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Palmetto

Sedges • Saving Florida's Most Endangered Plants • Native or Not

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Figure 1: Star sedge, *Rhynchospora colorata* grows along the lakeshore at Fort Cooper State Park near Inverness, but also in bogs and prairies.

Sedges
Do we know them?

This long culm of bristly sedge, *Carex comosa*, has separate male and female spikes in its seed head. This specimen grows in the shady thickets within Emerald Marsh near Lisbon, Florida. Look for bristly sedge also in swamps in the central peninsula and northern counties in March and April. The range is from Ontario through the midwest down to Florida and Texas, and even a few places in Mexico.

The Cyperaceae or sedge family has many genera, including the genus *Carex*, and they are reported to be nature's most trying identification puzzle. Usually only the most botanically adept try. However, with the use of a centimeter ruler, a magnifying glass, and an illustrated book, such as the *Flora of North America: Cyperaceae* (2002) and the keys in *Guide to the Vascular plants of Florida*, (Wunderlin 2003), then the botanically inept can try as well.

Many sedges grow in marshes, yet they are also understory plants in dry woods, hummocks and floodplain forests. A few conspicuous species, such as star sedge or white top, *Rhynchospora colorata*, are known by name because of their white bracts that look like petals at first glance. While star sedge is insect pollinated, the other sedges have neither petals or showy bracts, nor sticky pollen that would attract insects. Instead, the stamens split and their fine dust-like pollen wafts on breezes. [Fig.1]

In the large sedge family of Cyperaceae, *Carex* is not the only genus with triangular culms. Sedge species of genera *Scirpus* and *Cyperus* also have triangular culms, at least some of them. The old phrase "sedges have edges" bears true much of the time, but not all of the time. The bulrushes are a good example. Soft-stem bulrush, *Schoenoplectus tabernaemontani*, has tall tubular culms [Fig. 2], while the shorter threesquare bulrush, *S. pungens*, has triangular culms. Neither of those sedges have leaves, while species in the *Scirpus* genus are quite leafy.

Most people are familiar with the vast marshes of saw grass along the coasts. Even though not a grass, its common name might lead you to think so. Sawgrass, *Cladium jamaicense*, is a sedge and forms large rhizomatous stands such as those seen along the boardwalk at Churchhouse Hammock in Crystal River. [Fig. 3]

A few species of the genus *Carex* also occur in stands, but most are in tufts, clumps, or tussocks. Although there are 67 species of *Carex* in Florida, and 35 of those in Central Florida, only a few people recognize them. Many people think they are grasses, which is a different family: Poaceae. Although *Carex* have long narrow leaves, their culms (stems) that bear the seed heads are triangular in cross section instead of round like the grasses. The edges of those triangular margins are easy to detect by touch. Be careful, though. The edges leaves and margins of culms have serrate teeth similar to *Cladium's*, and can give a razor-like cut.*Carex* means "to cut."

tissue is white and puckered-wrinkly while most other *Carex* sheaths are smooth. [Fig. 6]

A common sedge in Central and Northern Florida, *C. stipata* has distinctive perigynia, the sacs that enclose their one seed-like achene. The sacs in the seed head each have a swollen spongy base with a small stalk or stipe at the lower end of attachment. That lends its name *stipata* which means "with a stipe". The common names are many, and old-timers once named it sawbeak sedge because it resembled the old-fashioned wood saws irregular teeth on their blades. Another name was awl-fruited sedge because the sacs resembles an

Fig. 2

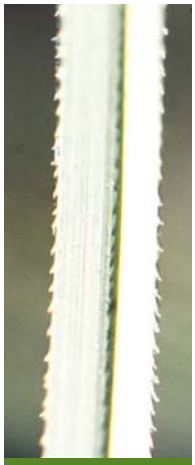


Fig. 3

Fig. 4

Fig. 6

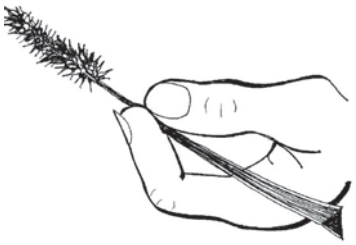


Fig. 5

Fig. 7

Figure 2: The tall leafless culms of softstem bulrush, *Schoenoplectus tabernaemontani*, formerly *Scirpus validus*, grow in dense stands in shallow water.
Figure 3: Enlarged section of a serrate leaf of sawgrass, *Cladium jamaicense*. The harsh teeth are not visible to the unaided eye. Sawgrass is a dominant species in the Everglades.
Figure 4: A seed head of *Carex stipata* with many small spikes.
Figure 5: *Carex stipata's* triangular culms are soft and pinchable.
Figure 6: The whitish puckered front of a leaf sheath of *Carex stipata.*
Figure 7: An awl-shaped sac from a spike of *Carex stipata.*

Carex are leafy and very grass-like in appearance. At first glance, the awl-fruited fox sedge, *C. stipata*, looks like a grass, but a closer look reveals the seed heads are on triangular culms with wing-edged margins. [Fig. 4] These culms are so soft that they compress under a finger-pinch. [Fig. 5] Spongy versus wiry culms is a clue in identifying fox sedge species. Another clue is the thin tissue on the front of the sheath, opposite of where a leaf departs the culm. *C. stipata's* thin

awl, a not so common tool today as in the past. The awl-fruited sedge's name has morphed, perhaps by typing error, to owl-fruited sedge, which makes botanists shriek with laugher, since there is nothing about the sedge that suggests an owl, and owls are predators, not herbivores. [Fig. 7]

While the species of *Carex* have a sac (perigynium) around their seed-like achene, the sedges *Scirpus*, *Cyperus*, and others have bristles and scales with their achenes instead.

Fig. 8

But these parts are small and magnification is necessary to see the differences. The visual reward is great because *Carex* sacs seem minutely ornate. So distinctive are the vein patterns and textures, they are used in identification since each species has its own design. Many are "artist's delights" with such unusual shapes, some suggesting a ceramist gone wild.

The beauty of small structures can be captured by a camera with a macro lens, or imaged on a computer's scanner and enlarged. The *Carex* species with the largest sacs include hop sedge, *C. lupulina*. [Fig. 8] Its sacs are about an inch (2.5 cm) long. While the plump spikes are females, the terminal narrow spike is a male with stamens and scales. [Fig. 9] The pollen falls by gravity from the stamens in spring onto the lower female spikes with outstretched stigmas. The journey of the pollen grains takes days to finally get to the ovary at the base of the long-traveled style.

Once fertilized, the ovary becomes a one-seeded dry fruit known as an achene. Sometimes, only the shape of an achene is the final clue that separates species. *C. lupuliformis* appears similar to *C. lupulina*, but has wider knobbed achenes.

These plants grew in Gainesville's Split Rock Preserve along with several other species of *Carex*.

Conversely, some *Carex* species do not have separate male spikes, but have mixed spikes with both stamens and sacs instead. Each sac or pair of

Fig. 9

Fig. 10

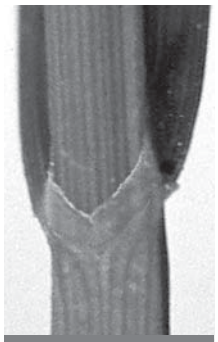


Fig. 11

Fig. 12

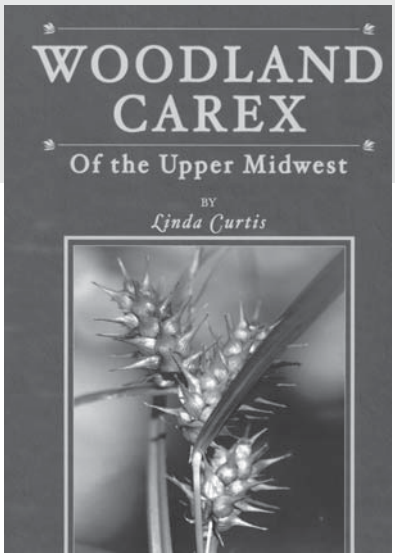
Fig. 13

Figure 8 – *Carex lupulina* has leafy culms and conspicuous spikes with long beaked sacs.
Figure 9 – Hop sedge, *Carex lupulina*, has large, female spikes and one narrow male.
Figure 10 – *Carex vexans*' seed heads have small mixed spikes on each culm. A common sedge in roadside ponds, this sedge grew along Highway 19 in Homosassa.
Figure 11 – *Carex vexans*' leaf sheath is closed and tubular around its culm. Conversely, grass sheaths are split and crossed over like a shirt front.
Figure 12 – *Carex fissa's* sac, upper right, has ridged margins, while *C. vexans*' sac, lower left, is slightly larger with winged margins.
Figure 13 – *Carex fissa's* seed heads also have mixed culms, but the stamens are at the tips of the small spikes.

All photos by the author

Sedges

Tired of walking and stalking, a great blue heron rests on backwards-bending knees in a patch of sedges and other wetland plants in Emerald Marsh.



The front cover photo of the book *Woodland Carex*. The back cover reads, "Do Sedges have Edges? *Woodland Carex of the Upper Midwest* will be welcomed by nature-lovers and gardeners who waited for a viewer-friendly field guide to *Carex*, those grass-like sedges. And yes, many, but not all sedges do have sharp edges on their triangular culms, while grasses have round stems. This book has both detailed descriptions and a facing page with never-seen-before enlarged photos and illustrations."

stamens is covered when young by a single protective scale, which have their own shape and design too. The genus *Carex* has a subgenus *Vignea*, which includes *Ovales*, a group named for the many small oval spikes in their seed head. Their flat winged sacs have a rounded achene in the center that also suggests ova as fried eggs. An example is the Florida hammock sedge, *C. vexans*, found only in Florida. The front of its leaf sheath has a neat white collar at the summit. [Figs. 10,11]

Other groups in subgenus *Vignea* also have flat or flattish sacs, but the sac shapes and number of veins vary. Also, the stamens in some groups are at the tips of the many small spikes, while the *Ovales* have stamens in the scales at the base of their spikes. One of the challenges in identifying *Carex* is to find the tiny withered stamens, when often only their slender stalks or empty scales remain. The common hammock sedge, *C. fissa* has stamens at the tips of its spikes, but if the evidence of stamens is gone, then the best clues are the small sacs that must be measured both by length and width. Compared to *C. vexans'* sacs, *C. fissa's* are the about the same length but are not as wide, having ridged margins instead of flat winged margins. [Figs. 12, 13]

Sedges are the most under-reported species, yet the genus *Carex* is one of the world's top ten genera in numbers of species. Their value to their ecosystems is priceless, and that includes holding soil intact with their perennial roots. The leaves are used in nest building and their seed-like achenes are eaten by birds, small mammals, and insects. Sedgy protective cover is quite important for small ducklings still in the nest, as leafy sedges conceal them as the sand hill cranes stalk by. Young duck is definitely on the crane menu.

Recently, *Carex* have shown up in wild plant nursery catalogs along with ornamental grasses, although they are usually bought for erosion control and restoration projects. Some nature centers have "smart gardens" planted with *Carex* and other wild species near their visitor center. The plants have labels near their clumps so children and visitors can learn their names and speak them as they are discovered along the trail. Many adults will find them attractive and want to order sedges to plant in their wild gardens. Although not colorful, sedges offer texture and tranquil leaf movements in soft breezes. They are often featured in urns, or grown to contrast with colorful plants in the background.

Eventually, the sedges will become known.

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About the Author

Science writer and author Linda Curtis is also photographer and illustrator of her latest book *Woodland Carex of the Upper Midwest*, 2006. About half of the *Carex* species in Florida also grow in the Midwest. You can see more photos of *Carex* species on the Web site www.curtistothethird.com

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Official definition of native plant:
For most purposes, the phrase Florida native plant refers to those species occurring within the state boundaries prior to European contact, according to the best available scientific and historical documentation. More specifically, it includes those species understood as indigenous, occurring in natural associations in habitats that existed prior to significant human impacts and alterations of the landscape.

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