Department of Botany & the U.S. National Herbarium

The Plant Press

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National Museum of Natural History

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Botany Profile

Frondly Focused on Ferns

By Gary A. Krupnick

The Department of Botany recently hired two new curators. Eric Schuettpelz, a systematic biologist recognized for his work on fern diversification, has joined the staff as Research Botanist and Assitant Curator of Ferns, and Ashley N. Egan, a systematic biologist with expertise in phylogenomics and bioinformatics, has been appointed as Research Botanist and Assistant Curator of Legumes. They both started in August 2013. The fern and legume holdings at the U.S. National Herbarium are large and significant. New curation and research will be highly beneficial. Egan and the legume collection will be profiled in a future issue of the *Plant Press*, while Schuettpelz and the fern collection are profiled here.

The fern collection at the U.S. National Herbarium currently totals approximately 275,000 specimens and is thought to be the largest fern collection in the new world. Known for having an especially rich collection of types—just under 5,500 catalogued type specimens—the collection results from a long history of pteridological research at the Smithsonian Institution. Remarkably, the collection has had continuous curation for over 100 years.

William R. Maxon built the fern collection from almost nothing to over 150,000 specimens in the early 20th century. Maxon was initially appointed as an aide in the Division of Plants of the U.S. National Museum in 1899 and eventually rose to become Curator of the U.S. National Herbarium in 1937, a position he held until his retirement in 1946. The collections he personally contributed primarily stem from trips to Jamaica, Cuba, and Central America.

Conrad V. Morton was trained under the tutelage of Maxon. His initial appointment at the Smithsonian was as an Assistant Curator of Phanerogams in the Division of Plants in 1939. In 1946, when the Division was reorganized as the Department of Botany, Morton was appointed Associate Curator of the Division of Ferns. He held the title of Curator of the Division of Ferns until 1970. Morton collected extensively in Guatemala, Honduras, and the West Indies.

David B. Lellinger began as an herbarium aide in 1960, and was hired as a member of the staff in 1963. He began coauthoring articles about South American ferns with Morton as early as 1966. Lellinger continued to build the fern collection, primarily with specimens from Costa Rica, Panama, and the Chocó in Colombia. He also published a landmark book, *A Field Manual of the Ferns & Fern-Allies of the United States and Canada* (Smithsonian Institution Press, 1985).

Gregory S. McKee, museum specialist, began assisting Lellinger in 1998, and continued to oversee the fern collection as acting fern curator after Lellinger's retirement in 2002. McKee will be assisting Schuettpelz in managing the fern collection.

Eric Schuettpelz grew up in northeastern Wisconsin, and spent much of his childhood outdoors exploring the woods. In 1995, he began his undergraduate studies at the University of Wisconsin-Milwaukee as a pre-med student. Not happy with this decision, Schuettpelz had what he calls an "awakening" in his junior year when he took a plant systematics course taught by Sara B. Hoot, a Ranunculaceae specialist. Schuettpelz recalls deciding right then, as a naive undergraduate, that he wanted to be a systematic botanist. Later that year he began an undergraduate research project with Hoot, focusing on the biogeography of the windflower genus *Anemone* (Ranunculaceae) in the Southern Hemisphere.

Schuettpelz received a B.S. in Biological Sciences in 1999, and continued on in Hoot's lab as a master's student, investigating the phylogeny and biogeography of the marsh marigold genus *Caltha* (Ranunculaceae). He recalls ironically that as a child he would gather huge "cowslip" bouquets from the ditches around his grandparents' house. He completed his M.S. in Biological Sciences in 2001.

It was during his time as a master's student that Schuettpelz first got excited about pteridophytes, thanks primarily to Hoot's collaboration with W. Carl Taylor, an *Isoëtes* (quillwort) specialist. Following conversations with Hoot, Taylor, and James P. Therrien (a postdoctoral fellow in Hoot's lab), Schuettpelz decided he wanted to pursue a Ph.D. focused on ferns. During this time, he also learned of Kathleen M. Pryer (then at the Field Museum) and was captivated by her work on fern evolution.

In 2001, when Pryer took a position at Duke University, Schuettpelz joined

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Travel

Pedro Acevedo traveled to Bogota, Colombia (8/4 – 8/14) to present a talk as an invited speaker at the Colombian Botanical Congress; and to San Juan and Ponce, Puerto Rico (9/17 – 10/8) to speak at the University of Sagrado Corazon and to conduct field work on the floristic studies of Camp Santiago and Fort Allen.

Mike Bordelon traveled to Fargo, North Dakota (7/22 – 7/26) to give a presentation at a conference of the Association of Education and Research Greenhouse Curators.

Barrett Brooks traveled to Curaçao (8/13 – 8/20) to participate with the Deep Reef Observation Project (DROP).

Mauricio Diazgranados traveled to New Orleans, Louisiana (7/26 – 8/01) to give two presentations at the Botany 2013 conference; and to Bogota, Colombia (8/4 – 8/31) to coordinate the Symposium of Biogeography of Neotropical Plants, to give various talks at the Colombian Botanical Congress, and to collect plants in Colombia needed for research.

Ashley Egan traveled to China, Japan, and Thailand (9/1 – 11/18) with **Matthew Hansen** to conduct field work, collect specimens, and visit various herbaria.

Sally Eichhorn traveled to Palermo, Italy (9/5 – 9/12) to attend the annual meeting of the council of the International Association for Plant Taxonomy.

Bob Faden traveled to Bronx, New York (7/7 - 7/13) to present a contributed paper at Monocots V: 5th International Conference on Comparative Biology of Monocotyledons at Fordham University.

Christian Feuillet traveled to Leiden, the Netherlands and Paris, France (7/29 – 8/16) to visit various herbaria as part of the preparation of the treatment of the Passifloraceae for Flora of the Guianas.

Vicki Funk traveled to New Orleans, Louisiana (7/27 – 7/31) to give a presentation at the Botany 2013 conference; to Bogota, Colombia (8/4 – 8/13) to attend the Colombian Botanical Congress and to collect plants in Colombia needed for research; to Uruguay and Argentina (8/24 – 9/3) to conduct fieldwork and present talks at the Argentina Botanical Congress; to Palermo, Italy (9/5 – 9/10) to work in the University of Palermo Herbarium Mediterraneum; to Durham, North Carolina (9/13) to attend a meeting at the National Evolutionary Synthesis Center; and to Honolulu, Hawaii (9/26 – 10/5) to attend a graduate student committee meeting and to conduct field work on Molokai and Kauai.

Carlos Garcia-Robledo traveled to Costa Rica (6/17 – 8/5) to teach a graduate course for the Organization for Tropical Studies and to conduct field work along the Barva and Talamanca elevational gradients; and to Portal, Arizona (9/18 – 9/22) to give an invited plenary talk at the Organization of Biological Field Stations meeting at the Southwestern Research Station (American Museum of Natural History) in the Chiricahua Mountains.

W. John Kress traveled to Bronx, New York (7/8 – 7/10) to attend as an invited speaker Monocots V: 5th International Conference on Comparative Biology of Monocotyledons at Fordham University; to Oak Ridge, Tennessee (7/16 – 7/17) to attend a meeting at the Oak Ridge National Laboratories; to Bogor, Indonesia (8/24 – 9/2) to deliver the plenary keynote address at the International Flora Malesiana Symposium; and to Madison, Wisconsin (9/26 – 9/27) as an invited speaker at the University of Wisconsin-Madison.

Gary Krupnick traveled to Baltimore, Maryland (7/22 – 7/24) to present a talk at the 26th International Congress for Conservation Biology meeting.

Dail Laughinghouse traveled to Svalbard, Norway (6/27 – 7/14) to conduct field work on Arctic cyanobacteria from around the archipelago and to give a talk aboard the ship Stalbas.

Paul Peterson traveled to Bronx, New York (7/7 – 7/13) to speak at Monocots V: 5th International Conference on Comparative Biology of Monocotyledons at Fordham University; and throughout southwestern China (8/31 – 10/4) to collect grass specimens.

Rusty Russell traveled to New Orleans, Louisiana (7/26 – 8/1) to chair a session and deliver a paper at the Botany 2013 conference.

Eric Schuettpelz traveled to New Orleans, Louisiana (7/28 – 8/1) to give an invited presentation at the Botany 2013 conference.

Laurence Skog traveled to New Orleans, Louisiana (7/26 – 8/1) to attend the Botany 2013 conference.

Rob Soreng traveled to Bronx, New York (7/7 – 7/12) to speak at Monocots V: 5th International Conference on Comparative Biology of Monocotyledons at Fordham University; and to Klamath Falls, Oregon (7/20 – 8/10) to collect grasses at Crater Lake National Park and the Oregon Cascades.

Alice Tangerini traveled to Bar Harbor, Maine (7/7 – 7/13) to participate and present a portfolio at the annual meeting and conference of the Guild of Natural Science Illustrators; to New Orleans, Louisiana (7/27 – 7/30) to present a workshop for the American Society of Botanical Artists (ASBA) at the Botany 2013 conference; and to Pittsburgh, Pennsylvania (9/24 – 9/29) to present a portfolio at the ASBA conference at the Hunt Institute and to attend the annual meeting of the board of directors of ASBA.

Alain Touwaide and **Emanuela Appetiti** traveled to Greece (9/1 – 9/27) to conduct research at the National Library of Athens and the National Archives of

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Reflections on a Shutdown

Editor's Note

This issue of *The Plant Press*, originally scheduled to be published during early October, is seeing a late release due to the U.S. government shutdown. The enforced shutdown was due to a lack of appropriations for fiscal year 2014. It occurred during the first 16 days of October and resulted in the closing of the Smithsonian Institution, all of its museums and the National Zoo. The majority of the federal staff was furloughed. The effect of the shutdown was significant on the activities of the U.S. National Herbarium and the livelihood of its workforce.

A view from Twitter, as the National Museum of Natural History announces a temporary closure as a result of a U.S. government shutdown. All of the employees of the U.S. National Herbarium were furloughed for 16 days.

Most Department staff members were sent home in a non-duty and non-pay status. Due to the Anti-Deficiency Act, we were specifically instructed not to conduct work at our workplace or any alternative worksite. We were not permitted to continue our research as an unpaid volunteer, and thus all of our studies were halted. Federal employees were not permitted to use or access any Smithsonian system including email, and we could be subjected to fines and legal actions for doing so. Employees were prohibited from using all Smithsonian issued equipment, including mobile devices, smartphones, tablets, and laptops. Visiting researchers who had planned to work in the herbarium suddenly found their research brought to a halt.

For those that were on travel, they were "furloughed in place." Messages were sent to all travelers urging them to return to Washington, DC, if at all possible. Many of our botanists were scattered around the world, from field sites in Puerto Rico to the remote jungles of Asia. If they could not return, they were told that they should furlough in place and they would not be on official travel during the shutdown.

Meetings at the National Museum of Natural History and elsewhere were canceled, postponed and rescheduled. For instance, I am a principal investigator of the North American Orchid Conservation Center. I was scheduled to attend and participate at a 2-day workshop at the Smithsonian Environmental Research Center in Edgewater, Maryland, to discuss the progress of the project and to set goals for future activities. The workshop, originally scheduled on October 7-8, was canceled. Colleagues from locations such as the Atlanta Botanical Garden, Chicago Botanic Garden, Alaska Botanical Garden, the Royal Botanical Gardens Kew, and the New England Wild Flower Society had to cancel their flights. Similar circumstances occurred throughout the Department as researchers found themselves unable to participate and speak at scheduled workshops, meetings, and symposia.

The museum turned away an estimated 200,000 potential visitors during the shutdown. For the skeleton crew that was deemed essential to protect buildings and collections, they came to the museum each day to assure the safety and security of the specimens and artifacts. The crew found the halls empty and dark, which contrasted starkly to the usual lively and vibrant atmosphere of the museum. We are grateful to Cathy Hawks, who monitored the U.S. National Herbarium during our forced absence, and Chris Huddleston, who monitored the frozen DNA collections at the Museum Support Center. We also owe our gratitude to Leslie Brothers and Mike Bordelon who kept the living collections at the Research Greenhouses well-watered and healthy.

Fortunately for the Department's federal work force, retroactive pay provisions were granted. Regrettably, the Department's contractors are left without pay for that same time period. We're still not out of the woods. Even though the shutdown has ended, the legislation extends current spending levels only to January 15, 2014, and the U.S. debt cushion through February 7, 2014. Here's hoping that another shutdown does not occur this coming winter.

Gary Krupnick
Editor of *The Plant Press*
Head of the Plant Conservation Unit

Greece in Athens; to attend and deliver papers at the meeting of the International Association for the History of Nephrology, held in Ancient Olympia and Patras, Greece; and to study and analyze ancient Greek manuscripts conserved in libraries of monasteries in Lesvos Island.

Warren Wagner traveled to New Orleans, Louisiana (7/27 – 8/1) to attend the Botany 2013 conference and to attend the council meetings of the American Society of Plant Taxonomists and the International Association for Plant Taxonomy; and to Kauai, Hawaii (8/14 – 8/29) to do research on the Flora of the Marquesas Islands project.

Jun Wen traveled to New Orleans, Louisiana (7/27 – 8/2) to attend the Botany 2013 conference; and to Shanghai, China and Bogor, Indonesia (8/20 – 9/26) to present talks at the Flora of China Symposium and the Flora Malesiana Symposium, and to conduct field work in Indonesia.

Liz Zimmer traveled to Baton Rouge and New Orleans, Louisiana (7/26 – 7/28) to visit Louisiana State University colleagues and to attend the Botany 2013 conference, where she was a co-author on a talk presented by former graduate student Mike Martin.

Staff Research & Activities

Gary Krupnick was one of five guest speakers at a July 30th workshop presented by the Smithsonian's Science Education Center (SSEC) for teachers and administrators. The goal of the SSEC program was to help teachers learn more about STEM (Science, Technology, Engineering, Math) related careers so that they can better communicate to their students the many ways they can pursue careers that use what is being taught in the classroom. The guest panel included a variety of museum staff that conduct research, care for collections, work on developing new exhibits, and teach the public. The workshop was held at the National Museum of Natural History.

On September 12, **Chris Puttock** gave the monthly botanical talk at the Virginia Native Plant Society on "Oaks of Virginia." He was also the keynote speaker at the 43rd Annual Prince George's County Beautification Awards Ceremony on September 25, giving a presentation entitled, "Non-natives Versus Natives: What's in Your Garden?"

With a grant from the Washington Biological Field Club (WBFC), the club's Committee on Invasive Biota, led by **Rob Soreng**, began a three year, spring and fall survey of vegetation, focused on invasive plants, on Plummers Island, Potomac River, Maryland. The island is situated in the Potomac Gorge just below the American Legion Bridge (US 495), and covers approximately 12 acres of land, situated within the confines of the C&O Canal National Park. The biota of the island has been extensively studied by the WBFC (vegetation and plant checklist: Shetler, S., et al. 2006. *Bull. Biological Soc. Wash.* no. 14). Additionally the island has been off limits to development for over 100 years. The committee is recording all plants found within 20 separate, 10-meter diameter plots, recording cover and frequency data for all plant species with special attention to invasive plants. The goal is to provide baseline data for the WBFC to make future decisions about the direction of management of invasive species. This year the group surveyed six plots. Some major pests found are *Lonicera japonica*, *L. maackii*, *Celastrus orbiculatus*, *Glechoma hederacea*, and *Microstegium vimenium.*

Alice Tangerini's artwork was featured in two exhibits this summer. The first was "IC16", the 16th annual juried exhibition by the Illustrators Club of DC which was held June 11 through July 13 at the Pepco Edison Place Gallery in Washington, DC. Tangerini exhibited her color rendition of *Globba sherwoodiana.* The second exhibition was "Botanica 2013, The Art & Science of Plants," the annual juried exhibition of botanical art by artists associated with the Brookside Gardens School of Botanical Art & Illustration and members of the Botanical Art Society of the Capital Region which ran June 29 through August 10 at Brookside Gardens in Wheaton, Maryland. Tangerini exhibited two artworks: *Besleria* sp. nov. and *Platycarphella parvifolia*.

Visitors

Carlos García-Robledo, Smithsonian Fellow; Plant-herbivore interaction (7/20/10-7/20/13).

Janelle Burke, New York Botanical Garden; Tropical Polygonaceae and Plumbaginaceae (8/1/12-12/31/14).

Jianqiang Zhang, Peking University, China; *Rhodiola* (Crassulaceae) (10/8/12-10/7/13).

Genevieve Croft, Washington University; *Byrsonima crassifolia* (Malpighiaceae) (10/16/12-10/16/13).

Leah Birdwell, University of Maryland, College Park; *Silene* (Caryophyllaceae) (1/7-7/21).

Ning Zhang, Pennsylvania State University; Vitaceae (1/7/13-6/30/15).

Jesus Valdez R., Universidad Autónoma Agraria Antonio Narro, Mexico; Poaceae (2/7-12/7).

Jorge A. Perez, University of California Davis; *Prunus* (Rosaceae) (3/7-7/13).

Fabio Avila, Universidad Nacional de Colombia; Cuatrecasas project (4/1-8/3).

Asmaa Muneer, University of Maryland; Plant DNA barcode project (4/22-12/31).

Katherine Dymek, Smith College; Plant DNA barcode project (5/20-7/26).

Kalli Beasley, Western Kentucky University; Jose Cuatrecasas project internship (5/25-8/17).

Monica Serrano, Colombia; Jose Cuatrecasas project translator (5/27-8/2).

Elena Meyer, Northern Virginia Community College; Bulky bamboo internship (5/28-8/9).

Katherine Gilchrist, Virginia; Jose Cuatrecasas project internship (6/1-7/31).

Leah Aronowsky, Harvard University; U.S. Exploring Expedition (6/3-8/2).

Elena Clark, George Washington University, and **Rachel Livengood**, Bloomsburg University of Pennsylvania; Plant conservation internship (6/3-8/9).

Killian Miller, District of Columbia; Jose Cuatrecasas project internship (6/3-8/9).

Amanda Sikirica, Virginia; Jose Cuatrecasas project internship (6/7-8/20).

Rubens Coelho, State University of Campinas, Brazil; *Allophylus* (Sapindaceae) (6/10-8/8).

Kenneth Bauters, Ghent University, Belguim; *Scleria* (Cyperaceae) (6/14-7/5).

Caitlyn Maczka, Montgomery College; Flora of Classical Antiquity (6/15-8/31).

Katherine Sizov, Virginia; Jose Cuatrecasas project internship (6/21-8/23).

Katya Medrano and **Samerawit Sebesibe**, Washington, DC; *Heliconia* project (6/24-8/2).

Alexander Dudley, University of Colorado; Liberian collections (6/24-8/16).

Clara Finkelstein, Kensington, Maryland, and **Nicole Choi**, University of Maryland, College Park; Historical expeditions project (6/26-7/19).

Ryan Barlow, University of Mary Washington; Caribbean seaweed internship (6/6-8/9).

Fernanda dos Santos Silva, Jardim Botânico do Rio de Janeiro, Brazil; *Dyckia* (Bromeliaceae) (7/1-7/5).

Joanne Birch, National Herbarium of Victoria, Australia; Australasian *Poa*

(Poaceae) (7/1-7/5).

Peter Linder, University of Zurich, Switzerland; Grasses (7/1-7/7).

Pengfei Ma, Kunming Institute of Botany, China; Bamboo (7/1-7/12).

Diane Pollock, Venice High School, California; Economic plants (7/1).

Jennifer Strong, Virginia; Compositae volunteer (7/1-8/15).

Eleanor Wagner, Virginia; Pacific Island flora internship (7/1-7/31).

Amy Wang, Maryland; *Silene* (7/1-8/31).

Cassiano Welker, Universidade Federal do Rio Grande do Sul, Brazil; Andropogoneae (Poaceae) (7/1-7/5).

Mannat Dhillon, University of Alberta, Canada; Flora of Classical Antiquity (7/8-8/31).

Joe Miller, Australian National Herbarium; neotropical Mimosoideae (Fabaceae) (7/8-7/26).

Felipe Borja, Virginia, and **Xavier Lowe**, Washington, DC; Youth Engagement through Science (YES) internship, Caribbean seaweed project (7/8-8/2).

Tiffany Munoz-Zegarra and **Melissa Ramos**, Washington, DC; Youth Engagement through Science (YES) internship, global genome project (7/8-8/2).

Nils Niemeier, Cornell University; Flora of Classical Antiquity internship (7/8-8/10).

Danielle Norwood, St. Mary's College of Maryland; Plant conservation internship (7/8-8/23).

Yuxiao Zhang, Kunming Institute of Botany, China; Bamboo (7/10-7/12).

David Carr, **Mary McKenna**, and 13 students, University of Virginia Blandy Field Station; Herbarium tour, plant conservation (7/12).

Tim Gallaher, University of Hawaii; Pandanaceae (7/14-7/26).

Richard Bateman, Royal Botanic Garden, Kew; Orchidaceae and paleobotany (7/15-7/24).

Aleksey Gibson, Washington, DC; History of Mediterranean botany and medicine (7/15).

Timothy Gilla, University of Hawaii, Manoa; Pandanaceae (7/15-7/28).

Helena Pinto Lima, Universidade Federal Rural do Rio de Janeiro, Brazil, and **Kathlyn Vasconcelos**, Universidade do Estado do Rio de Janeiro, Brazil; Zingiberales (7/15-7/16).

Paula Rudall, Royal Botanic Garden, Kew; Monocots (7/15-7/24).

Maria Vorontsova, Royal Botanic Garden, Kew; Grasses (7/15-7/19).

Vanessa Terra dos Santos, Centre for Australian National Biodiversity Research; Fabaceae (7/15-7/18).

Helina Chin, California State University at Monterey Bay; Botanical illustration internship (7/16-9/10).

Jefferson Maciel, Universidade Federal de Pernambuco, Brazil; Bromeliaceae (7/16-7/19).

Fabian Michelangeli, New York Botanical Garden; Melastomataceae (7/18-7/19).

Emmet Judziewicz, University of Wisconsin-Stevens Point; Poaceae (7/22-7/25).

Kerry Barringer, Brooklyn Botanic Garden; North American Scrophulariaceae (7/29-7/30).

Dale Dixon, National Herbarium of New South Wales, Australia; Collection management (7/29-7/30).

Jay Frost, Jerold Panas, Linzy & Partners, Washington, DC; *Historia Plantarum* collection (7/29).

Amanda Grusz, Duke University; *Cheilanthes* (Pteridaceae) (8/5-8/6).

Shuren Zhang, Chinese Academy of Sciences, China; Asian Cyperaceae (8/5-8/31).

Kathleen Stewart, Shenandoah Memorial Hospital, and **J.J. Waller**, Texas Healthnet Medical Clinic Ltd; Medicinal plants of Antiquity (8/6).

Heroen Verbruggen, University of Melbourne, Australia; Phycology (8/9-8/15).

Susan Hunter, National College of Natural Medicine; Mediterranean medicinal plants (8/12).

Peris Kamau, National Museums of Kenya; African *Asplenium* (Aspleniaceae) (8/12-9/9).

Natalie Mueller, Washington University in St. Louis; *Polygonum* (Polygonaceae) (8/13).

Paulo Baleeiro, Universidade de São Paulo, Brazil; *Utricularia* (Lentibulariaceae) (8/19-8/24).

Julian Campbell, Bluegrass Woodland Restoration Center; Asteraceae and Kentucky flora (8/19).

Paulo Gonella, Universidade de São Paulo, Brazil; *Drosera* (Droseraceae) (8/19-8/24).

Jennifer Gordetsky, Johns Hopkins University; Medicinal plants (8/23).

Peter Schafran, Old Dominion University; *Isoëtes* (Isoetaceae) (8/26-8/30).

Elena Roman Jordan, Catedra de Technologia de la Madera, Spain; Cupressaceae (8/30-12/13).

Ignacio del val Gonzalez, Catedra de Technologia de la Madera, Spain; Cupressaceae (8/30-9/12).

Maria José Reis da Rocha, Universidade Federal de Minas, Brazil; Melastomateae (9/4-9/6).

Martha Tomecek and **Lewis H. Ziska**, U.S. Department of Agriculture - Agricultural Research Service; *Solidago* (Asteraceae) (9/9-12/9).

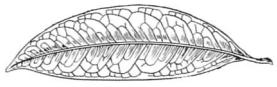
Rich Spellenberg, New Mexico State University; *Aristolochia* (Aristolochiaceae) and *Polianthes* (Asparagaceae) (9/12).

Vidal Mansano, Jardim Botânico do Rio de Janeiro, Brazil; *Swartzia* (Fabaceae) (9/16-9/18).

Jonathan Price, University of Hawaii at Hilo; Hawaiian flora (9/23-10/23).

M. Das Sivadasan, King Saud University, Saudi Arabia; *Anaphyllum* and *Lasia* (Araceae) (9/24).

Danica Raynaud, AuthenTechnologies, California; *Eleutherococcus* (Araliaceae), *Pueraria* (Fabaceae), and *Curcuma* and *Zingiber* (Zingiberaceae) (9/25-9/27).



The National Museum of Natural History hosted 1,800 Congressional staff, 20 Members of Congress and their families, at the annual Congressional Night at the Smithsonian. The Department of Botany hosted two stations providing an opportunity to discuss the importance of science. (Photo by Gary Krupnick)

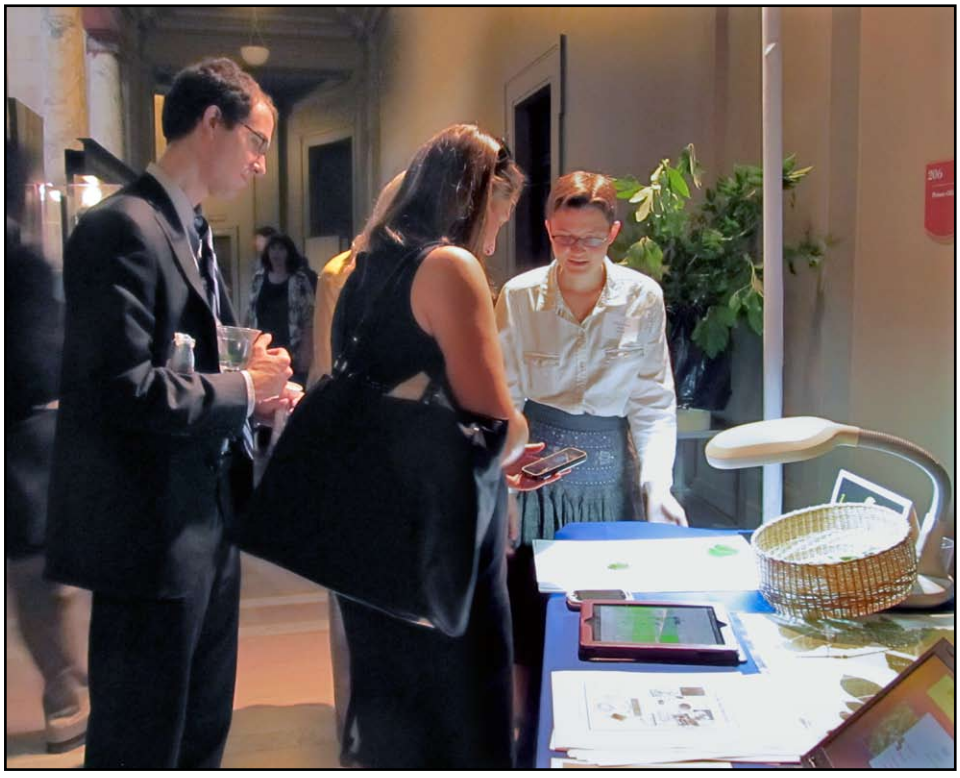
Congressional Night at the Museum

"Congressional Night at the Smithsonian" was held at the National Museum of Natural History on the evening of July 24, 2013. The event was attended by 1,800 Congressional staff and their families, as well as 20 Members of Congress. The event encouraged Congressional staff to meet members of the museum's research staff, engage in educational activities, and visit the museum's exhibit halls. The evening also included the successful and dynamic debut of Q?rius - the museum's new learning center. Sponsorship by Nissan North America, Inc. provided support and refreshments.

Guests had the opportunity to interact with museum staff and learn about their research and collections at 22 different stations. The success of the Congressional Night was in part due to broad participation from across the museum's research departments. The Department of Botany was represented by two stations. **John Kress**, **Ida Lopez**, contractor **Masha Kuzmina**, and interns **Katherine Dymek** and **Asmaa Muneer** hosted a station entitled, "Novel Technologies to Identify Plant Species, from Apps to Labs." The group demonstrated two current technologies in use for plant identification: 1) Leafsnap, an iPhone and iPad app, which uses an image recognition approach and provides tree species identification within seconds by simply taking a photo of a tree leaf; and 2) plant DNA barcodes, which offers a molecular approach to identifying species.

The second Botany station was entitled, "Saving Paradise: Threatened Plants and How We Can Protect Them," hosted by **Gary Krupnick**, **Alice Tangerini**, and interns **Elena Clark** and **Danielle Norwood**. The station highlighted how the Department of Botany is contributing to the targets of the Global Strategy for Plant Conservation. Some of these are identifying new species, assessing the conservation status of species, caring for living endangered plants in research greenhouses, and educating the public about the importance of threatened plants. Living and dried specimens of endangered and extinct species were showcased and the process of illustrating threatened species was demonstrated.

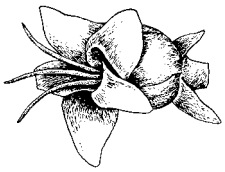
Krupnick also participated at a station entitled, "The Buzz on Bees," hosted by the Department of Entomology's Seán Brady, Nate Erwin (Insect Zoo), and Sam Droege (USGS). The station highlighted the diversity of bees and emphasized their critical roles in providing pollination services in agricultural and ecological settings. The station featured a wide variety of bee specimens from the collection, common plants (potted) that attract native bee pollinators, gear and equipment used



Katherine Dymek, Botany intern from Smith College, demonstrates how to use the iPad mobile app "Leafsnap" to identify trees for guests at Congressional Night. (Photo by Ida Lopez)

to research native bee diversity and evolution, and tools used to manage honey bee colonies.

A large contingency of volunteers from the museum assisted throughout the night. Volunteers from the Department of Botany also included **Andrew Clark**, **Elaine Haug**, **Melinda Peters**, **Meghann Toner**, and intern **Elena Meyer**.



A Day with US: The Herbarium that Keeps on Giving

By Julian Campbell

When James Smithson endowed an "establishment for the increase & diffusion of knowledge among men," how could he possibly have imagined the pleasant place that the Smithsonian's Department of Botany and Herbarium has now become? Located on the 4th and 5th West Wing floors of that massive National Museum of Natural History building, I have been coming here to study every year or two or three since 1982. Almost like going 'through the looking glass' one walks up through the 'Ascent of Man' exhibit or ascends on the elevator to the secure door, swiping one's visitor pass for entry. A magical world awaits!

For readers who may not be so familiar with the visiting experience, let me outline highlights of a day recently spent here, checking on some botanical records from Kentucky, where I have been working on an atlas of the state's vascular flora since about 1990. There are many important old collections of plants from Kentucky at US (the official acronym for this herbarium). Particularly important are the collections of Lucy Braun (1889-1971), who, almost single handedly, documented the flora and vegetation of Kentucky during 1920-1950. I continually maintain a list of collections to check at major herbaria, attempting to verify obscure records or to clarify identifications. My list for US has now gotten down to a handful of really problematic cases, but it will probably never go to zero—since taxonomic issues are never-ending!

Within the first few minutes of poking around in the cabinets, I unearthed a "new record" of *Eriophorum virginicum*. This cottongrass is common in more northeastern states, but it has virtually disappeared from Kentucky, with only two or three currently known populations. This "new record" was a collection of Robert Runyon in 1928 that has never been assimilated into the state's Natural Heritage Program database. Through the wizardry of Wikipedia, I discovered that Runyon (previously off my radar-screen) was born in Boyd County, Kentucky, but became an amateur botanist, photographer, curio-shop merchant, and politician in Texas and Mexico.

Between 9:30 am and 5:30 pm, breaking for an excellent lunch and cup of tea at the staff cafeteria downstairs, I was able to check on the following other items of interest:

- *Agrimonia striata*: drew blank, remains unverified in Kentucky despite old report by Kearney (1893)—where is his collection?
- *Cyperus plukenetii*: verified Braun's collection again from McCreary Co., but still no trace of her cataloged collection from Rowan Co.
- *Hypericum pseudomaculatum*: checked Braun's collections that she referred to this species, but they are just robust *H. punctatum*.
- *Luzula acuminata* var. *carolinae*: checked Braun's collection that she initially referred to *L. saltuensis*, but it is indeed var. *carolinae*.
- *Oenothera nutans*: checked Braun's collection from Menifee Co., which Werner Dietrich had redetermined as *O. biennis*—rightly so?
- I noted much *O. nutans* recently at higher elevation in West Virginia, flowering a few weeks earlier than *O. biennis* at a lower elevation.
- *Polygala nuttalii*: verified Braun's collections again from a site in Metcalfe Co., the only records of this southeastern species in Kentucky.
- *Polygonum buxiforme*: verified Braun's collection of this overlooked species from Kenton Co., and discovered McFarland's from Fayette.
- *Prunus allegheniensis*: drew blank; Braun initially used this name for a collection from McCreary Co., according to Max Medley (1993).
- *Schizachyrium scoparium* var. *divergens*: Braun's collections (from Christian and Grayson Cos.) and Henry Lix's (from Mammoth Cave) were annotated as this taxon by Kanchi Gandhi, but Flora of North America excluded it from Kentucky—is it really distinct anyway?
- *Ulmus thomasii* and *U. serotina*: checked the few collections of these rather poorly known elms; no new records but more misidentification.

Herbarium visitor Julian Campbell examines historic specimens collected from Kentucky. (Photo by Debbie Bell)

US is one of the most effective large herbaria in the world, partly because its collections are regularly used by many visiting researchers, as well as staff. The open and friendly communication amongst botanists that is fostered here is an essential feature of the operation. Knowledgeable visitors are able to make provisional rearrangements within difficult taxa, using subfolders where appropriate. Doors are open to a range of experts in offices around the collections, so that useful discussion can often proceed and the staff can keep an eye on the visitors in case they get out of line.

Julian Campbell is an Independent Consultant at the Bluegrass Woodland Restoration Center in Lexington, Kentucky

Isotype of *Alloplectus savannarum*

New Genus, *Lesia*, Named in Honor of Laurence Skog

A new gesneriad genus, *Lesia* J.L. Clark & J.F. Sm., has been named in honor of emeritus research botanist Laurence E. Skog. The genus was created to accommodate the odd South American (primarily Guianan) species *Alloplectus savannarum* C.V. Morton, which molecular phylogenies had shown did not belong to that or any other genus. The genus has a single species, *Lesia savannarum* (C.V. Morton) J.L. Clark & J.F. Sm. The authors of the published paper, James F. Smith (Boise State University) and John L. Clark (University of Alabama), write, "The new genus honors Laurence E. Skog (by using his initials L.E.S.), who has made numerous, invaluable contributions to our understanding of Neotropical Gesneriaceae" (*Systematic Botany* 38(2): 451-463; 2013).

Departmental Titan Arum Blooms

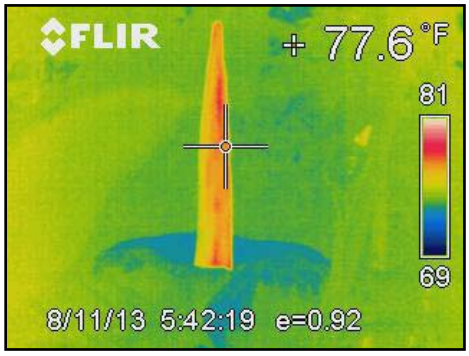
While more common than they used to be, a flowering *Amorphophallus titanum* (titan arum) is still a treat. In early August one of these large aroids decided to put on its irregular, smelly show for the first time since 2007. Inconveniently, it bloomed during the weekend, and the Botany Greenhouses, located in Suitland, Maryland, is only opened to staff. Still, a short open house accommodating about 35 visitors took place.

This particular specimen was given to the Smithsonian Institution's Botany Greenhouse in 2003 by now-retired Aroid curator **Dan Nicolson**. Dan attended the open house with his wife Alice Nicolson and son David.

Before modern transportation and easy shipping of plant materials between conservatories and collectors, the titan arum was very rare outside its Sumatran rain forest. Now much more common in cultivation, its irregular flowering times, large inflorescence and foul odor still create a fascinating burst of fecundity. *Amorphophallus titanum* has the largest known unbranched inflorescence in the plant kingdom, and this time the Botany Department's plant grew to a respectable 52 inches tall. Though its width and odor peaked in the middle of the night, SI Photographic Services was kind enough to photograph the event Saturday through Monday morning, where the overnight maximum can be seen in a stop motion video.

Unseen by visitors, the spadix itself warms up above ambient temperature to help dissipate the odor of rotting flesh,

Dan Nicolson observes *Amorphophallus titanum* in the SI Botany Research Greenhouses. (Photo by Alice Nicolson)



Infrared image of *Amorphophallus titanum.* (Photo by Claude Jefferson)

bringing in hopeful carrion beetles (in Sumatra) and flies (in our area). The Smithsonian Office of Facilities Engineering and Operations supplied the infrared images to show the warming spadix.

Because an individual plant requires a substantial amount of energy to produce such a large inflorescence, it can be many years before the Botany Department has another one of these fleeting events in the research greenhouses. Seeing titan arum bloom is highly recommended, here or elsewhere.

Adey's Summer Cruise Adds Specimens to the Coralline Algae Collection

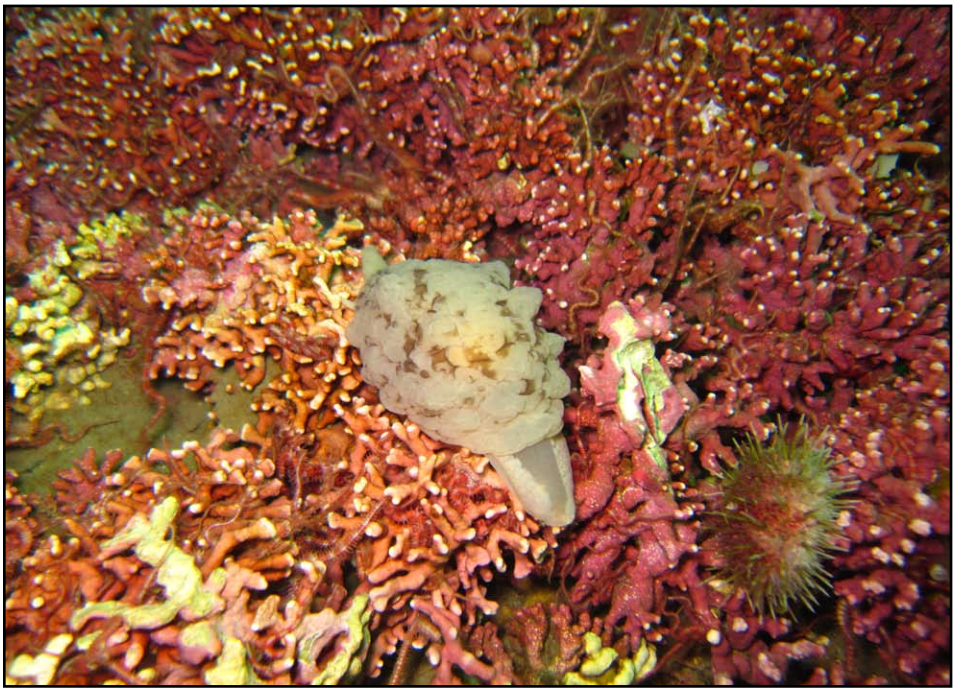
To better understand the longevity ecology of the coralline algae, *Clathromorphum compactum*, a prime Arctic/Subarctic climate archive species, **Walter H. Adey** spent 10 weeks during the 2013 summer on a cruise of the R/V Alca i in northern Labrador, Canada. The cruise was funded largely through a Canadian Natural Sciences and Engineering Research Council (NSERC) grant to himself and his two colleagues, Jochen Halfar at the University of Toronto and Patrick Gagnon at Memorial University of Newfoundland. Halfar and Gagnon did not participate in the cruise at sea, but each provided a graduate student/diver, both of which were also carrying out their personal doctoral research as part of the cruise.

The vessel crew totaled seven: Adey serving as vessel captain and chief scientist on the cruise, a chief engineer, an administrative officer, a cook and three Ph.D. student/SCUBA divers—

Thew Suskiewicz of Laval University, David Belanger of Memorial University, and Michael Fox of Scripps Institute of Oceanography. Suskiewicz carried out experimental analyses of sea urchin feeding rates on kelp and Belanger analyzed infauna within the coralline rhodoliths *Lithothamnion glaciale* and *Lithothamnion tophiforme*. Approximately 80 SCUBA dives to depths of up to 30 meters were carried out, two thirds with two divers and one third with three divers. During most of the work season, bottom working temperatures ranged from -1.5° C to +2° C, limiting dives to about 50 minutes.

The cruise was specifically dedicated to the establishment of ecological parameters allowing the collection of specimens of *Clathromorphum compactum* exceeding 1,000 years in age. While pursuing this objective, it was possible to identify an entirely new sub-community of the rocky Subarctic benthos. This common cobble-boulder, glacial lag-till community allows the achievement of great age in *C. compactum.* At the prime work site in Kingitok Islands, where they spent about one third of their total field time, the mean thickness of the collected 51 samples was 105 mm, and the maximum was over 200 mm. Since Adey estimates the growth rate to be between 110-120 µm per year, based on the research cruises of 2010-2011, they now have 17 samples thicker than 115 mm (approximately 1,000 years old); the oldest at over 200 mm is nearly 1,700 years old. These specimens more than double their Arctic/Subarctic climate archive potential and are invaluable additions to the herbarium's coralline climate archive collection, and add to the determination of past sea ice cover, ambient temperature and salinity, as well as carbon and oxygen isotope levels.

Walter Adey (center) and dive crew Thew Susquewicz of Laval University and Mike Fox of Scripps Institution hold a 1,200 year-old mound of *Clathromorphum compactum* newly recovered from the rhodolith bed shown below. (Photo by David Belanger)



Rhodoliths of the coralline *Lithothamnion tophiforme* with an infauna of brittle stars, a sea urchin (echinoderms) and a nudibranch at 30 meters depth and a peak temperature of 2° C. (Photo by Michael Fox)

The identification of a new benthic community, based in fine sedimentation into a lag till of cobbles and boulders with *Lithothamnion* rhodoliths that enhances great age in this climate archive species, presages a new era of collection and the beginning of significant herbarium expansion. It also allows Adey to once again bring his Pleistocene geology background together with his coralline research. While both the sea urchin and rhodolith components of the cruise are independent doctoral thesis efforts, both directly relate to his *C. compactum* research.

A secondary objective of Adey's personal research on this cruise was the obtaining of abundant samples of *Leptophytum* species for phylogenetic work. From pebble/shell bottoms mostly over 25 m, approximately 100 samples of *Leptophytum laeve* and *Leptophytum foecundum* were taken. These are critically needed for the phylogenetic studies of the Melobesiaceae currently in progress. Extracting DNA from samples currently in the herbarium has been difficult. This large number of dives, some dedicated to this need for the coralline herbarium, produced many mollusk shell encrustations solely occupied by each of the *Leptophytum* species. It is expected that this will solve a serious analysis problem with this genus.

Notes from the Plant Mounting Room

By Melinda Peters

As we enter the fall season, the Plant Mounting Program is in full swing and we have been recruiting a few new volunteers to help with the preparation of specimens. Some volunteers are back from vacation while others are still enjoying their adventures, but we are gearing up for the fall. During this quarter, with many people away, we were still able to contribute some **2,267** mounted specimens to the permanent collection. The plant mounting volunteers also helped with the preparation of **111** specimens for the Q?RIUS center, the new learning center set to open at the National Museum of Natural History in November. These specimens will be available to the public and provide a way to experience what it is like "behind the scenes."

The new acquisitions in this quarter have been a smattering of material, much of it for curators and the rest of it from geographic areas of interest. We have also been incorporating backlog specimens into the current queue of mounting, which is very exciting to see some older specimens make their way into the collection.

For this quarter's noteworthy specimens, I am featuring two specimens from families that are economically important. As we enter the fall harvest, it is a good reminder to think about how much we benefit from plants, and it seemed appropriate to highlight two specimens that are in families we recognize often during this time of the year. One is a recently mounted member of the Cucurbitaceae and the other is in the Lauraceae family.

- Specimen US 3656200 is a specimen of *Cucumis dipsaceus* Ehrenb., collected by John H. Thomas along the coast of Baja California, Mexico in 1959. A small dot map accompanies the specimen information on the collection label, which is a nice addition especially as we work to georeference collections. This is a member of the cucumber genus, which is closely related to pumpkins, or the genus *Cucurbita*. These two genera include species that are staples during the summer and fall months.

- Specimen US 3653070 is a specimen of *Cinnamomum cassia* Nees ex Blume sent to us from the United States Pharmacopeia, Authenticated Botanical Reference Standards project. The purpose of the project is to build a reference collection for the public to use in order to identify botanical dietary supplements. The U.S. National Herbarium will house specimens for this project.

Specimen US 3656200 (left) is a gourd collected in 1959 with georeferenced data. Specimen US 3653070 (right) is a specimen of Chinese cinnamon sent by the United States Pharmacopeia.

Give thanks during this fall harvest and try this Pumpkin Curry that incorporates both of these families.

Pumpkin Curry

(*Lauraine Jacobs, Guest Food Editor, New Zealand Woman's Weekly, modified by M. Peters*)

3 cups coconut milk
1 fresh green chili, de-seeded and split
½ tsp turmeric
1 tsp ginger, peeled and finely chopped or grated
1 ***Cinnamomum*** stick
1 stalk lemongrass
8 curry leaves
1 medium onion, finely sliced
8 oz. raw cashews, soaked overnight in water and drained
14.5 oz. ***Cucurbita***, (*C. moschata* or *C. pepo*), cut into 1 cm diced pieces
1 ***Cucumis***, peeled-cut into 1 inch pieces
2 limes

1. Place the coconut milk, chili, turmeric, ginger, cinnamon, lemongrass and curry leaves in a heavy-bottomed saucepan and bring to a boil. Turn the heat down and allow the mixture to simmer gently for 10 minutes.

2. Add the onion, soaked cashews, pumpkin and cucumber and continue to simmer until the vegetables are tender, about 20-25 minutes, adding a little water if the mixture reduces too much. Season with salt to taste and add the juice of 1 lime.

3. Serve with lime wedges and steamed rice.

Historical Expeditions Project Digitizes Data

By Shruti Dube

The United States National Herbarium is the primary plant specimen repository for many government sponsored expeditions. The United States Exploring Expedition, the Geological Survey of California, Stansbury's Expedition, the Colorado Exploring Expedition (Ives Expedition), and the Western Union Telegraph Exploration Expedition are just a few of the historic expeditions found in the herbarium's collection.

A year ago the Department of Botany started a project called the Global Plants Initiative-Historical Expeditions which

Frederick Vernon Coville, the first curator of the U.S. National Herbarium, collected *Saxifraga lyallii* (left) during the Harriman Alaska Expedition in 1899 and *Calyptridium monospermum* (right) during the Death Valley Expedition in 1891.

aimed to create digital data and images of historic specimens. The Department focused on botanical specimens collected before 1900 in the United States and Canada west of Mississippi, including Alaska. These fragile specimens need special care in handling.

As we approach the end of this project, we digitized more than 21,000 specimens (imaged and databased). These specimens have been entered into the online catalog program EMu (with approximately 1,000 more waiting to be digitized) and will eventually appear in the JSTOR Global Plants website <http://about.jstor.org/global-plants>.

Here is an account of some of the expeditions and illustrations of sample plants collected on the expeditions:

The Harriman Alaska Expedition of 1899 was first designed as a family outing but ultimately became a significant scientific undertaking. Railroad magnate Edward H. Harriman led a team of twenty-three scientists, including the great naturalist John Muir, on a two month expedition to explore the waters and coastal territory of Alaska. The expedition returned with over 100 trunks of specimens and more than 5,000 photographs and colored illustrations. To date, we have digitized 3,042 plant specimens from this expedition, including *Saxifraga lyallii* collected by Frederick V. Colville.

The California Geological Survey, headed by Josiah D. Whitney, was created by the California state legislature in 1860. William H. Brewer and Henry N. Bolander were the main field botanists, although many other naturalists contributed to the collection and description of the survey's plants. From 1860-1864, Brewer was the Principal Assistant in charge of botany and undertook extensive botanical surveys of unexplored areas in California. Brewer found many beautiful and unusual plants across California. Our current digitized collection holdings from this expedition exceed 4,000 specimens, such as *Populus tremuloides* from Yosemite National Park.

U.S. Geological Exploration of the Fortieth Parallel, under the direction of Clarence King, took place over the period 1867-1871. Although the expedition traveled through California, Nevada, Utah, and Colorado over five exploring seasons to map its topography and discover its resources, plants were only collected in Nevada and Utah from 1867 to 1869. Botanists William Bailey and Sereno Watson were the botanical investigators during this expedition. We have assembled more than 1,600 specimens of Bailey and Watson's collections, such as *Thermopsis montana var. montana*. collected in northern Nevada.

The Death Valley Expedition (1891) was the first biological survey to result from an 1890 Act of Congress. It appropriated funds to discover the geographic distributions of plants and animals in the United States. Botanist Frederick Vernon Coville—the first curator of the U.S. National Herbarium—accompanied the expedition. He collected plants and, in accordance with the wishes of Congress, noted areas where different species flourished or faded. He organized his findings into a report entitled, "Botany of the Death Valley Expedition" where he first defines the term "zonal plant" as a "species or variety which is of value in determining floral zones." This century old expedition is, to this day, the most complete survey of the flora of Death Valley. The entire original set of plant collections were deposited at US and currently includes 1,628 digitized records, including *Calyptridium monospermum*.

A Second Red Algae *Gloiotrichus* Species Discovered in the Caribbean

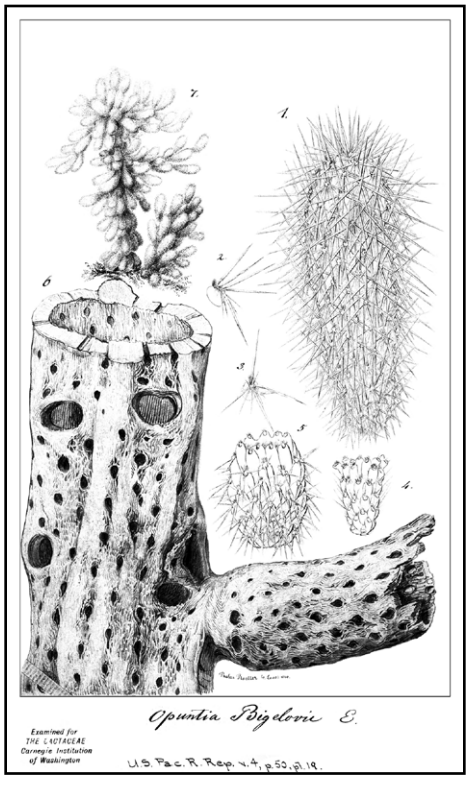
A most unusual genus of red algae, *Gloiotrichus* (Liagoraceae, Rhodophyta), previously known only from Australia and later Hawaii, has been found for the first time in the Caribbean Sea. **Katina Bucher**, **James Norris**, and James Sears describe a second known species, *Gloiotrichus vermiculatus*, based on specimens collected from subtidal waters from Belize and the U.S. Virgin Islands (*Caribbean Journal of Science* 47: 98-113; 2013). *Gloiotrichus vermiculatus* differs from the first species, *G. fractalis*, in female reproductive morphology and development. While Norris' group has molecular analyses on the Belize species, the first species has never been re-collected in Australia. It is hopeful that someday they can test the new species relationship to type material.

A new species of red algae, *Gloiotrichus vermiculatus*, was recently discovered in the Caribbean Sea.

Summer Intern Helina Chin scanning drawings from the herbarium. (Photo by Alice Tangerini)

Intern Makes Old Drawings Look New

Helina Chin, an intern from the California State University at Monterey Bay, worked with **Alice Tangerini** and spent the summer scanning drawings from the herbarium and from Tangerini's office.



This drawing of *Oputnia bigelovii* is one of several cactus drawings that Helina Chin scanned during her internship.

Chin's internship was part of her final graduate semester as part of the Science Illustration Program. Chin came with a strong background in using Adobe Photoshop and in devising ways to manipulate scans to best advantage the artwork. Her first job was to scan 250 dinoflagellate drawings from negatives and photographic prints from the Botany Dinoflagellate Type Collection. Working closely with **Maria Faust** and **Elaine Haug**, Chin devised a system for scanning the negatives to optimize time and still bring out the subtle shades and patterns found in the dinoflagellates.

Chin also scanned various bamboo illustrations from the 1940s and several cactus watercolors, some with serious stains from mold and foxing that had to be removed in Adobe Photoshop. Chin's most challenging task was working with pencil drawings from the 1856 publication, "Explorations and Surveys of a Railroad Route from the Mississippi River to the Pacific Ocean." The exquisite graphite illustrations by Paulus Roetter, a St. Louis native and the artist of the expedition, were of cactus species (many of which were types) and had been filed in with cactus specimens in the herbarium. Many of the drawings suffered from abrasion, causing the graphite lines to be so pale as to be almost invisible when scanned. Chin worked with these difficult objects and brought them back to a previous unblemished life.

Treasures from the Backlog

By Meghann Toner

Within our backlog of scientifically important specimens waiting to be mounted are an estimated 200,000 plant specimens collected as far back as the early 20th century. Included among the specimens are treasures of hidden links to our past in the form of old newspapers. These newspaper pages are used to store our specimens until they are mounted. As our team of mounters continues to process these specimens they are finding front page spreads showing snapshots of major events in our world's history. One of these is the front page of the *Washington Post* from March 20, 1940. The headlines recount stories about a British air raid at the beginning of World War II, mixed in with stories about a "new" DC sales tax. Another page from a 1939 *Toronto Star Weekly* is of interest to fans of the British royal family. It is a full spread image showing King George VI and his wife Queen Elizabeth on September 10th of that year, seven days after his famous King's Speech at the start of Britain's involvement of World War II. Viewing newspaper pages that are over 70 years old show us a world before Twitter and Facebook. They are tangible connections to the botanists who placed their collections into these pages after reading the stories that were affecting their lives.


The Washington Post

Great British Raid Sets Nazi Air Base Afire

Attack Enters 8th Hour, Premier Vows 'Moral Peace'

Old newspapers, such as this one from 1940, are being found by the mounting team as they work with the backlog of specimens.

Profile

Continued from page 1

her lab as her first doctoral student. As a new student, his first task was, along with Pryer and Harald Schneider (a postdoctoral fellow in Pryer's lab), to identify a dissertation topic. Early on, Schuettpelz explored biogeographical questions surrounding *Pterozonium* (Pteridaceae) and *Hymenophyllopsis* (Cyatheaceae), which led to his first visit to the U.S. National Herbarium (Lellinger had published earlier treatments of these genera). The logistics of working on this group centered on the tepuis of Venezuela ultimately proved too overwhelming for a beginning doctoral student.

In the summer of 2002, Schuettpelz took a course in tropical plant systematics offered by the Organization for Tropical Studies in Costa Rica. One of the course instructors was Robbin C. Moran, curator of ferns at the New York Botanical Garden, who introduced Schuettpelz to the incredible diversity of ferns inhabiting tropical rain forests. Schuettpelz was especially fascinated by the epiphytic ferns and pursued a course project centered on epiphyte diversity. By the end of the course, he had decided on a dissertation topic—the evolution and diversification of epiphytic ferns.

Eric Schuettpelz, in this self-portrait, joined the staff of the Department of Botany as Research Botanist and Assistant Curator of Ferns in August 2013.

Schuettpelz got off to a strong start—his first fern-centered publication attracted wide attention (Schneider et al. 2004. *Nature* 428: 553-557). This study examined the diversification of ferns relative to the diversification of flowering plants, and one of the main findings was that polypod ferns diversified primarily in the Cretaceous, after angiosperms. This conflicted with the general notion that fern diversity declined as a result of flowering plant diversification and suggested that the diversification of angiosperms may have presented an ecological opportunity for ferns. In his research on the evolution of epiphytism in ferns, Schuettpelz found that this particular habit evolved, and was also lost, many times. But perhaps most interesting was the finding that the diversification of epiphytic ferns was relatively recent—primarily occurring after the K/T boundary and the likely establishment of angiosperm-dominated tropical rainforests (*PNAS* 106: 11200-11205; 2009).

Eric Schuettpelz plans to continue his studies of xeric-adapted cheilanthoids, such as *Pellaea cymbiformis*. (Photo by Eric Schuettpelz)

Schuettpelz's most frequently cited work, co-authored with Alan R. Smith (Curator of Ferns at the University of California Berkeley Herbarium) and others, is a well-regarded classification for ferns (*Taxon* 55: 705-731; 2006).

Schuettpelz completed his Ph.D. in 2007, but remained at Duke University for another two years as a postdoctoral fellow, focused primarily on the systematics and evolution of the cheilanthoid ferns, a diverse clade common in xeric habitats, including the deserts of the southwestern United States and Mexico. Schuettpelz also spent a year as a post-doctoral fellow at the National Evolutionary Synthesis Center (NESCent), a scientific research center promoting collaborative, cross-disciplinary research in evolutionary biology. In 2010, he began a tenure-track position as an Assistant Professor at the University of North Carolina Wilmington,

Continued on page 14

The hairy *Cheilanthes pohliana* is native to the Brazilian cerrado. (Photo by Eric Schuettpelz)

Profile

Continued from page 13

which he held for three years until his recent move to the Smithsonian Institution.

At the Smithsonian, Schuettpelz will continue his research program centered on elucidating the evolutionary history of ferns. In the near term, his work will focus on lineages within the Pteridaceae. He will continue his phylogenetic and biogeographical studies of the xeric-adapted cheilanthoid clade. His research into the evolution of epiphytism will concentrate on the shoestring ferns (vittarioids), a pantropical group of about 125 species that is almost exclusively epiphytic. Sister to the maidenhair ferns (*Adiantum*), these epiphytes are notable for their highly reduced morphology and fast rate of molecular evolution. Schuettpelz hopes to shed light on the evolution of this extreme morphological, ecological, and apparently genomic makeover in ferns.

Schuettpelz's previous fieldwork has taken him to the neotropics (Costa Rica, Ecuador, and Brazil), as well as the paleotropics (Taiwan and Malaysia). If collecting permits come through, he wishes to return soon to Southeast Asia to collect vittarioids, and to further build the impressive fern collection at the U.S. National Herbarium.

Having such an important and large fern collection was the impetus to hire a fern specialist in the Department of Botany. An active Curator of Ferns will maintain the collection making it easier for visitors to access and extract information from it, especially if it is arranged phylogenetically. With Schuettpelz on board, the collection will continue to receive the attention it deserves. Within his first few weeks on the job, the vittarioids were reorganized and he plans to tackle the remainder of the Pteridaceae (currently divided into the Adiantaceae, Parkeriaceae, Pteridaceae, and Vittariaceae) this fall. Soon, the arrangement of the entire fern collection will reflect a current understanding of fern phylogeny.

Publications

Bucher, K.E., **J.N. Norris** and J.R. Sears. 2013. *Gloiotrichus vermiculatus* sp. nov. (Liagoraceae, Rhodophyta), a new species from the Caribbean Sea. *Carib. J. Sci.* 47(1): 98-113.

Capik, J.M., M. Muehlbauer, **A. Novy**, J.A. Honig and T.J. Molnar. 2013. Eastern filbert blight-resistant hazelnuts from Russia, Ukraine, and Poland. *HortScience* 48: 466-473.

Chisholm, R.A., H. Muller-Landau, K. Abdul Rahman, D.P. Bebber, Y. Bin, S.A. Bohlman, N.A. Bourg, J. Brinks, S. Bunyavejchewin, N. Butt, H. Cao, M. Cao, D. Cárdenas, L. Chang, J. Chiang, G. Chuyong, R. Condit, H.S. Dattaraja, **S. Davies**, A. Duque, C. Fletcher, N. Gunatilleke, S. Gunatilleke, Z. Hao, R.D. Harrison, R. Howe, C. Hsieh, S.P. Hubbell, A. Itoh, **D. Kenfack**, S. Kiratiprayoon, A.J. Larson, J. Lian, D. Lin, H. Liu, J.A. Lutz, K. Ma, Y. Malhi, S. McMahon, W. McShea, M. Meegaskumbura, S. Mohd.

This fern from Bolivia and Brazil is currently known as *Adiantum senae*, but the new combination to *Adiantopsis senae* is in review. (Photo by Eric Schuettpelz)

Razman, M.D. Morecroft, C.J. Nytch, A. Oliveira, G.G. Parker, S. Pulla, R. Punchi-Manage, H. Romero-Saltos, W. Sang, J. Schurman, S. Su, R. Sukumar, I. Sun, H.S. Suresh, **S. Tan**, D. Thomas, S. Thomas, J. Thompson, R. Valencia, A. Wolf, S. Yap, W. Ye, Z. Yuan and J.K. Zimmerman. 2013. Scale-dependent relationships between tree species richness and ecosystem function in forests. *J. Ecol.* 101(5): 1214-1224. http://dx.doi.org/10.1111/1365-2745.12132

de Carvalho-Sobrinho, J.G., L.P. de Queiroz and **L.J. Dorr**. 2013. Does *Pseudobombax* have prickles? Assessing the enigmatic species *Pseudobombax endecaphyllum* (Malvaceae: Bombacoideae). *Taxon* 62(4): 814-818.

Demissew, S. and **V.A. Funk**. 2013. Institutional votes for the 2017 nomenclature section. *Taxon* 62(3): 648-649. http://dx.doi.org/10.12705/623.33

Diazgranados, M. and **V.A. Funk**. 2013. Utility of QR codes in biological collections. *Phytokeys* 25: 21-34. http://dx.doi.org/10.3897/phytokeys.25.5175

Fan, D., J. Chen, Y. Meng, **J. Wen**, J. Huang and Y. Yang. 2013. Molecular phylogeny of *Koenigia* L. (Polygonaceae: Persicarieae): Implications for classification, character evolution and biogeography. *Mol. Phylogenet. Evol.* 69(3): 1093-1100. http://dx.doi.org/10.1016/j.ympev.2013.08.018

Frescura, V.D.S., A.W. Kuhn, **H.D. Laughinghouse IV**, F.T. Nicoloso, S.J. Lopes and S.B. Tedesco. 2013. Evaluation of the allelopathic, genotoxic, and antiproliferative effect of the medicinal species *Psychotria brachypoda* and *Psychotria birotula* (Rubiaceae) on the germination and cell division of *Eruca sativa* (Brassicaceae). *Caryologia* 66(2): 138-144. http://dx.doi.org/10.1080/00087114.2013.821832

Frescura, V.D.S., **H.D. Laughinghouse IV**, T. Canto-Dorow and S.B. Tedesco. 2012. Pollen viability of *Polygala paniculata* L. (Polygalaceae) using different methods of staining. *Biocell* 36(3): 143-145.

Krupnick, G.A. 2013. Conservation of tropical plant biodiversity: what have we done, where are we going? *Biotropica* 45(6):693-708. http://dx.doi.org/10.1111/btp.12064

Li, R. and J. **Wen**. 2013. Phylogeny and biogeography of Asian *Schefflera* (Araliaceae) based on nuclear and plastid DNA sequences data. *J. Syst. Evol.* http://dx.doi.org/10.1111/jse.12052

Li, R. and J. **Wen**. 2013. Phylogeny and biogeography of *Dendropanax* (Araliaceae), an amphi-Pacific disjunct genus between tropical/subtropical Asia and the Neotropics. *Syst. Bot.* 38(2): 536-551. http://dx.doi.org/10.1600/036364413X666606

Manchester, S.R., D.K. Kapgate and **J. Wen**. 2013. Oldest fruits of the grape family (Vitaceae) from the Late Cretaceous Deccan Cherts of India. *Am. J. Bot.* 100(9): 1849-1859. http://dx.doi.org/10.3732/ajb.1300008

Novy, A., S.L. Flory and J.M. Hartman. 2013. Evidence for rapid evolution of phenology in an invasive grass. *J. Evol. Biol.* 26: 443-450. http://dx.doi.org/10.1111/jeb.12047

Paszko, B. and **R.J. Soreng**. 2013. Species delimitation and name application in *Deyeuxia abnormis*, *Agrostis zenkeri*, *A. pleiophylla* and related taxa (Poaceae: Agrostidinae). *Phytotaxa* 111(1): 1-26. http://dx.doi.org/10.11646/phytotaxa.111.1.1

Ren, Z., Y. Zhong, U. Kurosu, S. Aoki, E. Ma, C.D. von Dohlen and **J. Wen**. 2013. Historical biogeography of Eastern Asian-Eastern North American disjunct Melaphidina aphids (Hemiptera: Aphididae: Eriosomatinae) on *Rhus* hosts (Anacardiaceae). *Mol. Phylogenet. Evol.* 69(3): 1146-1158. http://dx.doi.org/10.1016/j.ympev.2013.08.003

Robinson, H.E. and J.J. Skvarla. 2013. *Lettowia*, a new genus of Vernonieae from East Africa (Asteraceae). *Phytokeys* 25(2): 47-53. http://dx.doi.org/10.3897/phytokeys.25.5556

Romaschenko, K., N. Garcia-Jacas, **P.M. Peterson**, **R.J. Soreng**, R. Vilatersana and A. Susanna. 2014. Miocene–Pliocene speciation, introgression, and migration of *Patis* and *Ptilagrostis* (Poaceae: Stipeae). *Mol. Phylogenet. Evol.* 70: 244-259. http://dx.doi.org/10.1016/j.ympev.2013.09.018

Rothfels, C.J. and **E. Schuettpelz**. 2013. Accelerated rate of molecular evolution for Vittarioid ferns is strong and not driven by selection. *Syst. Biol.* http://dx.doi.org/10.1093/sysbio/syt058

Snow, N., **P.M. Peterson** and **K. Romaschenko**. 2013. Systematics of *Disakisperma* (Poaceae, Chloridoideae, Chlorideae). *Phytokeys* 26: 21-70. http://dx.doi.org/10.3897/phytokeys.26.5649

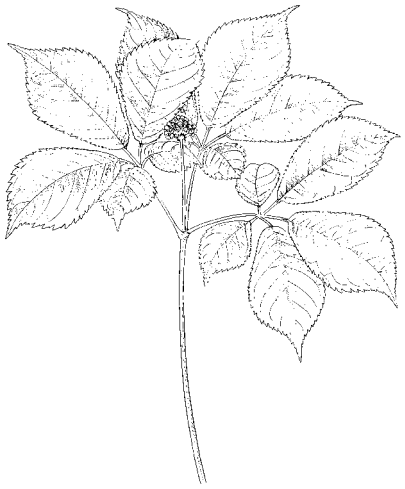
Wagner, W.L. and P.C. Hoch. 2013. Onagraceae, pp. 509-553. In G. Yatskievych. *Steyermark's Flora of Missouri, Volume 3.* Missouri Botanical Garden Press, St. Louis.

Wasshausen, D.C. 2012. Acanthaceae, pp. 225-233. In A. Idarraga, R. del Carmen-Ortiz, R. Callejas and M. Merello, eds. *Flora De Antioquia: Catalogo De Las Plantas Vasculares*, Vol. 2. Universidad de Antioquia, Bogota, Colombia.

Wasshausen, D.C. 2013. Acanthaceae, pp. 1-328. In C. Persson and B. Stahl, eds. *Flora of Ecuador.* Vol. 89. Department of Biological and Environmental Sciences, University of Gothenburg, Goteborg, Sweden.

Wen, J., Z. Xiong, Z. Nie, L. Mao, Y. Zhu, X. Kan, S. Ickert-Bond, J. Gerrath, **E.A. Zimmer** and X. Fang. 2013. Transcriptome sequences resolve deep relationships of the grape family. *Plos One* 8(9): e74394. http://dx.doi.org/10.1371/journal.pone.0074394

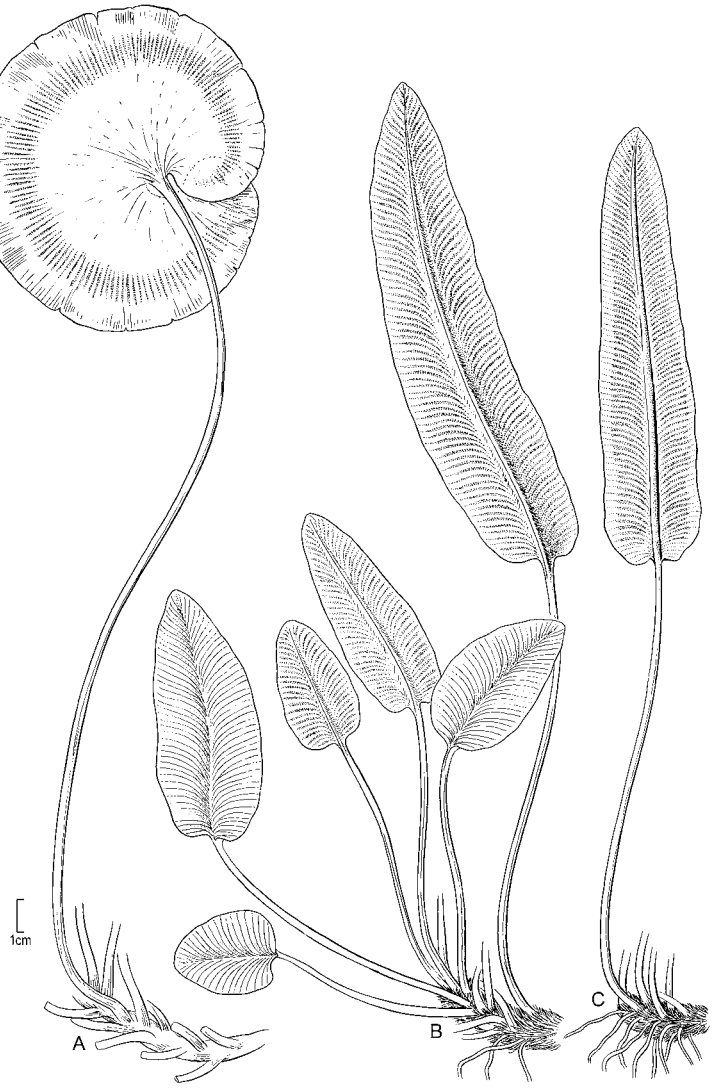
Zhang, J., R. Li, X. Xiang, S.R. Manchester, L. Lin, W. Wang, **J. Wen** and Z. Chen. 2013. Integrated fossil and molecular data reveal the biogeographic diversification of the eastern Asian-eastern North American disjunct hickory genus (*Carya* Nutt.). *Plos One* 8(7): e70449. http://dx.doi.org/10.1371/journal.pone.0070449



Art by Alice Tangerini

Pterozonium Fée

This plate of ferns was made by Alice Tangerini for David Lellinger in May 1989. The drawing was proposed for the *Flora of the Guianas* to illustrate three species in the genus *Pterozonium* (Pteridaceae): A) *P. reniforme* (Mart.) Fée based on the specimen Mass & Westra 4331 from Guyana; B) *P. paraphysatum* (A.C. Sm.) Lellinger based on the specimen Maguire 24500 from Surinam; and C) *P. scopulinum* Lellinger based on the specimen Maguire & Fanshawe 23430 from Guyana. *Pterozonium* has yet to be published for the *Flora of the Guianas*, and this plate has not been used in any other capacity.



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