



Palmetto



Our Globally Imperiled Peninsula Sedge

by Linda Curtis

Fig. 1: This former Gulf Coast forest was logged and mowed. The lawn area is now a mix of St. Augustine grass and low-growing native herbs.

What happens when a dense Gulf Coast forest is logged and then mowed as a public park? Almost all the understory plants are destroyed except for the few that are very short and can live between lawn grasses.

One of the survivors is peninsula sedge, which grows as low tufts of grass-like leaves and withstands mowing by sending out underground stems known as rhizomes. Farther away, the rhizomes send up leafy shoots in rows or in clusters nestled aside tree trunks (Fig. 2).

Small and inconspicuous, this globally imperiled plant was discovered by Robert Naczi in 1991 and later given the official scientific name *Carex paeninsulae*, referencing the Florida peninsula. Peninsula sedge was given species status when first described in *Novon: A Journal for Botanical Nomenclature*, Vol. 12, Issue 4, “Seven New Species and One New Combination in *Carex* (Cyperaceae) from North America” (Naczi, Bryson, Cochrane 2002).

Unknown in botany manuals before 2002, *C. paeninsulae* is now included in the

3rd edition of the book *Guide to the Vascular Plants of Florida* (Wunderlin and Hansen 2011). Illustrations can be seen in *Flora of North America*, Vol. 23 (2002).

This short grassy plant is able to survive some mowing, but then remains vegetative, without seed heads. Deer nip the leafy shoots in early spring, which also removes the seed heads. As the leaves mature and become tougher and scabrous, the plant becomes too harsh on deer tongues, so they avoid eating them.

Peninsula sedge was given a globally imperiled rank of G2, which means it is found in six to twenty locations on the planet (Fig. 3). A G1 species is found in one to five locations as determined by NatureServe, a status system. (www.natureserve.org).



Fig. 2: *Carex paeninsulae* grows alongside a tree trunk. Just a tuft of narrow leaves, it is quite grassy in appearance, but has triangular culms rather than the round culms found in grasses.

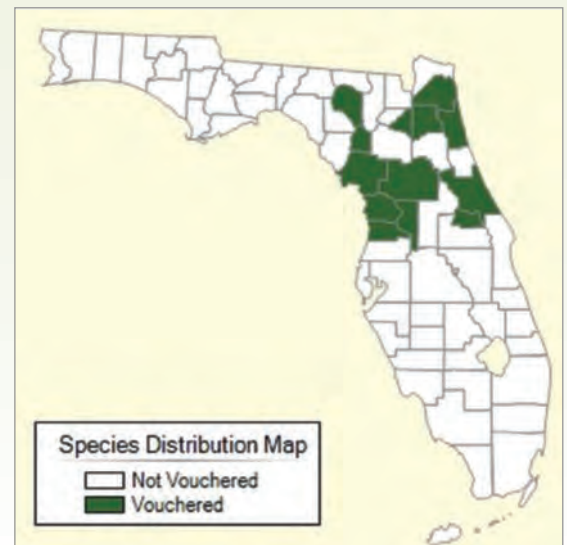


Fig. 3: The globally imperiled peninsula sedge has been found in fewer than 20 locations in these Florida counties. Source: <http://www.florida.plantatlas.usf.edu/Plant.aspx?id=4167>.

While the other six species described in *Novon* were found in various states including North Carolina, South Carolina, Georgia and Alabama, peninsula sedge grew only in Florida and thus was endemic to the state. Peninsula sedge was one of three sedges discussed in the *Oligocarpa* complex of *Carex* that were characterized by purple-red shoot bases and two-ranked or distichous perigynia. That differs from other *Carex* species whose perigynia are arranged in threes to sixes on the rachis of their seed heads (Figs. 4, 5).

The *Atlas of Florida Vascular Plants'* online distribution map lists the presence of *C. paeninsulae* in 13 Florida counties. Specimens collected from those counties were pressed, labeled, and sent to a Florida herbarium. In 2008, *C. paeninsulae* was collected at the Crystal River Churchhouse Hammock Trail, a hydric Gulf forest along Highway 19 in Citrus County. My specimen was labeled as *C. godfreyi* and sent to Curator Dr. Bruce Hansen of the University of South Florida Herbarium, who later annotated the specimen as *C. paeninsulae*. All *Carex*

Continued on page 6



Fig. 4: Culms of *Carex paeninsulae* have reddish bases near the roots.



Fig. 5: *Carex paeninsulae* has 4–6 perigynia, each sac-like with a single seed-like achene inside. The sacs are opposite each other and two-ranked or distichous. Most *Carex* are 3–6 ranked on their spike's rachis.



Fig. 6: The staminate terminal spike bears the stamens with pollen that will disperse onto the stigmas of the lower pistillate spikes.

species were collected with research permits approved by the Florida Department of Environmental Protection, and this is noted on the herbarium sheet labels.

Peninsula sedge was discovered again in 2014 at the Crystal River Archaeological State Park, near Temple Mound. In 2015 the small shoots were sprouting seed heads with stamens in bloom in February, indicating an early spring compared to the previous year's bloom in March 2014 (Figs. 6, 7). Keith Morin, Crystal River State Parks biologist, restricted mowing in the area and several new shoots had seed heads the following year. Plants growing in competition with peninsula sedge were mostly lawn grasses and *Viola* species found at the bases of tree trunks of *Quercus virginiana* (live oak) and *Carya glabra* (pignut hickory).

Known threats to state endangered and globally imperiled plants in pedestrian areas are mowing, trampling and trail expansions. Another danger to rare plants is poaching by collectors. While the most threatened plants are the orchids, and although peninsula sedge would not be sought for its exquisite color and form, some collectors simply like to collect rare items, and many trade in them.



Fig. 7: Keith Morin and Linda Curtis find G2 peninsula sedge.

Curators of herbaria often black out the global coordinates or location data on plant specimen labels. The rare specimens can be studied on a herbarium's web page, but the location is not readable on labels by many, but not all, herbaria (Fig. 8).

Small plants like peninsula sedge have beautiful miniature designs that can only be seen under a microscope, but digital enlargements of microphotographs reveal their beauty (Figs. 9, 10).

References

Ball, P. W., and A.A. Reznicek, eds. 2002. *Cyperaceae*. *Flora of North America*, Vol. 23: 254-573. New York: Oxford University Press.

Naczi, R. H., C.T. Bryson, and T.S. Cochrane, 2002. Seven New Species and One New Combination in *Carex* (Cyperaceae) from North America. *Novon*: 12, No. 4, p. 526

Wunderlin, R. P., and B.F. Hansen, 2003. *Guide to the Vascular Plants of Florida*, 3rd ed., University Press of Florida, Gainesville.

About the author

Linda Curtis is author of botany books and journal articles. Previous *Palmetto* articles about Florida *Carex* may be viewed on her website, www.curtistothethird.com.

	Family Name:	Cyperaceae
	Currently Accepted Name:	<i>Carex paeninsulae</i> Nazzi et al.
	Locality:	USA, Florida, Citrus Co. <u>82° 37' 42" W</u>
	Reproductive State:	Fertile.
	Collector:	L. W. Curtis s.n. with J.M. Curtis
	Date:	19 Apr 2014
	Accession No:	272778
	Image:	272778.jpg
	Plant Atlas Link:	Plant Atlas Citation

Fig. 8: A specimen of the rare *C. paeninsulae* from the Crystal River Archaeological State Park was sent to the herbarium at the University of South Florida, Tampa. The specimen was digitized for their website. Citation: Wunderlin, R.P., and B. F. Hansen, 2008. *Atlas of Florida Vascular Plants*. (<http://florida.plantatlas.usf.edu>)

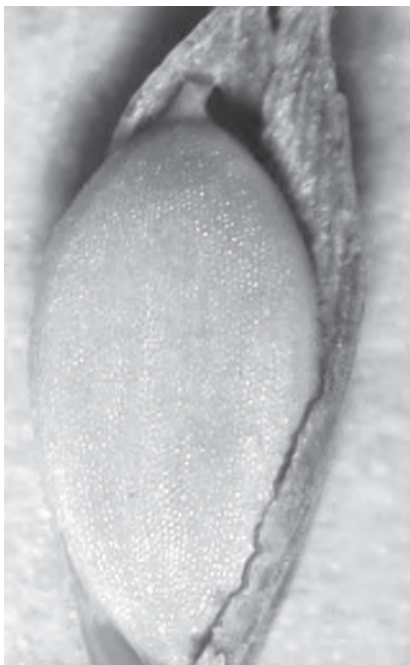


Fig. 9 (above): The perigynia have impressed nerves that appear grooved. Most *Carex* have raised nerves. The tiny bumps on the leaves are diagnostic in some species, but only seen under 40x magnification. The leaf is papillose, not smooth.

Fig. 10 (left): This achene was revealed when the sac was opened. Only a few millimeters long, it seems like a seed, but technically is a dry fruit. Sometimes the achene shape and design is used in species identification.

FNPS 2016 Endowment Grant Research Awards and Conservation Grant Awards

The Florida Native Plant Society maintains an Endowment Research Grant program for the purpose of funding research on native plants. These are small grants (\$1,500 or less), awarded for a 1-year period and intended to support research that forwards the mission of the Florida Native Plant Society to promote the preservation, conservation, and restoration of the native plants and native plant communities of Florida.

FNPS Conservation Grants support applied native plant conservation projects in Florida. These grants (\$5,000 or less) are awarded for a 1-year period. These projects promote the preservation, conservation, or restoration of rare or imperiled native plant taxa and rare or imperiled native plant communities. To qualify for a Conservation Grant, the proposed project must be sponsored by an FNPS Chapter.

Application guidelines and details are on the FNPS website (fnps.org) - click on 'Participate/Grants and Awards'. Questions regarding the grant programs should be sent to info@fnps.org.

Application deadline for the 2016 awards is March 4, 2016. Awards will be announced at the 2016 Annual Conference. Awardees do not have to be present at the Conference to receive an award.

