PLANT INVENTORY AT SMALL MARYLAND PARK

CONTRIBUTES TO DESCRIPTION OF A NEW SEDGE SPECIES

By Chris Lea with Rob Naczi

The discovery of a vascular plant species that is unknown to science would be a significant and surprising event for any of our national parks. Thomas Stone National Historic Site, just 30 miles from Washington, D.C., would probably not top anyone's list as a likely venue for such an event.

In May 2001, as Assateague Island National Seashore Ecologist, I made a two-day visit to the 325-acre park that commemorates the Charles County, Maryland, home of Thomas Stone, a member of the first Continental Congress and a signer of the Declaration of Independence. My official task was to plan vegetation data collection sites for a National Park Service team that would work on a vegetation classification and mapping effort later in the summer, a project of the NPS-USGS Vegetation Mapping Program. In an unofficial capacity, I was also a cooperator with Botanist Chris Frye of the Maryland Natural Heritage Program on a multiyear project to inventory and map the taxonomically difficult plant genus *Carex* (sedges) across the state (Frye and Lea 2001).

Carex is one of the largest genera of flowering plants in the world. Many species are dominants in many temperate habitats and are ecologically important for wildlife food, stabilization of slopes, and their role in plant succession. I arranged with park Resource Manager Rijk Morawe to inventory species of *Carex* as I encountered them during the vegetation classification reconnaissance to support the statewide *Carex* research and to provide the first inventory of this diverse genus at the national historic site.

COPYRIGHT ROB NACZI, DELAWARE STATE UNIVERSITY

Figure 1. This specimen of *Carex kraliana* was collected at Thomas Stone National Historic Site. The plant had been misclassified in several herbariums across the country. This find contributed to the description of a species new to science. (Label modified for plant conservation purposes.)

Near the end of my second day in the park, I had documented 26 species of *Carex*, none of which was remarkable for the area. However, I noticed a certain sedge growing in several large clumps along the floodplain of a creek that was subtly different from several common Maryland species. Suspecting something unusual, I collected a specimen for further study (fig.1).

> "I noticed a certain *Carex* ... that was subtly different from several common Maryland species. Suspecting something unusual, I collected a specimen for further study."

A new species discerned

Later that summer, I examined a folder of specimens at the North American vascular plant collection at the Smithsonian Institution and found that a number of specimens labeled as *Carex crebriflora* matched the unusual Thomas Stone plant exactly. Others labeled *C. crebriflora* did not compare as well, but I attributed this to my inexperience with the species, which had never been recorded for Maryland. Because of the significance of a new state record, I sent the specimen for confirmation to Dr. Tony Reznicek (University of Michigan Herbarium), an authority on North American *Carex* whom we had frequently consulted for the Maryland *Carex* project.

Reznicek agreed that the specimen represented a new find for Maryland, but determined that it was not *C. crebriflora*. He recognized the Thomas Stone *Carex* as one that two of his colleagues were studying; Dr. Rob Naczi (Delaware State University and second author of this story) and Dr. Charles Bryson (U.S. Department of Agriculture) were conducting research to describe a new species: *Carex kraliana* (Naczi et al. 2002). *Carex kraliana* (named in honor of botanist Robert Kral) is actually widespread in the southeastern United States. It had been collected by field botanists as early as 1844 yet had remained undetected as a distinct species by previous taxonomic investigators. In many herbarium collections (including the Smithsonian's) it was usually labeled *Carex crebriflora* or one of several other similar species.

Remembering the confusing variability I had seen in the Smithsonian specimens, and with the benefit of Reznicek's advice on key characteristics of the new species, I reexamined them along with specimens at the George Mason University herbarium and found a number of *Carex kraliana* specimens that had been labeled as other species that were quite similar. Ironically, I had collected one of the specimens as a graduate student six years earlier at Prince William Forest Park in northern Virginia. Naczi confirmed the revised identifications, and along with Bryson cited these and the Thomas Stone specimen as paratypes (collected examples of a newly described species that exhibit its range of variation) in the description of *C. kraliana* (Naczi et al. 2002). These findings also extended the range of *Carex kraliana* on the Atlantic coastal plain from southeastern Virginia some 150 miles north to the vicinity of Washington, D.C., and were timely enough to be included in the treatment of the new species in *Flora of North America* (Bryson and Naczi 2002). In a second interesting discovery, Naczi also determined that a Thomas Stone specimen of *Carex digitalis*, a common Maryland species, could be assigned to the variety *C. digitalis var. floridana*, giving Thomas Stone another first Maryland record and another northern range extension for a vascular plant taxon.

The tornado that devastated the town of La Plata, Maryland, in April 2002 also affected Thomas Stone National Historic Site, flattening forest that included the stand in which *Carex kraliana* was found. The fate of the paratype population is not known, but Frye and I found *C. kraliana* in a second Charles County location in 2002. Although the species is presently considered rare in Maryland, additional occurrences are expected.

The value of inventories

Several lessons are evident. First, natural resource inventories conducted at national parks may uncover information that contributes not only to understanding park natural history but also adds to regional floristic knowledge and taxonomic research. Second, the collection of voucher specimens (examples of floral or faunal species kept in a repository to be used as references for scientists) has been a source of controversy within the National Park Service and among its cooperators. As this story shows, voucher specimens are not only useful, but in some cases absolutely necessary for determining the significance of park resources. In this case a single collection at a park was critical to determining significant natural and scientific resources at the park and also led to the discovery of many more significant specimens from other areas. Third, when possible, successful merging of park inventories with larger-scale investigations is cost-effective and also brings regional and national expertise to assist the conservation and natural history interests of the park. Finally, natural resource inventories have the benefit of adjusting our collective conventional wisdom by showing that small parks, including many established primarily for historical themes, may prove to be surprising reservoirs of biodiversity and important for investigation into the natural sciences.

References

Bryson, C. T., and R. F. C. Naczi. 2002. *Carex Linnaeus* sect. *Laxiflorae*. Pages 431–440 in Flora of North America Committee, editors. 2002. Flora of North America north of Mexico, volume 23 *(Cyperaceae)*. Oxford University Press, New York and Oxford.

Frye, C. T., and C. Lea. 2001. Atlas and annotated list of *Carex (Cyperaceae)* of Maryland and the District of Coumbia. The Maryland Naturalist 44:41–108.

Naczi, R. F. C., C. T. Bryson, and T. S. Cochrane. 2002. Seven new species and one new combination in *Carex (Cyperaceae)* from North America. Novon 12:508–532.

About the authors

Chris Lea *recently moved from Assateague Island National Seashore, Maryland, to Denver, Colorado, where he is a Botanist with the NPS Vegetation Mapping Program. He can be reached by phone at 303-969-2807, or email chris_lea@nps.gov.* ***Rob Naczi*** *is a Plant Systematist and Curator of the Claude E. Phillips Herbarium at Delaware State University. He can be reached by phone at 302-857-6450, or email rnaczi@desu.edu.*