2014 PA Botany Symposium Records

We heartily thank everyone, our generous sponsors and presenters, who made such a wonderful event possible! The second biennial PA Botany Symposium, held at the Penn Stater Hotel Conference Center, State College, PA, was attended by more than 160 enthusiastic botanists.

Join our mailing list to receive news of upcoming PA Botany events in your mailbox, and come back to this site and our Facebook page for the latest details for what's ahead, including:

- postings from the recent Symposium
- 2015 workshop
- 2016 Symposium

The following is the 2014 Symposium program:

FRIDAY, NOVEMBER 7th

1:30 – 4:30 p.m. Workshops

Introduction to Grasses, Sedges, and Rushes
Sarah Chamberlain, *Research Associate*
Riparia, Penn State University

Demystifying Pennsylvania's Violets
Dr. Harvey Ballard, *Associate Professor and Herbarium Director and Curator of Vascular Plants*
Department of Environmental & Plant Biology, Ohio University

Making Sense of the "Ovales;" the most difficult sedges in the Pennsylvania flora
Dr. Tony Reznicek, *Curator of Vascular Plants*
University of Michigan Herbarium

3:00 – 5:00 p.m. Vendor Setup

5:00 pm – 8:00 Friday Evening Social and Presentation
Cash bar from 5–8 and hors d'oeuvres served 6–7:30

Dummy Pollen, Buzzing Bees, and the Glossy Age of Botany
Dr. Chris Martine, *Burpee Professor of Biology*
Bucknell University

SATURDAY, NOVEMBER 8th

8:00 – 9:00 a.m. Registration

8:00 – 8:45 Vendor Setup

8:00 – 9:00 Vendor Session

9:00 – 10:00 Keynote Address

New Information from Old Specimens: Emerging Uses for Herbarium Data
Dr. Tony Reznicek, *Curator of Vascular Plants*
University of Michigan Herbarium

10:00 – 10:40 a.m.

Pennsylvania's Violets — History, Diversity, and Evolution
Dr. Harvey Ballard, *Associate Professor and Herbarium Director and Curator of Vascular Plants*
Department of Environmental & Plant Biology, Ohio University

10:40 – 11:00 a.m. break

11:00 – 11:40 a.m.

American Ginseng as a 'Phytometer' of Ecological Change
Dr. Jim McGraw, *Eberly Professor of Biology*
West Virginia University

11:40 a.m. – 12:20 p.m.

Exciting Plant Discoveries in Pennsylvania from the Past Two Years
Dr. Larry Klotz, *Emeritus Professor of Biology*
Shippensburg University

12:20 – 1:20 p.m. lunch

1:20 – 2:00 p.m.

Insightful Ways to Rebuild Old Taxonomy
Dr. John Kartesz, *Director of the Biota of North America Program (BONAP)*

2:00 – 2:20 break

2:20 – 3:00 p.m.

The Foundation of the Hunt Institute Collection and its Relevance to the History of Botany
Lugene Bruno, *Curator of Art & Senior Research Scholar*
Hunt Institute for Botanical Documentation, Carnegie Mellon University

3:00 – 3:40 p.m.

Ailanthus Wilt, Natural Controls, and Invasion Ecology
Dr. Don Davis, *Professor of Plant Pathology*
Department of Plant Pathology and Environmental Microbiology, Penn State University

3:40 – 4:20 p.m.

Pennsylvania's Forests: A Landscape of Change
Dr. Jim Finley, *Professor of Forest Resources*
Department of Ecosystem Science and Management, Penn State University

ABSTRACTS

FRIDAY WORKSHOPS

Sarah Chamberlain
Introduction to Grasses, Sedges, and Rushes. This hands-on introductory workshop is designed for the novice plant enthusiast interested in obtaining the skills necessary to identify grasses, common sedges, and rushes. It is also suitable for the experienced botanist who wants more familiarity with this challenging group of plants or simply wants to brush up on his/her skills. The workshop will cover the basic terminology and morphologic characteristics of grasses, common sedges (*Carex, Scirpus, Schoenoplectus, Eleocharis* and *Cyperus*), and rushes (*Juncus* and *Luzula*). Slide presentations, handouts, herbarium, and freshly collected field specimens will be used to illustrate plant characters, especially those that may prove an obstacle to keying. Some uncommon sedges will also be reviewed.

Dr. Harvey Ballard
Demystifying Pennsylvania's Violets. Using herbarium specimens from the Pennsylvania State University and other herbaria, we will study representatives of violets found throughout Pennsylvania and become familiar with the nuances of variation and diagnostic features separating all species. I will provide a "book" with a checklist of violets documented in the state, keys to species groups and species in Pennsylvania, and images of all species. The workshop will focus on first distinguishing species groups and then developing proficiency in recognizing all common species, and secondarily learning how to distinguish the less common species. An additional component of the workshop will be to develop an understanding of ecological specificity and microhabitat tolerances of each species in the larger groups.

Dr. Tony Reznicek
Making Sense of the "Ovales;" the most difficult sedges in the Pennsylvania flora. This will be a specimen-based workshop which will outline characteristic features, key characters, ecology, and hints for identification of this notoriously difficult group of *Carex.*

FRIDAY NIGHT SOCIAL

Dr. Chris Martine
Once Upon a Time: Wily Plants and the Glossy Age of Botany. The bush tomatoes of the genus *Solanum* have been described as "gender-bending" plants with a penchant for manipulating bee visitors. Putting this system into an ecology and evolution framework has resulted in novel understandings of plant reproductive biology and led to the discovery of new species. It has also helped to generate the sort of dynamic stories that the teaching of botany often requires — including the use of new/social media to enhance the storytelling. At a time when botanical education and interest in plants each appear to be in decline, finding good stories and embracing new ways of sharing them are critical endeavors.

SATURDAY PRESENTATION TITLES AND ABSTRACTS

Dr. Harvey Ballard
Pennsylvania's violets–history, diversity and evolution. Like other states in eastern North America, Pennsylvania is the benefactor of several major ancient violet migrations from the Neotropics, more recent movements of species prior to and since the Pleistocene, and diversification throughout these time periods. Several distinct lineages make up our eastern violet flora, with all but one being polyploids with multiple genomes in them (and all polyploids being the result of ancient hybridization between then-separate species or lineages). Pennsylvania has perhaps the largest number of *Viola* species of any eastern state, due to its great habitat heterogeneity and landscape diversity. I will touch on some interesting evolutionary processes that exemplify violets around the world and especially in North America, and then I will introduce Pennsylvania's impressive collection of violets. I will touch on some taxonomic challenges certain violets pose, I'll point out some painful nomenclatural issues that have recently come up, and some cool and exciting ecological and evolutionary processes we have evidence for in violets that have not yet been identified in other plant groups.

Lugene Bruno
The Foundation of the Hunt Institute Collection and its Relevance to the History of Botany. The Hunt Institute for

Botanical Documentation, a research division of Carnegie Mellon University, in Pittsburgh, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. In 2011 the Institute's 50th anniversary exhibition, *Botany and History Entwined: Rachel Hunt's Legacy,* gave an insight into the foundation of the collection and current programing. In this Power Point presentation, an overview will be given of the collection and its relevance to the history of botanical science and bring to light a regional 'living' treasure that is accessible to botanists, historians and artists. Displayed onscreen will be selections of the Institute's collection of rare books, artworks and archival materials. This will be accompanied by a discussion of their relationship to such topics as the transition from hand-copied manuscripts to illustrated, printed texts; new commentaries on ancient texts and the return to drawing from live specimens; travel and exploration resulting in the introduction of plants from around the world and the necessity for classification systems; and the development of botanic and private gardens resulting in wide-spread cultivation. This will be followed with examples of a selection of special collections and current projects.

Dr. Don Davis

Control of the Invasive Tree-of-heaven (*Ailanthus altissima*) by a Native Soil-borne Fungus. Tree-of-Heaven (TOH) is a highly invasive tree, native to China and East Asia, which was introduced into the U.S. during 1784-1785 by William Hamilton at his Philadelphia estate. TOH has subsequently spread to most U.S. states, including 60 of 67 PA counties. Open areas, created by salvage-logging of oaks killed by gypsy moth, apparently offered ideal invasion sites and TOH is now well established within forests of south-central PA. In 2003 we discovered extensive clonal TOH stands that were being killed by a native, soil-borne fungus (*Verticillium nonalfalfae*) in southern PA. Using this fungus, we inoculated approximately 100 TOH trees in 2006-2009 within 12 oak-dominated, mixed-hardwood forest stands in south-central PA. By September 2011, these inoculations had resulted in death of 14,162 TOH trees *via* natural spread of the fungus. Short-range local dissemination of the fungus from diseased to healthy TOH is facilitated by intraspecific root grafts. Long-range dissemination may be *via* an introduced, non-native ambrosia beetle from China that is currently epidemic in south-central PA. We evaluated 71 non- TOH woody species for susceptibility to *V. nonalfalfae*. Only devil's walkingstick (17% of the plants), staghorn sumac (16%), and striped maple (3%) acquired infections *via* natural spread from infected TOH (100%). Our results suggest that the fungal pathogen is native, has become host-adapted to the non-native TOH, and may be a natural control to prevent further expansion of TOH within PA and perhaps elsewhere, since the fungus has been recently discovered in Ohio and Virginia.

Dr. Jim Finley

Pennsylvania's Changing Forests. Pennsylvania's forested landscape is a product of timber and land exploitation. Now, a century or more after the cut and get out phase, the forests is maturing and facing new challenges. Nearly three-quarters of state's forests is in private ownership, about 11 million acres held by almost 750,000 owners. The decisions these owners are making individually and total are changing the landscape in many ways and are shaping the future for the social, economic, and ecological benefits we derive from our forests and woodlands. Most private woodland owners express stewardship values – caring about the future of their land. Learning, understanding, supporting, and sharing values is an important tool for conveying a message of love for the land. In this presentation, we will look back at the forest, look at its present condition and challenges, and explore ideas for helping today's woodland owners appreciate their role in passing healthy forests to future generations.

Dr. John Kartesz

Creative and Insightful New Tools for Assessing and Applying Plant Taxonomy. The presentation will focus on the functionality of the Biota of North America Program (BONAP) software and website. It will illustrate how it is possible to produce tailor-made databases of vascular plants for any area of North America, how to provide unique methods for identifying and locating members of our flora, and will focus on how plant taxonomists, horticulturalists, nurserymen, foresters, wildlife managers, ecologists and other plant enthusiasts can use the software to produce species checklists, distribution summaries, and species assessments for morpohology, rarity, endemism, nativity and other biological attributes for their local floras.

Dr. Larry Klotz

Interesting Botanical Finds in Pennsylvania in the Past Two Years: Vascular Plants, Bryophytes, Lichens. This presentation will include reports of newly discovered native or non-native species for Pennsylvania, rediscovery of

species thought to be extirpated, additional populations of state-listed species (Rare, Threatened, or Endangered), additional populations of invasive exotic species, revisited populations of state-listed or invasive exotic species, and newly described examples of rare or exemplary plant community types. The information for each species can include synonymy, classification, growth form, distribution, current conservation status, name of discoverer(s), date of discovery, county, geomorphic province, bedrock type, habitat or plant community, population size and area, condition of population and habitat or plant community, associated species, and significance of the occurrence. Illustrations will include digital photographs of the species and/or the particular occurrence and habitat.

Dr. Jim McGraw

American Ginseng as a 'Phytometer' of Ecological Change. A famous ecologist once said "Plants sit still and wait to be counted", when he was extolling the virtues of plants as organisms of study for population biologists. Unable to 'run away' from environmental changes and disturbances, plants are also sitting in place, experiencing the environment like a scientific measuring instrument. With this realization, my students and I have used natural populations of American ginseng as sentinels of environmental change. With studies ranging from detailed measures of photosynthetic response to light gaps created by forest disturbance, to simulations of decades of browsing or climate change effects on population growth, we have discovered that ginseng is both a sensitive instrument for recording disturbances to the environment, and a representative understory plant that foretells what is happening generally to the diverse and spectacular understory flora of the eastern deciduous forest. The story ginseng tells, sadly, is not an optimistic one, and the arrow of blame for its struggles points directly at our own species. At the same time, knowing the problem suggests the solutions, and they are many. In this talk you will hear about both, and hopefully learn how conservation science can contribute to biodiversity preservation in coming years.

Dr. Tony Reznicek

New and Emerging Uses for Herbarium Data. What can herbaria, and individual botanists, do to keep herbarium collections vital and relevant? Digitizing and imaging projects, driven by the scientific communities needs for digital data, are giving herbaria resurgence in visibility, but what is next? Can herbaria stay relevant after their collections are digitized and the physical objects are no longer seen as vital? The problem is deepened because after the collection is digitized, there are now two collections to curate, the specimens and the data – any changes to one collection must be reflected in the other to maintain data quality – but invariably there is no increase in staffing. The temptation to turn inward and focus on curating existing collections must be resisted, as data on the rapidly changing natural landscape have never been more urgently needed, and the needs of the natural environment around us have never been greater. We must adapt to encourage future collaboration. DNA studies place a premium on newer collections, but we may need to adjust policies regarding sampling of specimen fragments. We will explore various values of collections, ways to increase those values moving forward, and how to make those values apparent to the public and to collaborators. We should always continue to look for new ways to stay relevant in the shifting scientific landscape.

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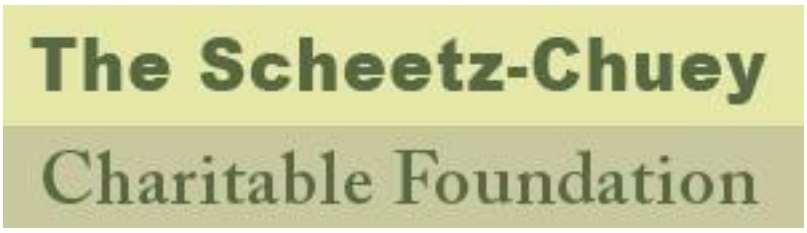
Northeastern Bulrush Sponsors 

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