disjunct. The disjunct nature of thesepopulations coupled with a complex geological and ecological history of theregion occupied by these salamanders provides conditions which are conducive tolineage diversification. During the course of a range wide surveyof seepage salamander, we visited nearly every historical site from which thisspecies has been reported; in addition we discovered many previously unknownpopulations. Here we report the first phylogeographic survey of theseminute salamanders. A Bayesian phylogenetic reconstruction of bothmitochondrial DNA and eight nuclear genes reveals the presence of several wellsupported, distinct evolutionary lineages. The presence of multiplelineages within seepage salamanders has important conservationimplications. The results of this survey provide a strong case for theimportance of molecular systematic techniques in revealing the biodiversity ofthe southeastern United States.

P72 **Brenten L. Bottoms, Jessica M. Avila, David A. Beamer**

Morphological homoplasy within mountain dusky salamanders (Desmognathus)

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Mountain dusky salamanders (*Desmognathus*)are medium sized lungless salamanders distributed across the AppalachianMountains. Historically, there has been debate about how many species ofmountain duskies occupy this region, currently there are six recognizedspecies: *ochrophaeus*, *orestes*, *carolinensis*, *apalachicolae*,*ocoee*, and *abditus*. These six species have been recognized, inpart, based upon molecular data. However, to date there has not been acomprehensive range wide molecular phylogeny for *Desmognathus*. Here wepresent a range wide molecular phylogeny that reveals the relationships of thesix recognized *Desmognathus*, as well as several apparently unnamedlineages. To understand the morphological variation within these lineages wehave photographed and measured specimens from various localities in thesouthern Appalachians. In the 1960's Martof and Rose collected over 4,000 *Desmognathus*from 21 localities and made twelve different measurements for each specimen. Toleverage their large morphological data set, we collected a series of thirtysalamanders from the same localities. We made measurements of snout to ventlength, vent to tail length, head length, and head width to supplement theirexisting data. For each of these localities we sequenced ~1100 bp fragment ofmtDNA ND2 gene. Our measurements, within the context of our molecularphylogeny, reveal considerable levels of morphological homoplasy withinmountain dusky lineages.

P73 **Andrew Hart, Emily Gillespie**

Preliminary phylogenetic investigation of *Ledum* (Labrador Tea, Ericaceae)

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The genus formerly known as *Ledum* (=*Rhododendron* subg. *Rhododendron* Section *Rhododendron* Subsect. *Ledum*) is comprised of several species of small shrubs distributed across northern North America. These species are lepidote rhododendrons, recognized by the presence of scales on the abaxial leaf surface. Older treatments recognized up to eight species of *Ledum*, whereas the Flora of North America recently recognized three species (within *Rhododendron*) based upon overlapping morphological variation among some of these species. The current study seeks to use molecular data to 1) determine the phylogenetic placement of Subsect. *Ledum* within *Rhododendron* and to evaluate species boundaries among the three FNA-recognized species (*R. groenlandicum*, *R. columbianum* and *R. tomentosum*). Taxon sampling includes all species of *Ledum* as well as representatives of the non-lepidote *Rhododendron* subgenera as outgroups. Here, we report preliminary phylogenetic placement of *Ledum* based upon multiple molecular markers and Maximum Parsimony, Maximum Likelihood and Bayesian analyses. We discuss the evolutionary implications within the lepidote rhododendrons and the apparent species boundaries within *Ledum*.

P74 **Richard Carter[1], Jordan C. Jones[2]**

Distribution, dispersal and ecology of *Sphenoclea zeylanica* (Sphenocleaceae) in North America

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Native to the Eastern Hemisphere, *Sphenoclea zeylanica* (gooseweed) is an aquatic

plant that occurs along margins of lakes and ponds, streambanks, and disturbed wetlands. It is a major pest of rice *(Oryza sativa)* and is now distributed widely in both Hemispheres in tropical, subtropical, and warm temperate regions. Data obtained from more than 300 voucher specimens from more than 30 herbaria indicate gooseweed has been in the United States since the mid-1800s. The earliest records of gooseweed in the United States are from Louisiana, where it was most likely introduced as a contaminant of rice seed. Its distribution is linked strongly with rice agriculture, and we document the distribution and dispersal of *Sphenoclea zeylanica* in the United States over the past 150 years, from Louisiana westward into southeastern Texas, northward through eastern Arkansas and into southeastern Missouri, and sporadically eastward into Florida, Georgia and the Carolinas. Finally, descriptive data on its habitat and diagnostic characteristics are presented to facilitate identification of gooseweed in floristic inventories of wetlands.

P75 **Wendy B. Zomlefer, David E. Giannasi, Sabrina Y.S. Sewell**

Vascular plant flora of the lower Ogeechee River: Savannah-Ogeechee Canal Nature Center, Chatham County, Georgia

Department of Plant Biology, University of Georgia, Athens, GA

The Ogeechee River originates in the lower Georgia Piedmont and flows southeast for ca. 402 km (250 miles) to the Atlantic Ocean, ca. 26 km (16 mi) south of Savannah. The lower portion of the river, a floristically critical area within the Southern Coastal Plain ecoregion, comprises many high priority habitats designated by the Georgia Department of Natural Resources. Threats to these areas include encroaching development and drainage of adjacent wetlands. The focus of this study is a vascular plant survey of two adjacent parkland parcels (143.4 ha; 354.4 acres) along the lower Ogeechee River corridor in Chatham County: the Savannah-Ogeechee Canal Nature Center and the Ogeechee River Nature Preserve. The site has historic significance as the terminus of a 26.6 km (16.5 mi) long canal completed in 1831, which connected the river to the port of Savannah. Vegetation types at the preserve include floodplain hardwood forests, freshwater tidal marshes, and subxeric pine-oak hardwoods. Nine collecting trips conducted in 2012 yielded 448 specimens representing 375 species of vascular plants. Twelve percent of the non-cultivated flora is non-native, and no state/federally ranked rare plant species occur within the study area. This plant survey serves as field verification for crucial coastal areas recently mapped by DNR biologists and will be integrated into nature programs at the Savannah-Ogeechee Canal Nature Center. A set of the professionally prepared vouchered specimens comprises the foundation of a new DNR coastal reference collection for use in research and outreach activities.

P76 **Donald Trisel, Kassen Lloyd, Justin Hilliard, Josh VanOsdol**

Vascular plant survey of the Crawford Tree Farm, Marion County, WV.

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In 2012 a new project was initiated to document the vascular flora of the Crawford Tree Farm in Marion County, West Virginia (GPS: 39.50587, -80.06695). The property has been in the Crawford family since at least the Civil War, specifically managed to conserve soil resources since 1950, and enrolled as a tree farm since 1963. The property included a total of 378 acres, 315 of which were woodlands. Forest types included some oak-hickory dry ridges and some cove hardwood stands. There were cooperative projects by the Crawford family and the US Forest Service under way to manage *Ailanthus altissima*, Tree of Heaven, and *Celastrus orbiculatus*, Oriental Bittersweet. The goal of our survey was to document the diversity that can be present when our forests are properly managed. Bi-weekly collecting trips were conducted throughout the 2012 growing season from March 13th to September 30th. Over 300 vouchers were collected from at least 264 different specimens. The collections documented 67 families. To date, 103 different genera have been identified. As a result of this survey, we are anticipating several new county records that have not been documented in the Checklist and Atlas of the Vascular Flora of West Virginia by Harmon, Ford-Werntz, and Grafton (2006).