

## 2016 PA Botany Symposium Records

Pennsylvania Botany Symposium • November 18–19, 2016

The Penn Stater Hotel Conference Center • State College, Pennsylvania

[Enjoy the winning entries in the 2016 Symposium COOL PLANT FINDS slide show. View them here!](#)



We congratulate these winners in the first-ever Pennsylvania Botany Symposium STUDENT POSTER SESSION! [Read all 27 student poster abstract submissions here.](#)

**BEST GRADUATE STUDENT Research Poster** Grady Zuiderveen, Pennsylvania State University.

***Stocking the hunting ground: Insights into the supply of “wild” ginseng (*Panax quinquefolius* L.) from Pennsylvania***

**Graduate Student Runner-up** Marion Holmes, Ohio University. ***Composition of forest herb communities differs with agricultural land-use history***

**BEST UNDERGRADUATE Research Poster** Emma Frawley, Bucknell University

***A Nuclear and Chloroplast Phylogeny of Maple Trees (*Acer* L.) and Their Close Relatives (*Hippocastanoideae*, *Sapindaceae*)***

**Undergraduate Student Runners-Up**

Anna Baremore, Kendra Bierman, and Max Ferlauto, Juniata College.

***Variation in Arthropod Communities Associated with Native and Nonnative Vegetation at the Baker-Henry Peace Chapel and Nature Preserve*** (Huntingdon, PA)

Steven Munden, Washington & Jefferson University.

***Identification of old-growth forests in mesophytic forests***

The poster session took place Friday evening, along with the Cool Plant Finds slide show, and Chris Martine’s presentation.

A committee of botanists from across the state worked hard to organize our 3rd biennial symposium, rich with hands-on workshop opportunities, presenters who are leaders in the field, opportunities for students to engage with professionals, and time to come together to share our work and celebrate our botanical heritage.

The focus of the Pennsylvania Botany Symposium has always been to bring together a diverse audience from amateur to academic botanists, and those interested in the natural world in general. Our invited speakers have been carefully selected to share their expertise on a variety of botanical topics including taxonomy, conservation, ecology, biology, history and floristics. Research results will be presented, but at a level appropriate for an audience of diverse backgrounds. All of our invited speakers are experts with reputations for being engaging and entertaining.

Our **keynote speaker** was **Peggy Olwell**, Plant Conservation Program Lead for the Bureau of Land Management, presenting ***Botany and Botanists: More Relevant Than Ever!*** Other speakers included:

- **James Bissell**, Curator of Botany and Director of Natural Areas, Cleveland Museum of Natural History
- **Jason Cantley**, Burpee Postdoctoral Fellow of Plant Genetics, Bucknell University
- **Dwayne Estes**, Associate Professor of Biology at Austin Peay State University
- **Barre Hellquist**, Professor of Biology Emeritus, Massachusetts College of Liberal Arts
- **Wes Knapp**, Mountain Biologist, North Carolina Natural Heritage Program
- **Chris Martine**, Burpee Professor of Biology, Bucknell University
- **Richard McCourt**, Curator and Professor, Academy of Natural Sciences of Drexel University
- **Kelly Sitch**, Forest Ecologist, PA Department of Conservation and Natural Resources, Bureau of Forestry

Three full-day and three half-day botany workshops were offered this year on Friday. This year we added an exciting new element to the Pennsylvania Botany Symposium — a student poster session! This took place during our Friday evening social event. This session was intended to provide our ‘next generation of botanists’ an opportunity to present their research and engage with professional botanists and botanical enthusiasts from around the region. The Friday evening event also provided attendees from all walks of life opportunities to interact, network and learn about new technologies, opportunities and services from our exhibitors.

## 2016 Symposium Program Schedule

### Friday, November 18th

#### 9:00 a.m. – 4:30 p.m. WORKSHOPS

*Demystifying the Challenging World of Grasses* Sarah Chamberlain, Research Associate Riparia, Penn State University

*A Review of the Major Taxonomic Sections of Carex (Cyperaceae) for east-central U.S.*  
Dwayne Estes, Associate Professor of Biology, Austin Peay State University

*Potamogetonaceae and Hydrocharitaceae of North America*  
Barre Hellquist, Professor of Biology Emeritus, Massachusetts College of Liberal Arts

#### 1:30 – 4:30 p.m. WORKSHOPS

*Pennsylvania's Willows*  
Jim Bissell, Curator of Botany and Director of Natural Areas, Cleveland Museum of Natural History

*Pteridophyte Identification in Pennsylvania*  
Steve Grund, Botanist, Pennsylvania Natural Heritage Program Western Pennsylvania Conservancy  
Bonnie Isaac, Collection Manager, Section of Botany, Carnegie Museum of Natural History

*Pennsylvania Juncus: What's the Rush?*  
Wes Knapp, Mountain Biologist, North Carolina Natural Heritage Program

**3:00-5:00 p.m. Vendor setup**

**5:00 – 8:30 p.m. Friday Evening Social, Poster Session and Presentation**  
(Dinner on your own)

*#SciComm, Media Relations, and a Botanist on Mars: How to get more than 20 strangers to hear about your latest research when it's not published in Nature or Science*  
Chris Martine, Burpee Professor of Biology, Bucknell University

**Saturday, November 19th**

**8:00 – 9:00 a.m. Registration and Exhibitor Session**

**8:00 – 8:45 a.m. Exhibitor setup**

9:00 – 9:10 a.m. WELCOME

**9:10 – 10:00 a.m. Keynote Address**

*Botany and Botanists: More Relevant Than Ever!*  
Peggy Olwell, Plant Conservation Program Lead for Bureau of Land Management

**10:00 – 10:40 a.m. Vascular Plant Extinction in North America North of Mexico; What Have We Lost and What Can We Learn?**  
Wes Knapp, Mountain Biologist, North Carolina Natural Heritage Program

**10:40 – 11:00 break**

**11:00 – 11:40 a.m. Thirty Years of Change Within Lake Erie Wetlands**  
Jim Bissell, Curator of Botany and Director of Natural Areas Cleveland Museum of Natural History

**11:40 a.m. – 12:20 p.m. Nymphaeaceae and Nelumbonaceae: The Beautiful Plants of the Water World** Barre Hellquist,  
Professor of Biology Emeritus, Massachusetts College of Liberal Arts

**12:20 – 1:20 p.m. Lunch**

**1:20 – 2:00 p.m. Lessons from Hawai'i – the Endangered Species Capital of the World**  
Jason Cantley, Burpee Postdoctoral Fellow of Plant Genetics with Chris Martine at Bucknell University

**2:00 – 2:20 p.m. Break**

2:20 – 2:30 p.m. Student Poster Awards

**2:30 – 3:10 p.m. Jefferson's Botanists: Lewis and Clark Discover the Plants of the West and Bring Them to Philadelphia**  
Richard McCourt, Curator and Professor, Academy of Natural Sciences of Drexel University

**3:10 – 3:50 p.m. A New Plant Conservation Initiative for Pennsylvania**  
Kelly Sitch, Forest Ecologist, PA Department of Conservation and Natural Resources  
Bureau of Forestry

**3:50 – 4:30 p.m. Riverscour: The Last Frontier in the Heavily Botanized Eastern U.S.**  
Dwayne Estes, Professor of Plant Pathology Department of Plant Pathology and Environmental Microbiology Penn State University

## 2016 Symposium Friday Workshop Abstracts

### James Bissell

***Pennsylvania's willows.*** This workshop will explain identification of native and some non-native Pennsylvania willows. Museum herbarium specimens will be used for the workshop. A brief introduction of willow floral and vegetative characters will be discussed. Following the discussion of willow flora parts and vegetative characters, the participants will attempt to key out several willow specimens using dissecting scopes. Several willows can be identified by vegetative characters but some native willows are best determined with flowers and fruits. The participants should bring a 20 power hand lens. Willow specimens with the labels covered will be set out for the participants to identify using vascular plant manuals. *The Plants of Pennsylvania* by Ann Fowler Rhoads and Timothy Block is recommended. After participants use the dissecting scopes to identify several willow specimens, a discussion of habitats of many Pennsylvania willows will be given.

### Sarah Chamberlain

***Demystifying the Challenging World of Grasses.*** Looking to demystify the challenging world of grasses? Then this workshop is for you! Join Sarah Chamberlain, Botanist and Curator of the PSU Herbarium to learn skills necessary to identify this difficult group of plants. The first part of the workshop will focus on basic morphology, the characteristics of common groups, and identification of plant specimens using a simplified grass key. Slides, handouts, herbarium and freshly collected field specimens will be used to illustrate plant characters, especially those that may prove an obstacle to keying. A 10x hand lens is required. Microscopes and keys will be provided.

### Dwayne Estes

***A Review of the Major Taxonomic Sections Sections of Carex (Cyperaceae) for east-central U.S.*** This workshop will review the major taxonomic sections of the difficult genus *Carex* (Cyperaceae) common to east-central U.S. The workshop will feature the examination of specimens and parts of specimens of approximately 20-25 species representing different sections that will be accompanied by a lecture and detailed drawings of each section. For each section, we will review the important morphological characteristics needed to identify the section as well as important variation needed to distinguish species in the section. Participants will need fine forceps, and a sketch pad.

### Steve Grund and Bonnie Isaac

***Pteridophyte Identification in Pennsylvania.*** We will use herbarium specimens, photographs, and literature to teach participants to identify the ferns and lycophytes of Pennsylvania. Emphasis will be on difficult groups such as *Dryopteris* and *Cystopteris*. Participants are encouraged to bring unknown specimens. The leaders are very experienced field botanists and are particularly interested in pteridophytes, but they are not specialists in any individual genus, and occasional specimens in genera like *Cystopteris* cannot be referred to species with confidence except by people who have studied them intensely. Hybrids will be scorned and also adored. We will demonstrate how to work with suspected hybrids by distinguishing between aborted from normal, fertile spores, and by looking for traits of different species. Please bring a hand lens if you can.

### Barre Hellquist

***Potamogetonaceae and Hydrocharitaceae of North America.*** The Potamogetonaceae and Hydrocharitaceae will be studied in a day-long workshop through the use of slides and herbarium sheets. Representative of all species in inland waters of North America will be covered with special details for those species of northeastern U.S. Information discussed will include habitat, ecology, distribution, and relevant hybrids for the various species. Participants are encouraged to bring specimens for further study. A handout for the *Potamogeton* and *Stuckenia* will be provided that parallels the illustrations in Vol. 2 of Crow and Hellquist, 2000, *Aquatic and Wetland Plants of Northeastern North America*.

### Wes Knapp

***Pennsylvanian Juncus; What's the Rush?*** *Juncus* is a morphologically diverse and intimidating genus for the novice and expert alike. Reduced floral morphology and explicit terminology encountered rarely outside the genus increase its difficulty. Though overlooked or outright ignored, *Juncus* are encountered in an abundance of habitat types and can be dominant. An introductory lecture will be given discussing the variation in the genus and to set the stage when comparing *Juncus* to similar genera, primarily the Grasses and Sedges. We will focus on understanding the

morphological variability in the genus through the examination of freshly collected specimens as well as dried herbarium specimens. Microscopes will be provided to assist identification. We hope that the majority of *Juncus* species that are found in Pennsylvania will be taught. The sectional classification which aids in the understanding and identification of the genus will be applied, will be a focal point.

## 2016 Symposium Saturday Speaker Abstracts

### James Bissell

***Thirty Years of Change Within Lake Erie Wetlands.*** Lake Erie estuarine marshes were surveyed by the Museum Botany Department during the last 30 years from Sandusky Bay, 80 miles west of Cleveland to Presque Isle State Park, 100 miles east of Cleveland. Voucher specimens were collected from all emergent wetlands through the 30-year period. When the museum began its inventory of Lake Erie Coastal wetlands in northern Ohio and northwestern Pennsylvania 30 years ago, nearly all estuarine wetlands along the Lake Erie shoreline east of Cleveland in Lake and Ashtabula County and the 3,000-acre Presque Isle Peninsula were covered with native emergent marsh, dominated by greater bur-reed (*Sparganium eurycarpum*) and soft-stem bulrush (*Schoenoplectus tabernaemontanae*). In strong contrast to the greater bur-reed dominated wetlands within coastal marshes east of Cleveland and Presque Isle, most of the wetlands west of Cleveland, especially the 10,000 acres of wetlands within Sandusky Bay, were dominated by narrowleaf cattail (*Typha angustifolia*), non-native phragmites (*Phragmites australis australis*) and purple loosestrife (*Lythrum salicaria*). The former presence of greater bur-reed within the Sandusky Bay marshes is substantiated by emergence of greater bur-reed from the seed bank during low water years such as 1988, 1992 and 1999 through 2001.

### Jason Cantley

***Lessons from Hawai'i — the Endangered Species Capital of the World.*** The biota of Hawai'i is often described as the endangered species capital of the world. For plants alone, there are over 400 species that are in danger of blinking out of existence within the next few decades. Nearly half of all endangered species have less than 50 individuals in total — alive or in cultivation. A number of human initiated issues caused this remarkable loss in biodiversity within the last century. This talk will explore the dire situation of native plant species in Hawai'i — from how species were formed on an isolated island archipelago mid-ocean, to the arrival of human destruction, and finally to end with (hopefully) inspiring stories of successful conservation practices, which have helped to re-establish populations of species teetering on the brink of extinction. These success stories can be shared and modified to work with mainland conservation problems. Hopefully, this talk will be a source of inspiration for the future of Pennsylvanian botany and speak to the universal need to conserve our local, regional, and global ecosystems.

### Dwayne Estes

***Riverscours: the Last Frontier in the Heavily Botanized Eastern U.S.*** Riverscour habitats are communities of rocky riverbanks in dissected landscapes. They extend from PA to AL west to OK and TX and are best developed in the Appalachians of TN, KY, WV, where they are entrenched in river gorges and difficult to survey. Riverscours are maintained by floods that prevent the growth and establishment of trees. The flora of scours is dominated by stunted trees, shrubs, and perennial grasses and herbs. Species composition includes a mix of upland, riparian, and wetland species. Many species are considered characteristic of grasslands, savannas, or open woodlands. In 2013, Estes and his graduate students began a 3-year effort to survey four rivers from KY to AL. To date, this study has resulted in the discovery of hundreds of plant species, eight putatively undescribed taxa, several state records and rare plant records, and numerous undescribed vegetation associations. Species richness within riverscours can be high, with >90 species found within a single 100-m<sup>2</sup> plot. Their work highlights the fact that riverscour flora and vegetation are quite different from one stream to the next and may lead to revised hypotheses about the evolution of the flora and plant communities of the eastern U.S.

### Barre Hellquist

***Nymphaeaceae and Nelumbonaceae: the Beautiful Plants of the Water World.*** The family Nymphaeaceae includes approximately 70 species in the genera *Nymphaea*, *Nuphar*, *Victoria*, *Euryale*, and *Barclaya*. *Nymphaea* consists of six subgenera, one hardy three tropical day-bloomers, and two night bloomers. In North America six species of native hardy

waterlilies and three tropical species, two day-bloomers and one night-bloomer. Tropical day-blooming species occur in South America, Africa, Asia, and Australia. The most spectacular day-bloomers are in two subgenera occurring in tropical Australia. Night blooming species in two subgenera from the tropics of the world. Natural hybridization occurs between many species. The lotus family Nelumbonaceae consists of only two species: *Nelumbo lutea* from North America and *Nelumbo nucifera* from Asia and Australia. Some species of waterlilies and both lotus may become invasive.

### **Wes Knapp**

***Vascular Plant Extinction in North America North of Mexico; What Have We Lost and What Can We Learn?*** As we progress through the Anthropocene the extinction rates of plants and animals are expected to increase. Though speculation is common about increased extinction rates in the future, we have yet to quantify the current extinction rates of plants. Taxonomic opinion can vary widely among experts. To address this we developed an Index of Taxonomic Uncertainty (ITU). The ITU scale ranges from A to F, with an A rank indicating unanimous taxonomic recognition and an F rank indicating taxonomic recognition by a single author. The ITU allowed us to evaluate extinction rates under standardized taxonomic considerations. Approximately 120 plants are globally historic or extinct from North America, north of Mexico, since European settlement. Eighty-four plants are from western North America and 35 are from eastern North America. The majority of extinct plants were single site endemics and occurred in areas not recognized as a biodiversity hot-spot. This fact has significant implications for current conservation efforts. If limited conservation resources focus only on biodiversity hotspots, it is likely that extinction of single site endemics will continue. We recommend further research, particularly taxonomic and field, on single site endemics to ensure their protection into the future.

### **Chris Martine**

***#SciComm, Media Relations, and a Botanist on Mars: How to get more than 20 strangers to hear about your latest research when it's not published in Nature or Science.*** It has never been easier to share one's work with a broad audience; but it has also never been easier to feel overwhelmed by the options for doing so. Should you make a video? Write a press release? Post a blog? Or just Tweet about it? Using case studies based on recent attempts to promote new findings through multiple types/tiers of media, this talk will suggest a strategy that every academic might employ when hoping to spread the word on their research outcomes. While taking on the job of promoting your own work might seem like a daunting (or even painful) task, the payoffs ideally include: a) Increased reads and citations; b) Advantages in seeking jobs, tenure, or promotion; c) Expanding the reach and impact of your science; and d) Telling the world about plants!

### **Richard McCourt**

***Jefferson's Botanists: Lewis & Clark Discover the Plants of the West and Bring Them to Philadelphia.*** Meriwether Lewis and William Clark led their Corps of Discovery Expedition in 1804-06, traversing America's western territories in boats, on foot and on horseback. The primary charge by President Thomas Jefferson, the man who envisioned the expedition, was to gather and record scientific information about western animals, plants, and geography. The adventurers filled journals with observations of new species and landscapes, and they brought back a number of scientifically important specimens. The most numerous of the collections surviving are the plant specimens, collected mainly by Meriwether Lewis. This talk explains how Meriwether Lewis prepared for the botanical tasks he conducted on the 4,000 mile journey, the collections he made and challenges he overcame to bring back the specimens, the story of how they were almost lost to science, and the fate of the collection after Lewis returned to the east coast. Spoiler alert: The Academy safely houses more than 200 specimens, and they are being used still by scientists in ways that Jefferson, Lewis, and Clark could never have imagined.

### **Peggy Olwell**

***Botany and Botanists: More Relevant Than Ever!*** Considering unusual weather events in the East such as Hurricane Sandy and Hurricane Matthew, the serious drought conditions and altered fire regimes across the country, and the fast spread of invasive species nationwide, land managers need to be able to recognize and respond to landscape-scale ecological changes with appropriate restoration resources for all land ownerships across the United States. The "plant blindness" in this country has affected our botanical resources and native plant communities in a very detrimental way. While plants constitute over 50% of the species listed under the Endangered Species Act, they receive less than 5% of the funds to recover them. On a larger, more disturbing scale, the United States spends less than 2% of the biological

research dollars on plant research, which includes both agricultural and ecological research. We have set ourselves up to be unprepared for the future. We botanists need to communicate about our work in a very different way than we have historically.

The National Seed Strategy provides a platform for botanists to rally around. The Strategy outlines a plan that will help coordinate and focus diverse efforts toward achieving four major goals: (1) Conduct a national assessment, (2) Identify and conduct research, (3) Develop decision tools for land managers, and (4) Communicate need. The Strategy is a call to arms for botanists to work together to provide the solution!

**Kelly Sitch**

***A New Plant Conservation Initiative for Pennsylvania***

## **2016 Symposium Speaker Bios**

**James Bissell.** Curator of Botany Dr. Bissell has conducted inventories within Lake Erie wetlands in northern Ohio since the middle 1970s and all coastal wetlands along Lake Erie in Erie County, PA since 1985. The Museum Botany Department staff members and volunteers, headed by Curator Bissell since 1972, have collected thousands of plant specimens from Lake Erie coastal wetlands in northern Ohio and northwestern Pennsylvania. Several new native wetland plants to both Ohio and Pennsylvania have been collected within Lake Erie wetlands in both states. Many wetland plants at Presque Isle, not documented for more than a century, were found under the museum's 30-year inventory.

**James Bissell, Director of Natural Areas and Curator of Botany, Cleveland Museum of Natural History • 1 Wade Oval Drive, Cleveland, OH 44106 • [jbissell@cmnh.org](mailto:jbissell@cmnh.org)**

**Jason T. Cantley** is currently the Burpee Postdoctoral Fellow of Plant Genetics with Chris Martine at Bucknell University. At Bucknell, Jason studies aspects of evolution and biodiversity of Pacific and Australian distributed taxa. Prior to his work at Bucknell, Jason lived in the Hawaiian Islands where he was a Botanist and Wildlife Scientist for SWCA Environmental Consultants in Honolulu and often worked closely with endangered plants and animals. In 2014 Jason received his Ph.D. at the University of Hawai'i at Mānoa on research regarding the evolution and biogeography of insular *Coprosma* (Rubiaceae) taxa occurring across the Pacific.

**Jason T. Cantley, Burpee Post Doctoral Fellow of Plant Genetics, Bucknell University  
1 Dent Drive, Rooke 201, Lewisburg, PA 17837 • [jtc015@bucknell.edu](mailto:jtc015@bucknell.edu)**

**Sarah Chamberlain.** Ms. Chamberlain is a Botanist at Riparia, a research center in the Department of Geography, Penn State University, and was recently appointed Curator of the PAC Herbarium at Penn State. Her botanical research primarily focuses on the development and validation of plant-based bioassessment tools for wetlands in the Mid-Atlantic region. She also teaches workshops on grass, sedge and rush identification and frequently lectures on plant-related topics. She has developed a number of materials to aid in plant identification including a field manual for grasses in the Mid-Atlantic currently in press at Penn State Press. Ms. Chamberlain maintains Riparia's reference collection of more than 200 wetland sites in Pennsylvania, as well as their reference and teaching herbaria.

**Sarah Chamberlain, Botanist, Riparia, Penn State University  
302 Walker Building, University Park, PA 16802 • [sjm20@psu.edu](mailto:sjm20@psu.edu)**

**Dr. Dwayne Estes.** Dr. Estes is professor of biology at Austin Peay State University and has a joint appointment with the Botanical Research Institute of Texas. He received his Ph.D. in Ecology and Evolutionary Biology from the University of Tennessee in 2008. Dwayne's research includes the biogeography of Southeastern U.S., the discovery and description of new plant species, and the flora and biogeography of grasslands and rock outcrop communities. He is active in training graduate students in field botany and also serves as curator of the APSU Herbarium and the VDB Herbarium at BRIT.

**Dwayne Estes, Professor of Biology (APSU) and Botanical Explorer (BRIT), Austin Peay State University and the Botanical Research Institute of Texas, APSU, Department of Biology  
P.O. Box 4718, Clarksville, TN 37044 • [estesL@apsu.edu](mailto:estesL@apsu.edu)**

**Steven Grund.** Steven Grund studied botany at the University of Michigan, and since 1995 has been Botanist for the Western Pennsylvania Conservancy and the Pennsylvania Natural Heritage Program. His work focuses on conservation of the Pennsylvania flora with emphasis on rare species; he has authored several papers on plant conservation and taxonomy. Grund is a Research Associate with the Carnegie Museum and an active member of the Pennsylvania Biological Survey, Vascular Plant Technical Committee. He chaired the Pennsylvania Rare Plant Forum from 1997 to 2011. A founding member of the Pennsylvania Botany Symposium Steering Committee, Grund serves as Program Chair.  
**Steve Grund, Botanist, Western Pennsylvania Conservancy/Pennsylvania Natural Heritage Program**  
800 Waterfront Drive, Pittsburgh, PA 15222 • sgrund@paconserve.org

**Barre Hellquist.** Dr. Hellquist received his Ph.D. from the University of New Hampshire studying the effects of water chemistry on the distribution of *Potamogeton* in New England. He has taught courses and mini-courses on aquatic plants at the Universities of Michigan and Oklahoma Biological Stations and Eagle Hill Research Station. He had studied aquatics throughout the U.S., Canada, Russia and Australia. In the U.S. he has researched the rare *Potamogeton clystocarpus* from West Texas to the multi-year survey of Yellowstone and Grand Teton Nation Parks. In recent years he has been particularly interested in the Nymphaeaceae of North America and particularly Australia. He has co-authored the description of nine new species and subspecies of Australian waterlilies.  
**Barre Hellquist, Professor Emeritus, Massachusetts College of Liberal Arts**  
391 West Road, Adams, MA 01220 • c.barre.hellquist@mcla.edu

**Bonnie Isaac.** Bonnie Isaac is the Collection Manager of Botany at Carnegie Museum of Natural History in Pittsburgh. She has been employed by the museum since 1989. Bonnie received her Bachelors and Masters degrees in Biological Sciences with emphasis in Plant Sciences from Youngstown State University in Youngstown, Ohio and an International Diploma in Herbarium Techniques, from Kew Royal Botanical Garden in Kew, England. Bonnie serves on the Pennsylvania Botany Symposium Committee, the Pennsylvania Vascular Plant Technical Committee of the Pennsylvania Biological Survey, and as President of the Botanical Society of Western Pennsylvania. Her mentor was Carl Chuey, who specialized in ferns.  
**Bonnie Isaac, Collection Manager, Carnegie Museum of Natural History**  
4400 Forbes Avenue, Pittsburgh, PA 15213 • isaacb@carnegieMNH.org

**Wesley Knapp.** Wesley M. Knapp, Mountain Biologist, North Carolina Natural Heritage Program, was also Botanist/Ecologist with the Maryland Natural Heritage Program for 15 years. Wes has written numerous taxonomic treatments including the Juncaceae treatment of the forthcoming *New Gleason & Cronquist Manual* authored by Naczi. Wes has described 3 new plant species, including a *Juncus* endemic to Texas. In 2015 he was named a Research Associate at the Botanical Research Institute of Texas. Wes has had a growing interest in extinct vascular land plants for years and is leading a group of experts from across North America in an effort to document and understand this urgent topic.  
**Wesley M. Knapp, Mountains Field Ecologist/Botanist, North Carolina Natural Heritage Program, Division of Land and Water Stewardship, North Carolina Department of Natural and Cultural Resources**  
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**Chris Martine.** Chris Martine is the David Burpee Professor in Plant Genetics and Research, and Director of the Manning Herbarium at Bucknell University, a post he assumed after six years on the faculty at SUNY Plattsburgh following his Ph.D. work at the University of Connecticut. Chris is an evolutionary biologist, ecologist and botanist with a passion for natural history — something he strives to promote in his YouTube series, “*Plants are Cool, Too!*” and through his blog entries for Huffington Post. He has published two field guides, *Trees of New Jersey* and *Shrubs and Vines of New Jersey*, through the NJDEP.  
**Chris Martine, David Burpee Professor, Bucknell University, Department of Biology**  
1 Dent Drive, Lewisburg, PA 17837 • Ctm015@bucknell.edu

**Richard McCourt.** Dr. McCourt is the Associate Curator of Botany at the Academy of Natural Sciences, home to the more than 200 plant specimens returned by Lewis and Clark from the journal of exploration in 1804-1806. He has published a number of papers on the Lewis and Clark Herbarium at the Academy, and co-authored with Earle E. Spamer a Special Publication CD-ROM and short book on the Lewis and Clark Herbarium. He has given numerous lectures to scientific



audiences and the general public.

**Richard McCourt, Curator and Professor, Academy of Natural Sciences of Drexel University**  
**1900 Benjamin Franklin Parkway, Philadelphia, PA 19103 • Rmm45@drexel.edu**

**Peggy Olwell.** Peggy Olwell is a leading advocate for native plant conservation and restoration. She is Plant Conservation Program Lead for Bureau of Land Management and has successfully championed the conservation of native plant species for over thirty years. She was instrumental in developing the Plant Conservation Alliance in 1994, a partnership of 12 federal agencies and over 320 state and private organizations. She is currently Chair of the PCA Federal Committee. Peggy led the development of the National Seed Strategy. Peggy co-edited *Restoring Diversity: Strategies for Reintroduction of Endangered Plants*. Previously she worked for National Park Service, Fish and Wildlife Service, and Center for Plant Conservation.

**Peggy Olwell, Plant Conservation Program Lead, Bureau of Land Management**  
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**Kelly Sitch, Forest Ecologist, PA Department of Conservation and Natural Resources, Bureau of Forestry.**