closely related to temperate species. This suggests that the diversity of taxa in the Vaccinieae seen in the tropics may be due to the independent diversification of several clades rather than a result of a single tropical origin. However, many of these relationships lacked strong statistical support. In this study we analyzed evolutionary relationships of the Vaccinieae with particular emphasis on paleotropical species. Representative sampling of the paleotropical Vaccinieae has been significantly increased and combined with the DNA sequence data available from previous analyses. Maximum-likelihood and Bayesian analyses were used to reconstruct the phylogeny. The results indicate that clades of both neotropical and paleotropical Vaccinieae likely evolved multiple times, with some paleotropical clades showing distinctive biogeographical relationships.

Dept of Biology, Wake Forest University, Winston-Salem, NC

39 • Andy G. Gardner[1], Kelly A. Shepherd[2], Dianella G. Howarth[3], Rachel S. Jabaily[1]

The Australian Plant Family Goodeniaceae as a New Model System for Floral Symmetry Evolution

The members of Goodeniaceae are mostly restricted to Australia, where it is the ninth-largest family of flowering plants with more than 420 species. The major clade, Core Goodeniaceae, exhibits a kaleidoscopic array of floral morphologies, with species that have radial, bilateral and fan-shaped flowers. Recent phylogenetic evidence suggests that these floral morphologies have evolved multiple times, with differential lability in floral form between major clades. Some clades contain multiple morphologies, and several clades appear to have evolved convergent floral morphologies. To better characterize this dramatic radiation of Australian wildflowers, we are improving the backbone and sampling of our phylogenetic trees, characterizing floral morphologies using morphometrics, and assessing the role of *CYCLOIDEA*-like genes in petal development. For the phylogeny, we are building character-rich datasets using Illumina genomic libraries and species-rich datasets with Sanger sequence data. Two-dimensional geometric morphometrics allow us to assess floral shape variation within and among species, to assign species to discrete bins for comparative studies, and to detect evidence of modularity in floral morphogenesis. Evidence for modularity also comes from *CYCLOIDEA* expression patterns, which may have been elaborated by gene duplications early in some of the clades' histories. This project will yield a nearly-comprehensive phylogeny for the Core Goodeniaceae along with a detailed picture of floral morphological evolution across the clade. It will lead to a better understanding of the mechanisms of floral evolution and its role in the diversification process.

[1] Dept of Biology, Rhodes College, Memphis, Tennessee, U.S.A.; [2] Western Australian Herbarium- Dept of Parks and Wildlife, Kensington, Western Australia, Australia; [3] Dept of Biological Sciences, St. John's University, Queens, New York, U.S.A.

40 • Joshua L. Steele, Richard Carter

Floristic Inventory of the Lake Louise Field Station, Lowndes County, Georgia

An inventory of the vascular plants and plant communities of the Lake Louise Field Station (LLFS) in Lowndes County, Georgia was conducted. Centered on a karst pond encompassed by an extensive bayswamp community, the LLFS is a 76.9 hectare area owned by Valdosta State University. The adjacent uplands include remnants of liveoak hammock and longleaf pine-wiregrass communities, as well as mesic flatwoods and an abandoned slash pine plantation. Vascular plants were sampled over nine trips from June to November 2013, and collecting will continue through April 2014. Voucher specimens will be deposited in the Valdosta State University Herbarium. A species-area curve was generated using data from similar inventories throughout the southeastern United States. This model predicted 325 vascular plant species for an equivalent area. As of November 2013, our inventory yielded 214 vascular plant species, comprising 150 genera in 69 families. Nine rare or unusual taxa listed by the Georgia Dept of Natural Resources were vouchered: *Carex decomposita*, *Baptisia lecontei*, *Desmodium sessilifolium*, *Eustachys floridana*, *Palafoxia integrifolia*, *Peltandra sagittifolia*, *Pinckneya bracteata, Rhynchospora*

microcarpa and *Tillandsia recurvata*. Populations of the non-indigenous invasive species *Albizia julibrissin*, *Bidens bipinnata, Lonicera japonica*, *Ligustrum sinense*, *Lygodium japonicum* and *Paspalum notatum* were also documented. Baseline data obtained through this study will be useful in developing informed management strategies for the site and will support ecological and other research at the LLFS.

Biology Dept, Valdosta State University, Valdosta, GA

41 • Wesley M. Knapp

A Reexamination of *Juncus validus* Var. *Fascinatus* , a Texas Endemic, and Notes on Closely Related Species

Juncus section *Ozophyllum* (=Sect. *Septati*)is among the most morphologically diverse and geographically widespread sections of the Juncaceae. Taxonomic and nomenclatural problems abound. *Juncus validus* Coville, a species within this section, is a widespread and weedy species of the southeastern United States. A variety endemic to Texas, var. *fascinatus*, was described by M.C. Johnston in 1964. The recognition of this variety has been debated since its description. No detailed examination of this variety has been published. My preliminary morphologic analysis using new and previously published characters show var. *fascinatus* to be morphologically distinct from *J. validus*. *Juncus validus* var. *fascinatus* combines features of *J. paludosus, J. polycephalos, J. scirpoides,* and *J. validus* causing confusion when using existing keys. Ecological differences are also apparent. *Juncus validus* var. *validus* has shown a rapid and significant geographic range expansion throughout the southeastern United States and mid-Atlantic. This is illustrated nicely through mapping of the collection record. Given the rapid expansion of *J. validus* var. *validus* the nativity of this plant is questionable in many States where it is currently considered native. *Juncus validus* var. *fascinatus* is known from 21 counties in north-central and southeastern Texas.

Maryland Dept of Natural Resources; [2] Wildlife and Heritage Service

42 • Richard Stalter[1], Eric E. Lamont[2]

The Vascular Flora of Plum Island, Long Island Sound, New York

Plum Island, encompassing approximately 3.4 sq km, is located in eastern Long Island Sound, 41.18306Lat., -72.19028Long.). The purpose of this study is to document the vascular flora of Plum Island and analyze the island's plant diversity. No flora of Plum Island has been previously published and few botanists have visited the island. The vascular plant species on the island were collected monthly during the growing seasons from 2002 to 2008. The vascular flora of Plum Island consists of 414 species within 270 genera and 92 families. Two hundred sixty six species (64% of the total flora) are native to the island. The spore producing plants (monilophytes: ferns and fern allies) are represented by 10 species, the gymnosperms by six species, the dicots by 282 species, and the monocots by 116 species. Largest families include Asteraceae (61 species) Poaceae (60 species) and Cyperaceae (26 species). Largest genera include Carex (9spp.), Cyperus (8 spp.) and Juncus (7 spp.).With 23 documented rare taxa, the island has one of the highest concentration of rare plants in New York including seventeen extant taxa observed in the present study.

[1] Dept of Biology, St. John's University, NY; [2] New York Botanical Garden

43 • C. Theo Witsell, Brent T. Baker

Arkansas's Newest Herbarium: The Herbarium of the Arkansas Natural Heritage Commission (ANHC)

In this era marked by the closing and consolidation of all manner of natural history and life science collections, we report on the creation of Arkansas's newest herbarium. Since the establishment of the Arkansas Natural Heritage Program in 1973, staff botanists and ecologists have been collecting plant specimens from the state's rarest habitats and most pristine natural areas. These collections have provided documentation for many important new discoveries and some have served as type specimens for several new species.