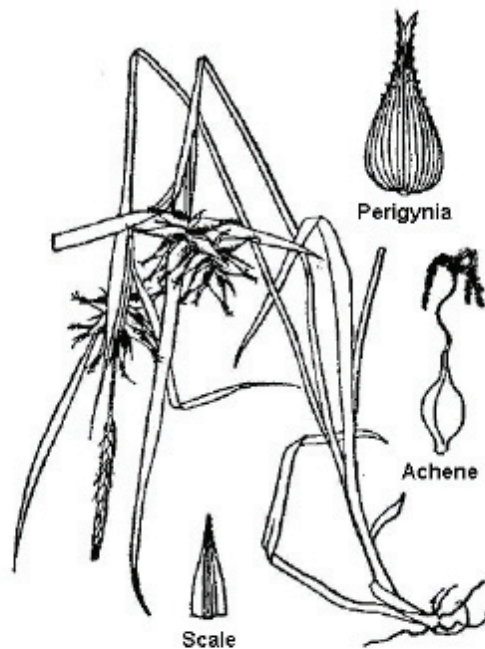


Carex interior

Carex intumescens Rudge

Bladder Sedge

Key Group 5: Single Sessile Male Spike



***Carex intumescens* Rudge**

Bladder Sedge

Field Aspect – A tall sedge of moist woodlands, with stems to 9 dm, solitary in small clusters, pistillate spikes with highly inflated and spreading perigynia, stigmas 3

Technical – Stems 3–9 dm, solitary or small clusters, scabrous on angles above; leaves 4–11 mm wide; terminal spike staminate on peduncle 0.5–6 cm long; pistillate spikes 1–4, 1–2.7 cm long and wide, ovoid, loosely flowered; scales lance-ovate, often rough awned; perigynia 1–12, spreading to ascending, 10–16.5 by 2.5–6.5 mm, stigmas 3

Habitat – Moist to wet woods

Look-alike Species – There are a series of the tall, highly inflated bladder sedges typically found in forested situations. The following key should quickly sort them:

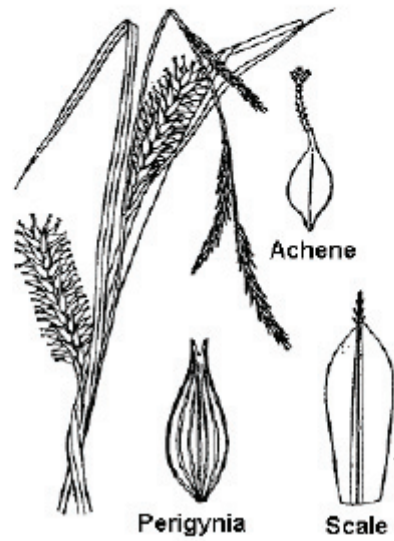
1. Lowermost pistillate spike on long peduncle.....*C. folliculata*
1. Lowermost pistillate spike on a peduncle equal to or shorter than the pistillate spike
 2. Pistillate spikes thick-cylindrical.....*C. lupulina*
 2. Pistillate spike globose to subglobose
 3. Perigynia radiating in all directions, narrowed at base *C. grayi*
 3. Perigynia spreading to ascending, rounded at base *C. intumescens*



Carex lacustris Willd.

Lake Sedge

Key Group 3: (1) 2–4 Males Spikes, Mostly Sessile



***Carex lacustris* Willd.**

Lake Sedge

Field Aspect – A large sedge 15 dm tall usually forming nearly pure stands along the edges of open water, with leaves that are distinctly “W” shaped, the lower leaf sheaths strongly reddened, staminate spikelets 2–4 at summit and pistillate spikelets 2–4, sessile, perigynium beaked with 3 stigmas

Technical – Stems stout, 5–15 dm, lower sheaths strongly reddened, leaves 8–15 mm wide, scabrous margins, obvious “W” shaped with a pronounced midrib; staminate spikes 2–4 at apex; pistillate spikes 2–4, sessile, 3–10 by 1–1.5 cm, erect; bracts leaf-like, mostly surpassing the inflorescence; scales shorter than perigynium, pale brown with green midrib and often awned to 3 mm; perigynium ellipsoid-ovoid, 4.7–7.3 mm long, beaked with 3 stigmas

Habitat – Marshes and swamps usually along open water edges

Look-alike Species – This species is in the Paludosae Tribe, which contains other common sedges included in this booklet but not similar using our “field characters.” *C. lacustris* is sometimes confused with *C. rostrata*, another one of the large robust sedges. Check *C. rostrata* in this booklet and the Group 3 key to distinguish them.

Carex lasiocarpa Ehrh.

Wooly Fruit Sedge

Key Group 3: (1) 2–4 Males Spikes, Mostly Sessile



***Carex lasiocarpa* Ehrh.**

Wooly Fruit Sedge

Field Aspect – A colonial species usually found along the edges of open-water areas, 3–10 dm tall; leaves folded; terminal and lateral spikelets staminate, pistillate spikes 2–4, sessile; scales brownish and perigynia hairy, stigmas 3

Technical – Colonizing stands 3–12 dm tall, reddish at culm base; leaves folded part of the way and long, attenuated, 1–1.5 mm wide; lower sheaths breaking and becoming strongly cross-filamentose; bracts equaling or exceeding the inflorescence; staminate spikelets terminal, 2–3, lateral staminate spikelets sessile; pistillate spikelets cylindrical, sessile or nearly so, 1–4.5 cm long; scales ovate-lanceolate, somewhat ciliate at tip, purplish brown; perigynia ovoid, hairy, 2.8–5 mm long, 1.5–2 mm wide; stigmas 3

Habitat – This species forms large colonial stands along the edges of shallow open-water areas, along stream and rivers to wooded swamps and wet woods.

Look-alike Species – There are not many common look-alikes to this large colonial sedge with hairy perigynia. The closest is *C. pellita*, which also is found along the edges of open-water areas. Another large and similar-appearing sedge with hairy perigynia is *C. houghtoniana*, but it is a species of dry habitats.

1. Perigynia 4–7 mm long, ribbed, with short bristly hairs..... *C. houghtoniana*

1. Perigynia 2.8–5 mm long, ribs obscured by dense hairs

2. Leaves flat, 2–5 mm wide..... *C. pellita*

2. Leaves folded, 1–5 mm wide..... *C. lasiocarpa*



Carex houghtoniana



Carex lasiocarpa



Carex pellita

Carex leptalea Wahlenb.

Bristle-stalked Sedge

Key Group 1: Single Spike



***Carex leptalea* Wahlenb.**

Bristle-stalked Sedge

Field Aspect – A tufted sedge mostly of bogs and swamps, 1.5–6 dm tall, with leaves shorter than the stems, having an obvious staminate, terminate spike above the cluster of sessile, lateral, pistillate spikes

Technical – Stems tufted, slender, 1.5–6 dm tall; leaves shorter than stems, flat, 0.7–1.2 mm wide; spike single, 0.5–1.5 cm long, terminal spike staminate; scales obtuse to acute to short-awned, shorter than the perigynium; perigynia 1–10, 2.5–4.5 mm, appressed and ascending, spongy at base; beakless; stigmas 3

Habitat – Bogs and coniferous and deciduous swamps

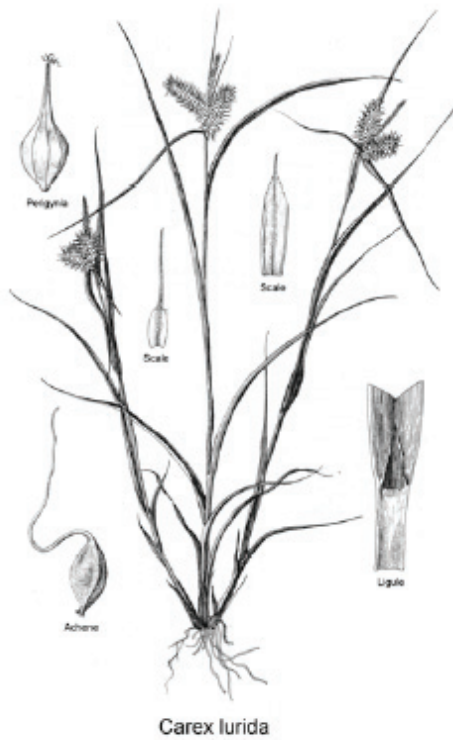
Look-alike Species – This is the only member of the Polytrichoidae Tribe within our flora and range. This sedge is reasonably distinct because of its single spike and obvious large scales. The most similar species is *C. capitata*, which is an alpine species of New England. I've included it here only for reference.



Carex lurida Wahlenb.

Lurid (Striking) Sedge

Key Group 5: Single Sessile Male Spike



***Carex lurida* Wahlenb.**

Lurid (Striking) Sedge

Field Aspect – A tufted bladder sedge to 10 dm, rounded stem edges, staminate spikes terminal, pistillate spikes 1–4, mostly sessile and erect; perigynia sometimes in vertical rows, long beaked; stigmas 3

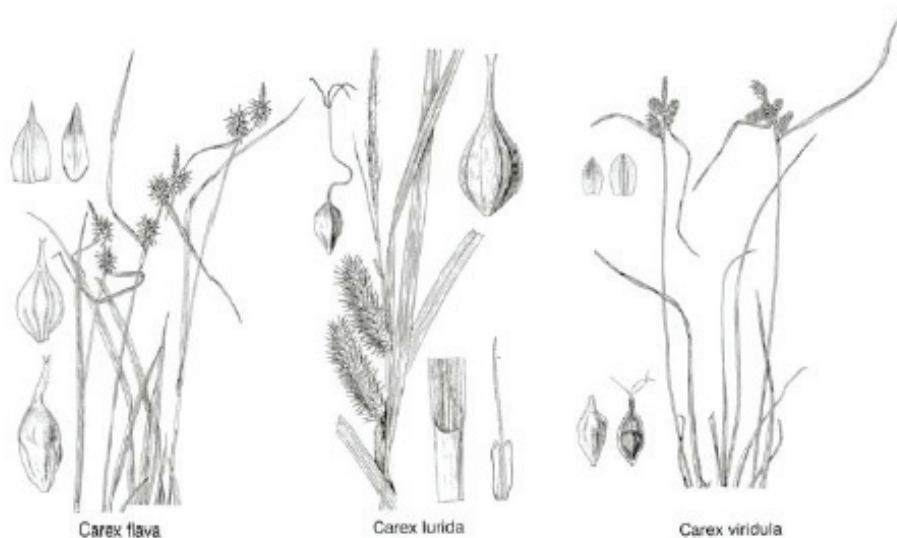
Technical – Tufted, 2–10 dm, surrounded by leaves, rounded edges; leaves 4–7 mm; terminal spike staminate; pistillate spikes 1–4, sessile and erect but peduncled and drooping in age; scales rough-awned; perigynia in many vertical rows, 6–9 mm, ovoid, somewhat inflated, beak half as long as body; stigmas 3

Habitat – Swamps, wet meadows to disturbed sites

Look-alike Species – Similar to other bladder sedges but can be distinguished by the bract of the lowest pistillate spike not or scarcely sheathed, and the perigynia is shorter than 10 mm. See *C. intumescens* for other similar large leafy sedge species.

This group of tight-headed, spiked species (knot-head sedges) can be distinguished with the following key:

- 1. Beak of perigynia toothed, greater than 0.4 mm long..... *C. lurida*
- 1. Beak of perigynia toothless or less than 0.4 mm long
 - 2. Perigynia mostly longer than 3 mm..... *C. flava*
 - 2. Perigynia mostly less than 3 mm..... *C. viridula*



Carex pauciflora Lightf.

Few-flowered Sedge

Key Group 1: Single Spike



Perigynia



Achene



Scale



Ligule

***Carex pauciflora* Lightf.**

Few-flowered Sedge

Field Aspect – A single or few-stemmed bog species, 1–4 dm tall, spike single and few-flowered, cylindrical perigynia that are strongly reflexed in maturity

Technical – Stems solitary or few, 1–4 dm tall; leaves 1–2 mm wide, shorter than the culms; spike 1, bractless; staminate scales closely folded into a terminal cone; pistillate scales also infolded; perigynia few, 1–6, deflexed, 6–7.5 mm long, tapering

Habitat – Sphagnum bogs

Look-alike Species – This is one of only several single-spiked sedges in our flora. Also, this is the only representative of the Tribe Orthocerates in our region. These single-headed sedges are very distinct and easy to tell in the field. They are typically not found on many wetlands unless the site is a sphagnum bog. The closest look-alike species is *C. dioica*, another bog species.

1. Stigmas 2, achenes lenticular..... *C. dioica*
1. Stigmas 3, achenes trigonous..... *C. pauciflora*



Carex dioica



Carex pauciflora

Carex paupercula Michx.

Bog or Little Sedge

Key Group 4: Nodding



Perigynium



Achene



Scale

Carex paupercula Michx.

Bog or Little Sedge

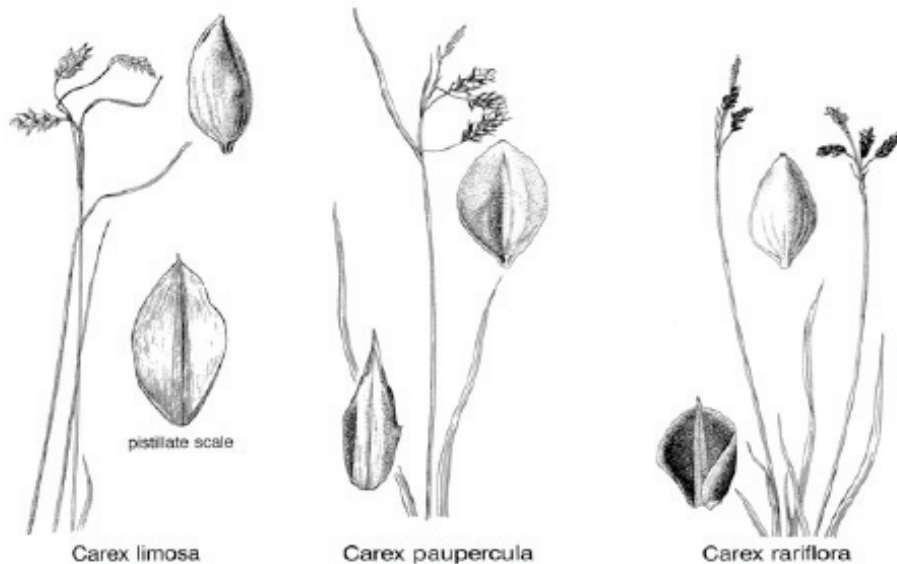
Field Aspect – One of the several delicate, nodding bog sedges forming small clusters with yellowish-brown, felt-covered roots; terminal spike staminate with 1–3 nodding pistillate spikes on slender peduncles

Technical – Small tufted sedge with yellowish-brown, felt-covered roots; culms 2–7 dm tall; leaves 1–3 mm wide, flat; terminal spike staminate, 0.7–1.5 cm long; pistillate spikes 1–4, nodding on slender peduncles; bract sheathless, 2–10 cm long; scale light brown and often with a green midstripe, shorter than perigynia; perigynium greenish to straw-colored, elliptic to ovate, nerved, 2.3–4.2 mm; beakless; stigmas 3

Habitat – Sphagnum bogs

Look-alike Species – There are several delicate nodding sedges found in bogs. The separation of species relies on mostly technical characters. The following key will separate them:

1. Pistillate scales lanceolate, narrower than the perigynium *C. paupercula*
1. Pistillate scales ovate or elliptic, mostly as wide as long
 2. Stems obtusely 3-angled, smooth; scales wrapped around perigynium base *C. rariflora*
 2. Stems sharply 3-angled, rough above; scales not wrapped around base of perigynium *C. limosa*



Carex rostrata Stokes (and *C. utriculata* Boott.) Bladder Sedge

Key Group 3: (1) 2–4 Males Spikes, Mostly Sessile



***Carex rostrata* Stokes
(and *C. utriculata* Boott.)**

Bladder Sedge

Field Aspect – A stout sedge from 25–120 cm tall, forming dense stands with leaves “V” shaped, bracts equal to or exceeding the inflorescence, terminal staminate spikes 2–4, pistillate spikes 2–4 sessile to short stalked, ascending to spreading and stigmas 3

Technical – Dense, almost sod-forming sedge to 120 cm tall; stems bluntly trigonous; leaves 3–15 mm wide, “V” shaped; bracts 1–2 times longer than inflorescence; staminate spike terminal, 2–7 cm long; pistillate spikes 2–4, sessile or on short stalks; scales tapering and shorter than perigynia; perigynia 8+ rows, spreading at maturity, 4–7 mm, inflated; beak 1–2 mm; stigmas 3

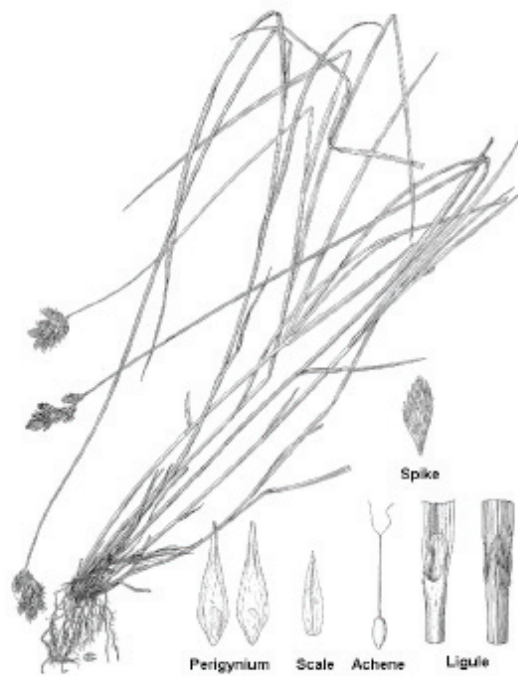
Habitat – Wet meadows, marshes, bogs, fens, and wooded swamps

Look-alike Species – The closest look-alike to this species is *C. lacustris*. Use the Group 3 key and refer to the section on *C. lacustris* to distinguish them.

Carex scoparia Schkuhr.

Pointed Broom or Swamp Sedge

Key Group 2: Multiple Clusters



***Carex scoparia* Schkuhr.**

Pointed Broom or Swamp Sedge

Field Aspect – 2–8 dm tall clumps, sharply edged stems roughened below the inflorescence, with clusters of short, oblong-ovoid spikes that are densely flowered and usually straw to brownish colored

Technical – Plants tufted 2–8 dm tall; leaves 1.5–3 mm wide, shorter than the stems; spikes gynaeandrous, 8–14 mm long, 3–5 mm wide; scales ovate to oblong-ovate and often with short awn, light brown with white-hyaline margin; perigynium ovate-lanceolate, flattish, widest below middle, thin-winged margin, nerves on both sides, beak not well defined, shallowly bidentate

Habitat – FACW species located in meadows, swamps, to roadsides

Look-alike Species – *C. scoparia* is a member of the infamous Ovales group of sedges. This large group of small-clustered spiked sedges with winged perigynia is a very technical group and usually requires a microscope and multiple measurements of the perigynium to identify taxa. Also, sometimes *C. scoparia* occurs with an elongated rachis in the inflorescence, giving it a look similar to *C. canescens* (see *C. stipata*; appears like the upper right inflorescence of *C. scoparia* in the illustration below).

The following species look similar in the field and are very difficult to differentiate. The least technical set of keys that can separate them follows.

1. Perigynia less than or equal to 1/3 as wide as long..... *C. scoparia*
1. Perigynia more than 1/3 as wide as long
 2. Tips of perigynia with stiffly spreading, recurved beak *C. cristatella*
 2. Tips of perigynia with stiffly ascending beaks
 3. Beak of perigynia abruptly tapered..... *C. festucacea*
 3. Beak of perigynia gradually tapered..... *C. bebbii*



Carex bebbii



Carex cristatella



Carex festucacea

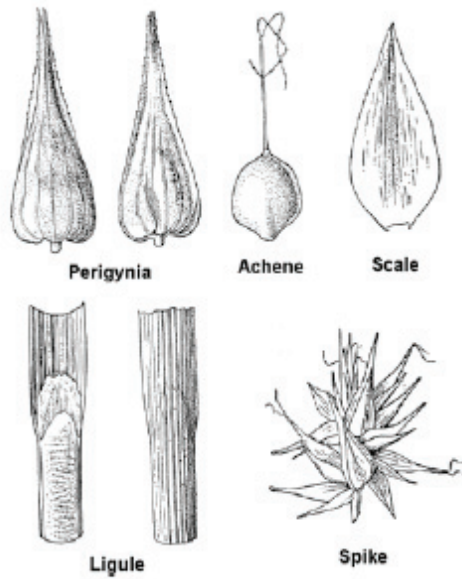


Carex scoparia

Carex stipata Muhl.

Awl, Prickly, or Saw-beaked Sedge

Key Group 2: Multiple Clusters



***Carex stipata* Muhl.**

Awl, Prickly, or Saw-beaked Sedge

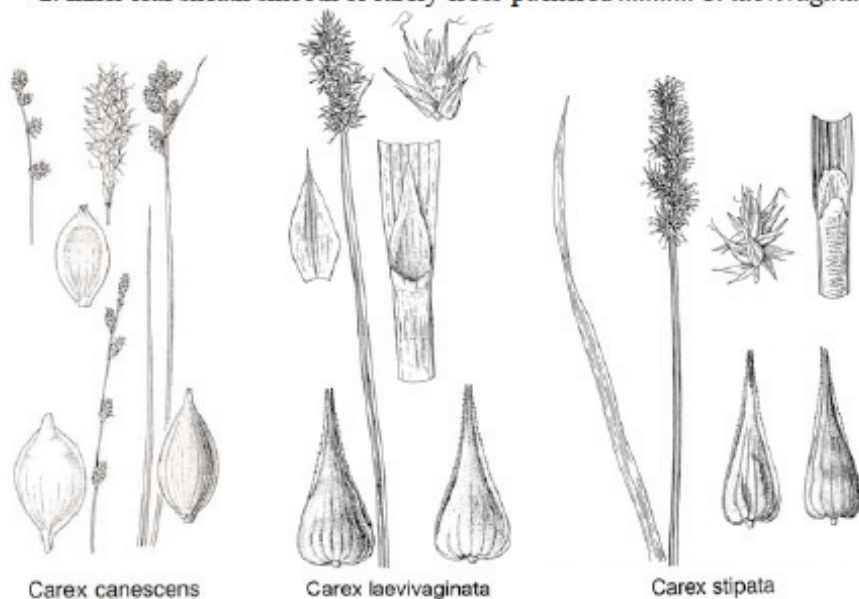
Field Aspect – Large, dense, green clumps with stout, narrowly winged culms with cross-puckered leaf sheaths, small tight clusters of spikelets appearing from a distance to be a single prickly spike; long, narrow perigynia, tapered to tip, with a thick spongy look

Technical – Stems stout, triangular, densely clumped, 3–10 dm tall; leaves coarse with an elongated sheath; spikes sessile and aggregated into a 3–10 cm long by 1–3 wide single-appearing spike at the summit of the culm; narrowly winged and serrulate above; leaf sheath cross-rugulose; awnless green scales, spreading to give a prickly look; perigynium lance-triangular and narrowly tapering to the tip, spongy at base, 3.6–6 mm long, 1.5–1.8 wide; beak serrulate along margins

Habitat – Wet meadows, swamps, and ditches

Look-alike Species – *C. stipata* is a member of the Vulpinae Tribe of sedges, which shares the clustered, single-spike look from a distance. This distinct sedge has one main look-alike species differentiated on the characters in the following key. *C. canescens*, which is not a look-alike but keys here from the main Group Keys, is also distinguished in the following key:

- 1. Stem edges not strongly triangular and winged *C. canescens*
- 1. Stem edges strongly triangular and winged
 - 2. Inner leaf sheath cross-puckered *C. stipata*
 - 2. Inner leaf sheath smooth or rarely cross-puckered *C. laevivaginata*



Carex stricta Lam.

Upright or Tussock Sedge

Key Group 5: (1) 2–4 Males Spikes, Mostly Sessile



***Carex stricta* Lam.**

Upright or Tussock Sedge

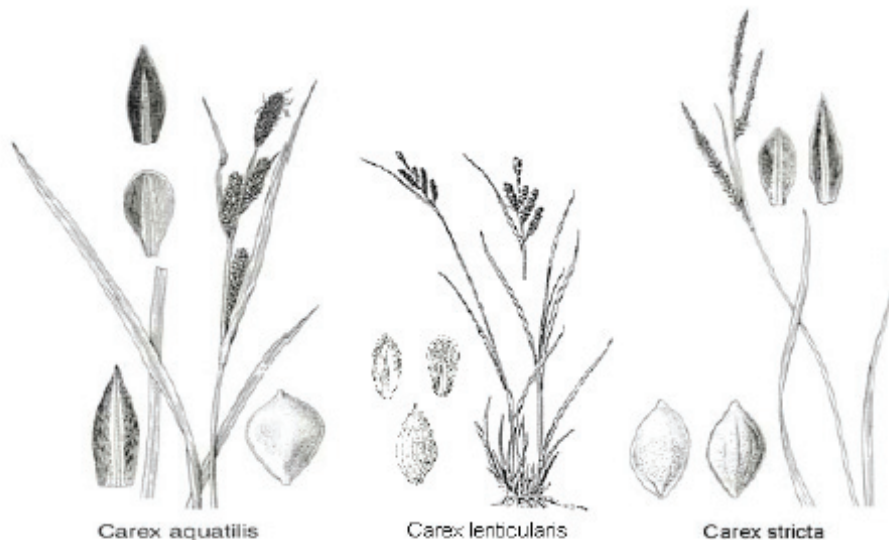
Field Aspect – Mostly a tussock-forming sedge; plants up to 14 dm tall with fibrillose, red stem bases; leaves “W” shaped; pistillate spikes sessile

Technical – Large, clump-forming sedge to 14 dm tall, scabrous-edged culms; lower leaves reduced to bladeless sheaths, these splitting and becoming fibrillose; leaves 3–6 mm and “W” shaped; staminate spikes sometimes terminal; pistillate spikes 2–4, up to 6 cm, erect and cylindrical, sessile; scales oblong, narrower, and shorter than the perigynium, reddish to purplish brown, blunt to acute; perigynia planoconvex, 1.6–3.4 mm; beak straight; stigmas 2

Habitat – Marshes and streambanks, especially where there is seasonal flooding

Look-alike Species – There are several large, densely tufted species similar to *C. stricta*. The most frequently encountered in our region are *C. aquatilis* and *C. lenticularis*. The following key should quickly sort them:

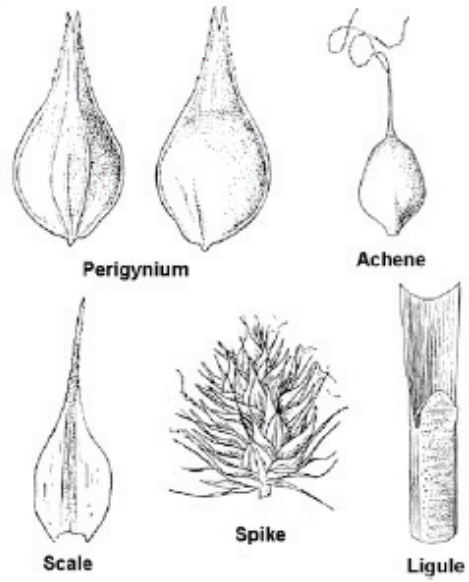
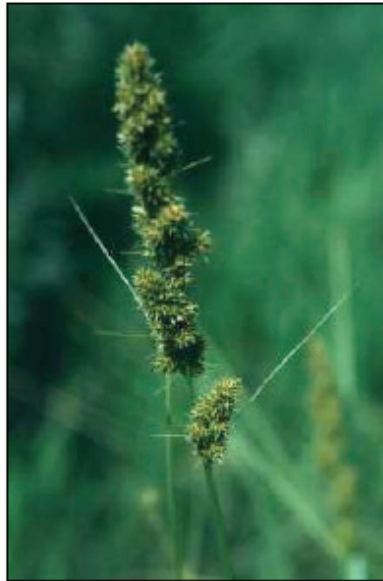
1. Perigynium not nerved; pistillate scale dark and highly contrasting to perigynium *C. aquatilis*
1. Perigynium nerved or, if nerveless, then pistillate scale with dark margins but with a green center rib and only somewhat contrasting to perigynium
 2. Inner leaf sheath fibrillose; pistillate spikes often staminate at tip; perigynium faintly nerved or nerveless *C. stricta*
 2. Inner leaf sheaths not fibrillose; pistillate spikes usually not staminate at tip; perigynium distinctly nerved *C. lenticularis*



Carex vulpinoidea Michx.

Fox Sedge

Key Group 2: Multiple Clusters



***Carex vulpinoidea* Michx.**

Fox Sedge

Field Aspect – A medium-sized, clumped sedge with stiff and roughened culms, leaves flat, leaf sheaths strongly cross-puckered, bracts half to as long as the inflorescence, small brownish spikes tightly clustered into a long linear-looking spike, scales awned and perigynia widest at the middle

Technical – Stems clustered, 2–20 cm tall, sharply triangular and roughened along the edges; leaves scattered on the lower half of culm, flat; bracts up to 5 cm long, either shorter than or exceeding the length of the inflorescence; scale awned and shorter and narrower than the perigynia; perigynium ovate-lanceolate, greenish to brown, 1.7–3 mm long, 1–1.2 mm wide, 3 or less nerves; stigmas 2

Habitat – Wet meadows and disturbed sites

Look-alike Species – *C. vulpinoidea* is the only member of the Multiflorae Tribe in our area. The most similar species to Fox Sedge is sometimes treated as a variety to *C. vulpinoidea*. Recent treatments in our area maintain the two entities at the species level. Since both of these are frequently encountered in our area, the following key should easily separate them:

1. Leaves mostly equaling or longer than the stem; beak of perigynium half or more as long as the body *C. vulpinoidea*
1. Leaves mostly shorter than the stems; beak of perigynium less than half as long as the body *C. annectans*



Acknowledgments

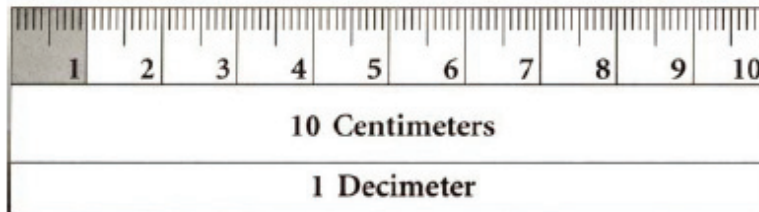
The ability to convey what the “botanist’s eye” sees in the field is made possible by the generous permission by several institutions and academic web pages. The New York Botanical Garden granted permission to use numerous line illustrations from *The Illustrated Companion to Gleason and Cronquist’s Manual* (Holmgren 1998). Likewise, the University of Georgia Press granted permission to use several illustrations from *Aquatic and Wetland Plants of the Southern United States: Monocotyledons* (Godfrey and Wooten 1979). I thank both of these institutions for their gracious permission to use these line drawings for this booklet. The illustrations of general morphology and inflorescence morphology on the cover and pages 3 and 4 are from Tande and Lipkin’s *Wetland Sedges of Alaska*. Photographs and illustrations from numerous academic institution web pages were also used in this booklet. The table below shows the sources for all this material. All of these institutions are also thanked for their willingness to share their digital images. Mike Ericsson of CRREL, a geologist, provided the nonbotanical insight into terms and key leads that a nonbotanist “doesn’t get.” Finally, I thank the Corps of Engineers, Buffalo District wetland folks for being the test group of students for this guide.

Credits for Illustrations

Species	Symbol	Species	Symbol
<i>C. annectans</i>	E	<i>C. intumescens</i>	E, K, A, U
<i>C. aquatilis</i>	E	<i>C. lacustris</i>	R, R, R, U
<i>C. arctata</i>	E	<i>C. laevivaginata</i>	E
<i>C. atlantica</i>	E	<i>C. lasiocarpa</i>	E, C, M, N
<i>C. bebbi</i>	E	<i>C. lenticularis</i>	T
<i>C. canescens</i>	E	<i>C. leptalea</i>	E, T
<i>C. capillaris</i>	E	<i>C. limosa</i>	E
<i>C. capitata</i>	E	<i>C. lupulina</i>	E
<i>C. comosa</i>	E, D, X, P	<i>C. lurida</i>	E, D, J, H
<i>C. crinita</i>	V, Q, N	<i>C. pauciflora</i>	E, O, N, N
<i>C. cristatella</i>	E	<i>C. paupercula</i>	E, I, I, N, N
<i>C. debilis</i>	E	<i>C. pellita (= lamuginosa)</i>	E
<i>C. dioica</i>	E	<i>C. psuedocyperus</i>	E
<i>C. echinata</i>	E, B, M	<i>C. rariflora</i>	E
<i>C. festucacea</i>	E	<i>C. rostrata</i>	M, F, B, W
<i>C. flava</i>	E	<i>C. scoparia</i>	E, N, S
<i>C. folliculata</i>	E	<i>C. stipata</i>	E, G, A, N, N
<i>C. grayi</i>	E	<i>C. stricta</i>	E, L, R, N
<i>C. houghtoniana</i>	E	<i>C. viridula</i>	E
<i>C. hystericina</i>	E	<i>C. vulpinoidea</i>	E, S, N, N
<i>C. interior</i>	E		

Symbol	Source
A	<i>Atlas of Florida Vascular Plants</i> , a joint effort by the Institute of Systemic Botany, the University of South Florida, and the Florida Center for Community Plant Data. Photos by Guy Anglin.
B	BioImages, a Virtual Field Guide (http://www.bioimages.org.uk)
C	Flora.cyberia (http://www.floracyberia.net)
D	Godfrey, R.K., and J.W. Wooten (1979) <i>Aquatic and Wetland Plants of the Southeastern United States: Monocotyledons</i> . University of Georgia Press, Athens, GA. Reprinted by permission of University of Georgia Press.
E	Holmgren, N.H. (1998) <i>Illustrated Companion to Gleason and Cronquist's Manual</i> . New York Botanical Garden, Bronx, NY. Reprinted by permission of New York Botanical Garden.
F	Department of Botany, Masaryk University in Brno, Czech Republic
G	Mississippi National River and Recreation Area, National Park Service, U.S. Department of the Interior
H	Missouri Flora (web page by Dan Tenaglia)
I	Norwegian Botanical Association, University of Oslo. Photos by Bard Engelstad.
J	Patuxent Wildlife Research Center, U.S. Geological Survey, Plant List and Herbarium Collection. Photo by Matthew Perry.
K	Royal Ontario Museum. Photo by M. Ferguson.
L	Stratford Landing Elementary School. Photo by Erv Evans, North Carolina University.
M	Swedish Museum of Natural History. Photos by Jan Thomas Johansson, NRM, and Arne Anderberg.
N	Bioinformatics Working Group, Texas A&M University.
O	The Provincial Museum of Newfoundland and Labrador.
P	University of California, Berkeley CalPhotos Plants Database.
Q	University of Tennessee Herbarium. Photo by Edward W. Chester.
R	Cofrin Center for Biodiversity, University of Wisconsin–Green Bay. Photos by Gary Fewless.
S	Herbarium, University of Wisconsin–Stevens Point
T	USDA Forest Service Rocky Mountain Research Station, <i>Field Guide to Intermountain Sedges</i> , RMRS-GTR-10 1998.
U	USDA NRCS PLANTS Database
V	Washburn County Government–Wisconsin, Planning, Land & Water Resource Management/Land and Water Conservation
W	Wigry National Park, Poland
X	Wisconsin Department of Natural Resources

10 Millimeters



References

Gleason, H.A., and A. Cronquist (1991) *Manual of the Vascular Plants of Northeastern United States and Adjacent Canada*. New York Botanical Garden, Bronx, NY.

Godfrey, R.K., and J.W. Wooten (1979) *Aquatic and Wetland Plants of the Southeastern United States: Monocotyledons*. University of Georgia Press, Athens, GA.

Holmgren, N.H. (1998) *Illustrated Companion to Gleason and Cronquist's Manual*. New York Botanical Garden, Bronx, NY.

Tande, G., and R. Lipkin (2003) *Wetland Sedges of Alaska*. Alaska Natural Heritage Program, Environment and Natural Resources Institute, University of Alaska Anchorage. <http://enri.uaa.alaska.edu/aksedges/>