Department of Botany & the U.S. National Herbarium

The Plant Press

Smithsonian
National Museum of Natural History

New Series - Vol. 14 - No. 4 October-December 2011

Pacific Island Researchers Are In a Hotspot

By Nancy Khan

Over Memorial Day weekend, 26-30 May 2011, researchers from 17 countries gathered in Honolulu, Hawaii to present their current research and build the foundation for future research initiatives in the Pacific. Composed of a vast sea of islands and near-shore environments, the culturally, biologically, and geologically diverse Pacific realm occupies a third of the planet and holds a crucial place in the Earth's history and resources. The islands and near-shore environments are rich in plants and animals, most of which occur nowhere else. The people and biota of the Pacific face enormous challenges from climate change and loss of diversity. Therefore, this conference was designed to bring together those that study evolution, ecology, and conservation biology to stimulate creative and urgent research and synthesize knowledge about Pacific biogeography.

Inspired by the success and achievements of the first Hawaiian Biogeography Symposium at the American Institute of Biological Sciences (AIBS) meeting in Honolulu in 1992, the conference was developed through a collaboration between the National Tropical Botanical Garden and the Smithsonian Institution's National Museum of Natural History (NMNH), National Museum of American Indian (NMAI), and the National Zoological Park (NZP). Smithsonian researchers who attended the conference include Rob Fleischer, NZP/NMNH; Vicki Funk, NMNH, Botany; Kris Helgen, NMNH, Vertebrate Zoology; Lauren Helgen, NMNH, Entomology; Doug Herman, NMAI; Jay Horn, NMNH, Botany; Helen James, NMNH, Vertebrate Zoology; Carol Kelloff, NMNH, Botany; Nancy Khan, NMNH, Botany; Cristián Samper, NMNH, Director's Office; and Warren Wagner, NMNH, Botany.

Special funding from the National Science Foundation, Directorate for Biological Sciences (through a grant to the University of Florida), and the National Tropical Botanical Garden provided support to 39 students and young professionals who each received a McBryde Travel Award to attend the conference. Additional support for the conference was provided by the American Museum of Natural History, Bishop Museum, Government of French Polynesia, The University of Kansas, The University of the South Pacific, The University of California, Berkeley; and The University of Hawaii at Manoa.

The four-day meeting, held in the comfortable and well-equipped conference facilities at the East-West Center on the campus of the University of Hawaii at Manoa, was attended by 155 professional biologists, geologists, and cultural experts; and 53 students. A sixteen member organizing committee (see the website below for members) developed a diverse and well-rounded program of workshops and symposia on topics that spanned the Pacific region from French Polynesia to Guam. A PDF copy of the complete conference program is available at <botany.si.edu/events/2011_pacific>.

Events got underway on Thursday morning when an eager crowd arrived for the first of two pre-conference workshops organized by Rosemary Gillespie, Helen James, and Vicki Funk. This methodological seminar attracted a standing room only crowd. They learned about four dynamic new theoretical approaches to island biogeography with many participants staying well into the late afternoon for an ad-hoc working session which provided further instruction and opportunities for hands-on data manipulation. A second afternoon workshop focused on long-term conservation efforts in Hawaii; highlighting successes and presenting new approaches and techniques in conservation. As twilight settled over the picturesque Japanese Garden everyone gathered on the lanai for a convivial reception and formal welcome delivered by Chipper Wichman of the National Tropical Botanical Garden.

Early Friday morning participants assembled in the Keoni Auditorium for the commencement of the five scientific symposia with opening remarks delivered by Warren Wagner and a traditional Hawaiian oli wehe (opening chant) performed by Samuel M. 'Ohukani'ohi'a Gon III of the Nature Conservancy. Each half-day symposium was organized and presented by a small group of multi-institutional researchers who scheduled invited speakers and contributed papers around one of the following key questions: 1) what within-lineage biogeographic patterns are found across the Pacific, 2) are there common patterns of evolutionary diversification among lineages across the disparate island systems of the Pacific, 3) how do different plant and animal populations interact through time to form novel island ecosystems, 4) how have people influenced the terrestrial and near-shore environments of

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Travel

Pedro Acevedo traveled to Melbourne, Australia (7/15 – 7/31) to give a talk at the 18th International Botanical Congress; and to San Juan, Puerto Rico (8/7 – 8/10) to attend a workshop on endangered plant species.

Michael Bordelon traveled to Sonoma, California (8/28 – 8/31) to attend the annual meeting of the American Public Gardens Association.

Barrett Brooks traveled to Belize City, Belize (7/20 – 8/4) to collect seaweeds, and maintain long term experiments.

Leslie Brothers traveled to Portland, Oregon (7/25 – 8/2) to attend the annual meeting of the Association of Education and Research Greenhouse Curators.

Laurence J. Dorr traveled to Melbourne, Australia (7/15 – 7/31) to participate in the Nomenclature session focused on revising the botanical code, and present both a talk and poster at the 18th International Botanical Congress; to use the herbarium of the Royal Botanic Garden, Melbourne; and to meet with the granddaughter of the most important plant collector in 19th century Madagascar.

David Erickson traveled to Changbaishan, China (7/12 – 7/25) to participate in SIGEO forest dynamics workshop; to Austin, Texas (8/7 – 8/13) to attend the annual meeting of the Ecological Society of America; and to Murfreesboro, Tennessee (9/12 – 9/13) to present a talk at Middle Tennessee State University.

Robin Everly traveled to Melbourne, Australia (7/21 – 8/7) to give a talk at the 18th International Botanical Congress, and to meet with librarians at the Royal Botanic Gardens' libraries in Melbourne and Sydney.

Robert Faden traveled to St. Louis, Missouri (7/7 – 7/14) to deliver an invited talk at "A Tribute to Walter Lewis—Consummate Botanist" at Washington University, to give a talk at the Botany 2011 meeting at the Missouri Botanical Garden, and to conduct herbarium work on Commelinaceae at the Missouri Botanical Garden.

Christian Feuillet traveled to Melbourne, Australia (7/14 – 8/1) to give a talk at the 18th International Botanical Congress.

Vicki Funk traveled to Melbourne, Australia (7/15 – 7/31) to give a talk at the 18th International Botanical Congress**;** and to Bogota, Colombia (8/7 – 8/11) to attend the Colombian Botanical Congress and a Compositae workshop.

Carlos Garcia-Robledo traveled to Braulio Carrillo National Park, Costa Rica (6/25 – 7/29) to collect data for his fellowship; and to Austin, Texas (8/7 – 8/13) to attend the annual meeting of the Ecological Society of America.

Gary Krupnick traveled to St. Louis, Missouri (7/4 – 7/8) to present a talk and poster at the Global Partnership for Plant Conservation meeting at the Missouri Botanical Garden; and to San Juan, Puerto Rico (8/7 – 8/10) to attend a workshop on endangered plant species.

W. John Kress traveled to China and Australia (7/8 – 7/31) to participate in SIGEO forest dynamics workshop, to visit Beijing Genomics Institute in ShenZhen to develop strategies for next generation sequencing, and to participate at the 18th International Botanical Congress in Melbourne, Australia; and to Austin, Texas (8/7 – 8/13) to attend the annual meeting of the Ecological Society of America.

Dail Laughinghouse traveled to Seattle, Washington (7/11 – 7/16) to present a paper at the Phycological Society of America conference; and to České Budějovice, Czech Republic (8/15 – 8/19) to participate in the Determination Course of Freshwater and Terrestrial Cyanobacteria at the University of South Bohemia.

Paul Peterson and **Robert Soreng** traveled to Australia (7/15 – 8/22) to attend the Nomenclature Session and present lectures and posters at the 18th International Botanical Congress in Melbourne, and to collect grasses from Alice Springs to Darwin in the Northern Territory.

Rusty Russell traveled to St. Louis, Missouri (7/10 – 7/14) for the Botany 2011 meetings at which he presented a paper, chaired the Historical Papers Ses-

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Visitors

Carlos García-Robledo, University of Miami; Plant-herbivore interactions (7/20/10-7/19/11).

Vinita Gowda, Indian Institute of Science, Bangalore, India; *Alpinia* (Zingiberaceae) (11/15/10-3/31/12).

Genise Freire, Universidade Federal Rural do Rio de Janeiro, Brazil; Sapindaceae (12/1/10-12/31/11).

Quijie Li, Ynagtze University, China; *Prunus* (Rosaceae) (12/15/10-11/30/11).

Ying Meng, Kunming Institute of Botany, China; Polygonaceae (1/9/11-8/31/12).

Andy Woo, University of Louisville; GIS project (5/2-8/26).

Janelle Burke, Cornell University; Polygonaceae and Plumbaginaceae (5/15-9/2).

Jack Folsom, University of Mary Washington; Plant conservation internship (5/16-8/19).

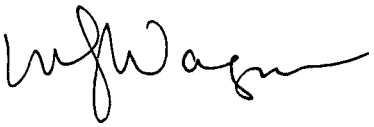
Esa Sclafani, St. John's College; U.S. Exploring Expedition internship (5/16-8/19).

Honoring 204 Years of Service

On 27 September, the staff and community of the National Museum of Natural History gathered to celebrate with and honor the 22 individuals retiring from 7 departments across the museum. Within this venerable group the Department of Botany had the largest number of retirees representing 204 combined total years of service. Retirees from the department include: Mark Littler (1982), Jim Norris (1975), Katherine Rankin (1986), Susan Rechen (1979), Harold Robinson (1962), and Bob Sims (1978). In an accompanying article on page 4, we recognize the individual contributions, accomplishments, and leadership that each has imparted during their many years of service. We will certainly miss them all and on behalf of the department I extend our sincere gratitude to these individuals for their dedicated service to the museum and greater botanical community, and we wish them a happy, fulfilling retirement.

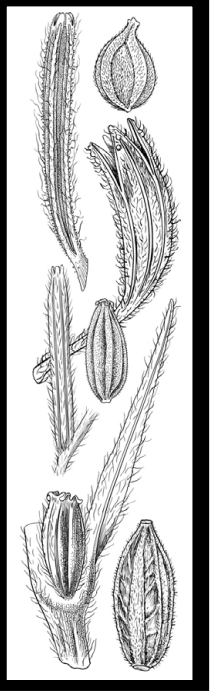
While the Department is fortunate that most of this group has graciously chosen to serve in an emeritus or volunteer capacity in the future, we recognize that with their departure under the recent buyout opportunity and others who previously retired we are faced with significant gaps at both the research curatorial and museum collections and IT specialist levels. Over the past few decades the curatorial ranks of the Department have dwindled from 19 to 11 curators and from 42 to 28 technical staff, while the collections in the U.S. National Herbarium have continued to grow. The current staffing upheaval is unprecedented within the Department and although it presents an immediate challenge to fill some rather large shoes it has created an opportunity that has allowed us to embark on a hiring campaign to re-build the department and position it for long-term stability.

Over the past few weeks we have actively solicited ideas from everyone in the Department via an appointed committee that has been charged with the task of drafting a staffing plan based on a consensus of departmental needs and priorities. Almost without exception, the response has been that we have two main functions; systematic and evolutionary research focused on plants, algae and fungi (i.e., lichens), and maintenance and use of the Herbarium. In the near future a comprehensive hiring plan will be shared with the Department and national searches undertaken. The initial focus will be to fill areas of critical need and function such as a museum specialist to sustain the plant mounting operation and a cryptogamic curator. The honest input from all staff has been invaluable and it is gratifying to see how engaged everyone has been throughout the process. My greatest hope is that we can attract candidates for the vacant positions with the same depth of knowledge, dedication, and longevity of service as those retiring.



Chair With A View

Warren L. Wagner



Sophia Lee, Baltimore County, Maryland; Seagrasses (5/23-8/29).

Sarah Miller, St. John's College; U.S. Exploring Expedition internship (5/23-8/19).

Casey Perkins, Beloit College; Plant conservation internship (5/23-8/19).

Lillian Waller, William & Mary College; U.S. Exploring Expedition internship (5/23-7/29).

Nicholas Woodbury, University of Missouri; Maps project internship (5/23-8/26).

Katie Scussel, New College of Florida; Seeds of Success collection (5/23-7/1).

Richard Fischer, City University of New York, and **Jennifer Mathias**, Pratt Institute; Field Book project internship (5/31-8/29).

Sarah Gardner, Tulane University; Arizona project internship (5/31-8/26).

Robbie McInness, George Mason University; Maps project internship (5/31-8/29).

Kerri Morrison, McDaniel College; Curation internship (5/31-8/18).

Jenna Zukswert, Smith College; Plant DNA barcode internship (5/31-8/6).

Christine Rounds, School for the Visual Arts, New York; Plant Image Collection (6/3-7/29).

Emily Afflitto, Temple University; U.S. Exploring Expedition internship (6/6-7/29).

Gracie Benson Martin, University of California, Berkeley; *Heliconia* (Heliconiaceae) (6/6-7/29).

Colton Collins, University of Portland; *Heliconia* (Heliconiaceae) (6/6-8/3).

Kathryn Fenster, University of Maryland, College Park, and **Zach Guttendorf**, Cornell University; Historical Expeditions website (6/6-7/29).

Michelle Cho, James Madison University; Plant conservation internship (6/13-8/19).

Sarah Geinosky, University of Chicago; San Jacinto project internship (6/13-8/19).

Emily Hunter, University of Maryland, College Park; Field Book project internship (6/13-8/29).

Xianzhou Kan, Anhui Normal University, China; Vitaceae (6/15/11-6/15/12).

James Bollinger, Alexandria, Virginia; Plant conservation internship (6/27-7/29).

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Staff Research & Activities

In June, **Robert Soreng** collected in Turkey with Canadian Museum of Nature scientists Lynn Gillespie (sponsor of the trip) and Katya Boudko. From western Anatolia, 349 collections were made. The focus was on Poaceae (grasses) species diversity of allied sub-tribes (Alopecurinae, Phleinae, Poinae) of the tribe Poeae, needed for their DNA and morphological taxonomic research projects. They are collaborating and were collecting with Evron Çabi and Musa Doğan (Middle East Technical University).

In August, Soreng and **Paul Peterson** travelled from Alice Springs to Darwin in the Northern Territory of Australia for three weeks of collecting. Even though it was the Australian winter they managed to collect 301 numbers of grasses and related families, particularly along rivers and near ponds. They were accompanied on the collecting trip by Jeffery M. Saarela (Canadian Museum of Nature) who funded the expedition and Emmet J. Judziewicz (University of Wisconsin, Stevens Point).

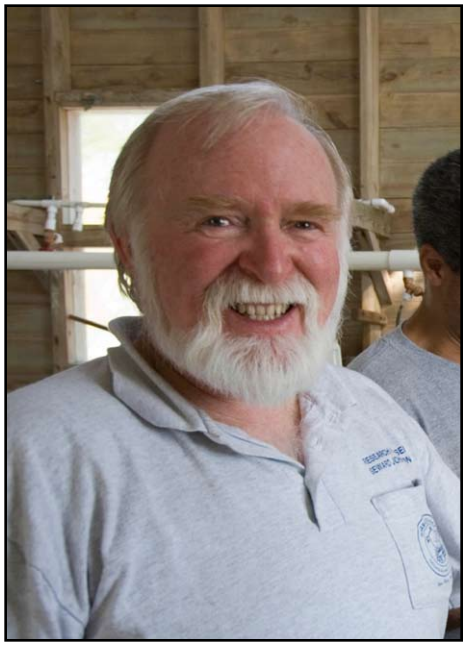
On 14-17 July, **Alain Touwaide** and **Emanuela Appetiti** attended and presented at the Society for the History of Authorship, Reading and Publishing (SHARP) conference in Washington, DC. On 18 July, Touwaide delivered a seminar for the Smithsonian Institution Resident Associates entitled "A Look into Ancient Apothecaries," in which he discussed the first results of laboratory tests—including DNA sequencing—of ancient medicines recovered from archaeological remains in the Mediterranean.

Awards & Grants

Paul Peterson and **Robert Soreng** were awarded $102,000 from the United States Department of Agriculture, Animal and Plant Health Inspection Service, to barcode the grasses and noxious grasses of the United States. The aim of this project is to produce a standard DNA barcode library (sequences will be available to the public on GenBank <www.ncbi.nlm.nih.gov/Genbank>) for U.S. grasses and noxious grasses, which will facilitate the identification of these species, particularly from fragmentary material. Four molecular markers, *matK, rbcL, rpl32-trnL*, and ITS will be sequenced for 1,750 taxa (approximately 5,000 samples) of the Poaceae that occur in the U.S., including a number of quarantine species. Work for this project will primarily occur in the Laboratory of Analytical Biology (LAB) and in the U.S. National Herbarium, Department of Botany.

Staff Retirements

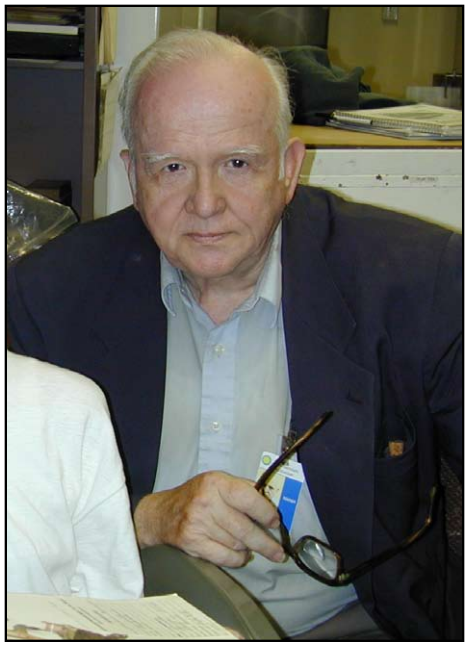
Mark Littler came to the Department of Botany as Chair (1982-1987) and then became a senior scientist and curator. Littler works on the systematics, biodiversity, and conservation of tropical plant marine systems. Over a diverse career Littler produced, often in collaboration with his wife, **Diane Littler**, more than 200 publications, including a number of books with excellent photography. He is perhaps best known for his paper on The Relative Dominance Model (1990). During his career he discovered the deepest known plant communities on an uncharted seamount (published in *Science*). In recent years he has focused on the publication of books. These field guide treatments were designed to make the study of coral reef plant life accessible to all scientists (e.g., ecologists, physiologists, chemists, geologists, coastal-zone managers) and interested amateurs (aquarists, diving community). Probably the book with the most impact was *Marine Plants of the Caribbean, a Field Guide from Florida to Brazil* (SI Press). Littler has been extremely active in the field throughout the New World and south Pacific, collecting and photographing specimens and performing ecological experiments, typically spending 1-8 months away from the museum during the year.



James Norris came to the Department of Botany as a research scientist and curator in 1975. Norris works on the systematics and ecology of tropical (primarily Neotropical) marine algae, especially from deep ocean sites. His work focuses on empirical, descriptive algal systematics and floristics, as well as collaborative efforts involving ecology, fine structure, and natural product chemistry. During his career, Norris has made important contributions to our understanding of the diversity of marine algae, especially tropical taxa. He has described many new taxa and has contributed several comprehensive treatments that included both taxonomic and ecological observations. Recently he completed a career-long effort to publish a two volume flora of Marine Algae of the Northern Gulf of California. Norris has been actively involved with the National Museum of Natural History Senate of Scientists and the Smithsonian Institution Congress of Scholars, and participated actively in various Public Programs exhibit developments on the (old) Marine Hall.

Katherine Rankin came to the Department of Botany in 1986 as a graduate from the University of North Carolina. She took over the plant mounting program, which at that time had three staff and three volunteers. She expanded the volunteer program to a cadre of 27 plant mounters (mostly contract workers), including one off-site in Pennsylvania. Ten years ago one of our valuable staff mounters was reluctantly retiring to follow her husband to North Carolina. Rankin arranged for her to be a teleworker; one of the first from the National Museum of Natural History to telework from such as distance. In addition to her oversight of the mounting program, Rankin has been responsible for specimen processing, oversight of all acquisitions, oversight of outgoing loans, incoming borrows, specimen deaccessions (disposals), and related documentation. She plans to continue to come to Botany twice a week as a 'Specialist Emeritus' to help with the transition and to continue to train plant mounters.

Susan Rechen has been a Museum Technician since 1979. Rechen started at the Smithsonian Institution working at the sorting center with **Ernani Menez**. She has been exclusively cataloging algal specimens since the inception of the Department of Botany inventory programs, cataloging the specimens resulting from myriad SI collecting trips, and those collections that we have received from several large donations, especially the Drouet collection. Her experience and precision in data management and ability to read hand-written labels, while learning to identify the hand writing of earlier collectors, has allowed for a very high level of data integrity in the algal databases.



Harold Robinson has been a curator and research scientist in the Department of Botany since 1962. His contributions to science to quote a recent bio sketch on him "place him among the major 20th and 21st century botanical systematists. He is a leader in research productivity, as measured by number of publications, number of new species and new genera described, and nomenclatural combinations associated with taxonomic restructuring in the Asteraceae, the largest plant family." Harold has amassed an incredible body of knowledge pertaining to both a research group as well as plant diversity in general. This expertise improbably extends from the composites to mosses (bryophytes) and a group of flies (Dolichopodidae) to which he has made a significant number of taxonomic contributions. Robinson's understanding of the morphological diversity of the diverse and species-rich composite family is so deep and thorough that he has first-hand knowledge of most of the 1,700 genera of the family. He used this broad and deep knowledge to propose often controversial and hotly contested major taxonomic revisions. Happily over the past decade most of the controversy has died down because his results have been borne out by molecular phylogenetic data. Robinson was recently presented the Asa Gray Award by the American Society of Plant Taxonomists in recognition of his outstanding body of work encompassing more than 1,000 publications. Although Robinson has never done much fieldwork, he has brought in thousands of specimens a year with his ability to identify a wide range of species and mentored a number of interns and visitors. Fortunately, Robinson will become an emeritus in the Department of Botany, and hopes to continue his collections and research work for years to come.

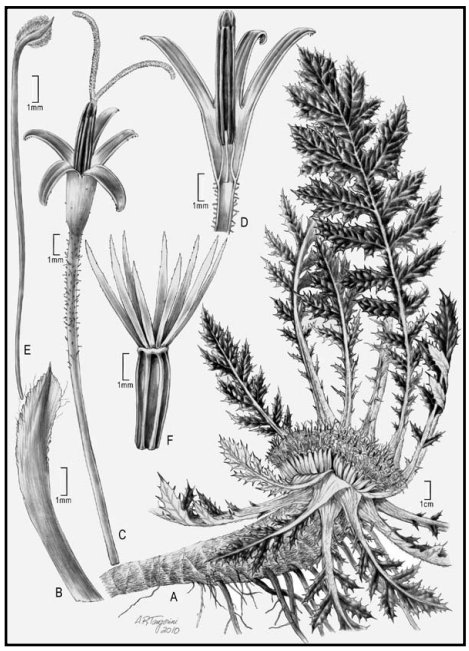
Robert Sims, a Museum Specialist since 1978, is a marine botanist specializing in benthic marine algae and has oversight of the algal herbarium and has for many years provided research support to **James Norris** and sometimes **Mark Littler**. He worked with Littler on a huge Bureau of Land Management southern California survey prior to coming to the Smithsonian Institution, then preceded Littler here to work with Norris. He conducted many fieldwork cruises, including Aldabra in the early days, often to the Carrie Bow Cay research station in Belize, and Florida. He attended to the Algal Collections, and was responsible for working with the vast backlog of seaweed specimens – overseeing mounting and preparation for permanent liquid collections. He has authored a number of papers with both Norris and Littler, and in recent years served as developer and webmaster for the Algae Research web site <botany.si.edu/projects/algae/>.

Tangerini Honored by GNSI

By V.A. Funk

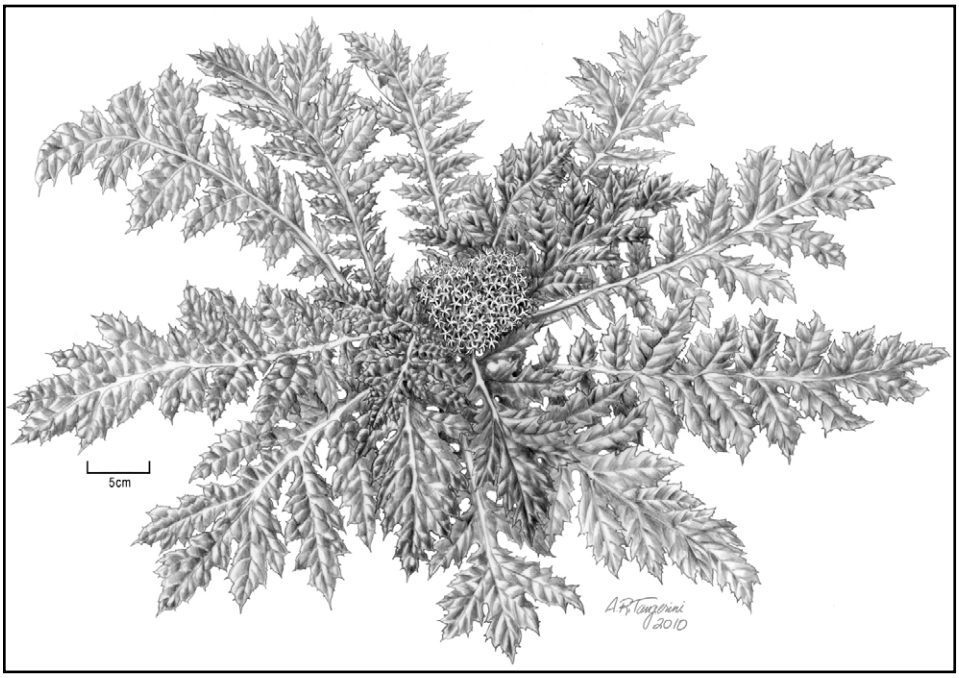
Alice Tangerini traveled to Olympia, Washington, to attend the Annual Conference of the Guild of Natural Science Illustrators held at The Evergreen State College the week of 10 July. Tangerini was a presenter in the "Techniques Showcase" where she demonstrated her pen and ink and brush techniques on drafting film along with showing her new process of digital color applied over a scan of a traditional pencil drawing using *Fulcaldea steusseyi* as the example. She was also on the panel with four other illustrators giving a talk on, "The Future of Botanical Art" with viewpoints on the future of traditional watercolor and ink (currently still the dominant media) and digital media which will play a new role in botanical art. The panel discussed other concurrent problems of archival standards, storage of artwork and accessibility of the information to an audience.

The Annual GNSI Exhibit was held on campus at the Evergreen Gallery and will run through mid-October to make it available to the fall-term students. During the opening reception members had the opportunity to vote for their favorite color and black and white works and Tangerini's two entries of the habit and dissections of *Platycarpha glomerata*, illustrated for



"*Platycarpha glomerata*" by Alice Tangerini

Vicki Funk's monograph on the Platycarphae, received the top award in the black and white category. This was the first time Tangerini has won an award at this meeting. The Guild members told Tangerini that they were impressed by the pencil technique on drafting film. The technique of the pencils on film had been used by Tangerini since her early drawings for **Harold Robinson** on the Eupatorieae and Liabeae and recently resurrected in 2008 for a treatment on *Erato* and used since on several illustrations in the Compositae. Tangerini has taught this technique before in workshops but it is now "endangered" because, according to Tangerini's research, the pencils have not been manufactured since 1997. All that remains of these important implements is what can be found in art stores or in offices left by retiring illustrators. They had originally been made for architects and engineering draftsmen but that clientele vanished with the advent of CAD and other digital programs. She asks that you notify her if you think you have located any of the pencils, otherwise this method of illustrating will become extinct.



"*Platycarpha glomerata*" by Alice Tangerini

"More Than Meets the Eye" Introduces Visitors to Specimens Up Close

The National Museum of Natural History's exhibition, "More Than Meets the Eye," highlights how scientists at the museum rely on special tools and skills to examine the world's diversity of life and culture up close and in great detail. With more than 80 images, the exhibition explores how ideas about imaging and its uses have evolved over the past century into a powerful form of visual evidence used to enhance research. "More than Meets the Eye" will be on display through 4 November 2012.

Biologists, geologists and anthropologists look and listen for patterns and specific details with specialized tools. They use scanning electron microscopes and 3-D lasers to magnify the very tiny specimens; X-rays and CT scanners reveal what is inside objects from mummies to meteorites. Video and stop-action photography track movement and change over time. Even cornstarch and colorful dye have become part of the scientific tool box. "'More Than Meets the Eye' shows how persistent, innovative and resourceful scientists at Natural History have been and continue to be in their pursuit of knowledge and better understanding of our collections," said Barbara Stauffer, chief of Temporary Exhibitions.

One section of the exhibition focuses on botanical collections. Botanists label each specimen they gather with its loca-

tion and date of collection. A video of **Vicki Funk** shows how Smithsonian researchers are using Google Earth to create 3D maps that help plan future research and conservation efforts. Watch how digital technology has changed the way plants and animals are discovered and studied <www.mnh.si.edu/exhibits/more-than-meets-the-eye/>.

This exhibition is made possible through the support of the Windland Smith Rice Nature's Best Photography fund.

Dominican Interns Visit USNH

During the week of 25 July, two student interns from Dominica State College (DSC) visited the U.S. National Herbarium on a 2011 Dominica Academy of Arts and Sciences (DAAS)/DeFilipps Summer Internship Fellowship. Biology student Jeanne Royer and Agriculture student Dwight Degonzague were selected based on their academic records, interviews, and evaluation by DAAS of their essay entitled "The Value of the Smithsonian as an Institution of Learning." They were accompanied on their visit by Lecturer Sharon Allicock-Joseph.

Supervised by **Gary Krupnick**, the three visitors worked on the project "Digitization of West Indian Plant Specimen Records Contributing to Target One and Target Two of the Global Strategy for Plant Conservation." In addition to inventorying over 200 herbarium specimens, they utilized on-line gazetteers and Google Earth to georeference many of the 7,000 specimens collected from Dominica.

The summer internship is in honor of **Robert DeFilipps** (1939-2004), Department of Botany museum specialist. DeFilipps was an avid botanist of the Dominican flora and author of the 1998 publication *Useful Plants of the Commonwealth of Dominica*. Part of DeFilipps' estate was bequeathed to DAAS. From that, DAAS is able to fund educational and social improvements in Dominica, including visits to the National Museum of Natural History by student interns.

Visitors

Continued from page 3

Alexandra Berthiaume, Washington, DC, and **Carolina Panzardi,** McLean, Virginia; Youth Engagement through Science (YES) internship, Zingiberaceae (6/30-8/5).

David Ballentine, University of Puerto Rico; Seaweeds (7/8-7/12).

Robert Lucking, Field Museum; Lichens (7/11-7/15).

Bruce Hoffman, Naturalis Museum, Netherlands; Biological Diversity of Guiana Shield (7/15-7/26).

Tatiana Ungaretti Paleo Konno, Universidade Federal do Rio de Janeiro, Brazil; Apocynaceae (7/15-7/19).

Alexander Krings, North Carolina State University; Asclepiadaceae (7/15).

Rob Naczi, New York Botanical Garden; Cyperaceae (7/21)

Dwight DeGonzague, **Sharon Joseph** and **Jeanne Royer,** Dominica State College, Dominica; West Indian plant specimen digitization (7/25-7/29).

Helena Pinto Lima, Universidade Federal Rural do Rio de Janeiro; Zingiberales (7/25-8/6).

Hakima Amri and **Aviad Haramati**, Georgetown University; History of botany and ethnobotany (7/26).

Heike Markus-Michalczyk, University of Hamburg, Germany; coastal wetlands and U.S. willows (7/26).

James Cohen, Texas A&M International University; Boraginaceae (7/28-7/29).

Doug Daly, New York Botanical Garden; Burseraceae (8/1-8/2).

Tânia Moura, Campinas, Brazil; *Mucuna* (Fabaceae) (8/1-8/5).

Carolina Navarro, Smithsonian Tropical Research Institute; Zingiberales (8/1-8/12).

Donald Davidson, Washington, DC; John C. Fremont collections (8/9).

Andrew Degnan, George Washington University; History of ancient medicine and botany (8/15).

Theodore Search, Skipta Pharmacist Society; Collaborative research (8/18).

Alexander O'Neill, Georgetown University; History of ethnobotany and ethnomedicine (8/22).

Dwayne Estes, Austin Peay State University; Southeastern U.S. flora (8/25).

Wesley Knapp, Maryland Natural Heritage Program and Delaware State University; *Juncus* (Juncaceae) and *Rhynchopsora* (Cyperaceae) (8/25).

Josh Caldwell and **Jeffrey Owrutsky**, U.S. Naval Research Laboratory; Analysis of archaeological remains (8/26).

Colin Khoury, International Center for Tropical Agriculture, Colombia; Wild relatives of common agricultural plants (8/29-9/2).

Herison Medeiros, Universidade Federal do Acre, Brazil; *Paullinia* (Sapindaceae) (8/30- 9/9).

Jean Linsky, University of Alberta, Canada; Plant conservation internship (9/6-12/16).

Debra Schiff, Somerset, New Jersey; Documenting work of librarians and archivists (9/9).

Julian Campbell, University of Kentucky; Asteraceae and Kentucky flora (9/12-9/16).

Iliana Lang, Bethesda, Maryland; Plant conservation internship (9/12/11-5/18/12).

Mary Merello and **George Schatz**, Missouri Botanical Garden; Conservation assessment of Panamanian plant species (9/13-9/16).

Aleksandr Radoslavljevic, Chicago Botanic Garden; *Cynometra* (Fabaceae) (9/13-9/19).

Liu Qiuqun, Huazhong Agricultural University, China; Vitaceae (9/15/11-9/15/12).

Vidal Mansano, Jardim Botanico, Rio de Janeiro, Brazil; *Swartzia* (Fabaceae) (9/19).

Luciano Pataro de A. Aguiar, Universidade Estadual de Feira de Santana, Brazil; *Microlicia* (Melastomataceae) (9/21-10/20).

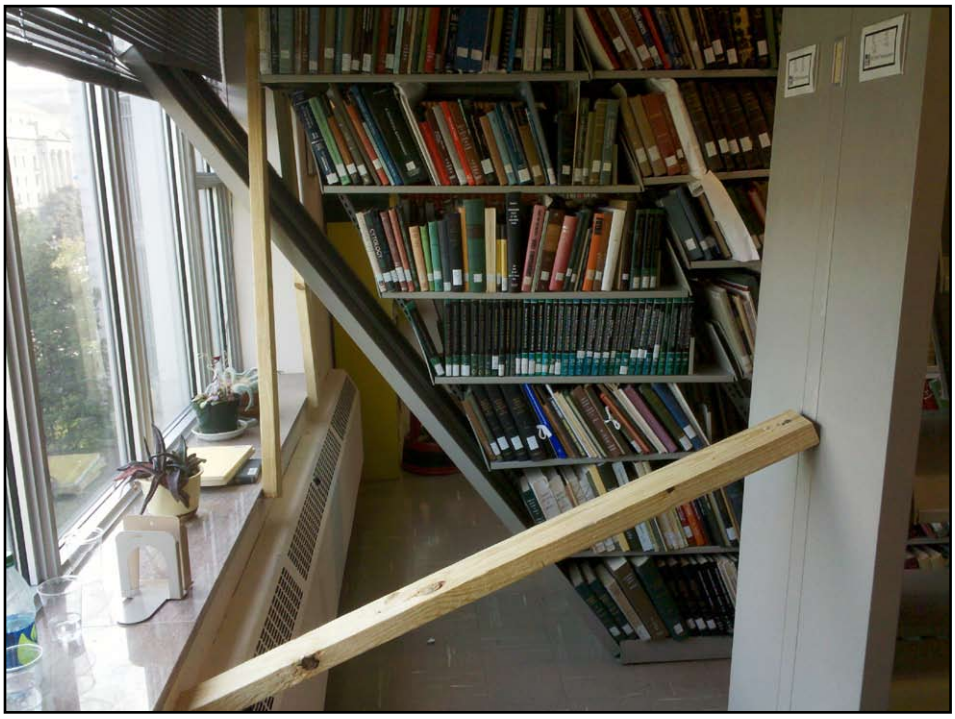
East Coast Earthquake Affects Botany-Horticulture Library

By Robin Everly

It made national news, that rare 5.8 magnitude earthquake which caused the closing of some of Washington, D.C.'s iconic structures, such as the Washington Monument and the National Cathedral. What is less known, is the effect it has had on the interior of the Botany-Horticulture Library located in the U.S. National Herbarium.

While the only Natural History library in the building to have extensive damage, the Botany-Horticulture library had eight shelf ranges or an estimated 1,600 linear feet destroyed beyond repair due to the 2011 Virginia earthquake on August 23. Many shelves, filled to 100 percent capacity with books, shifted severely and ended up leaning on the windows, which line one side of the library. It is thought that if bomb proof strength glass had not been installed after September 11, the shelving would have shattered the glass and many books would have gone sailing down four floors below. Luckily, this did not happen and nobody was hurt. Many Smithsonian staff, including Smithsonian Institution Libraries' Director, Nancy Gwinn, came in the same evening following the afternoon quake and carefully removed books most likely to cause further damage if there were aftershocks.

Although, the books were supporting the shelving structure instead of the reverse, there was very little damage to the books. Approximately, 18,000 books are now being housed on shelves in the new Natural History East Court Library. Luckily, there was a moving company finishing up moving the collection from the Smithsonian Naturalist Center from Leesburg, Virginia. They were able to step in and quickly moved the books and journals to our other library so the damaged shelving could be removed and the collection could be made once again accessible to SI staff and visitors. New shelving has already been reinstalled and plans are being made to bring the books and journals eventually back to the Botany-Horticulture Library.



Damage inside the Botany-Horticulture Library after the 2011 Virginia earthquake. (Photo by Martin Kalfatovic)

Botany Field Books Relocated

By Carolyn Sheffield

As part of ongoing efforts to improve stewardship of and access to biodiversity field books, the Department of Botany field books have recently been relocated from the Botany Library to a climate-controlled location. In their new home, the field books are receiving preservation and conservation assessments, as well as treatment and re-housing as needed. Cataloging efforts are simultaneously underway and will greatly improve access for Smithsonian curators, visiting researchers, and others interested in these materials.

Recent funding from the Save America's Treasures (SAT) program is supporting a part-time conservator to manage the preservation and conservation of collections being cataloged as part of the Field Book Project. Condition assessments are being tracked, which can inform the digitization readiness of each of the field books. For example, restrictive bindings that prevent opening a volume a full 180 degrees may need special treatment prior to digitization or may require scanning on a special cradled book scanner. Tracking this information will be very helpful as we are currently seeking digitization funds so that we can deliver the field book content straight to your desktop.

The SAT funds have also enabled us to re-house some of the field books flagged during the assessment process. Over 100 custom boxes have been created for re-housing the more fragile field books in the Department of Botany. A custom box keeps all the pieces and parts together, protects it from light, dust, pollution, water or fire events and buffers it from changes in humidity and temperature. Of course, once housed in its custom box, the object takes up more shelf space than it did before. The Smithsonian Institution Libraries has generously offered shelf space in their brand new, climate-controlled compact shelving in the East Court of the museum. To learn more about the move, read the SAT conservator's blog post <nmnh.typepad.com/fieldbooks/2011/09/conservation-interns-on-the-field-notebook-project.html>.

Field Book Project catalogers are working alongside the conservators to improve access to the Department of Botany field books. The minimal descriptions available through the online inventory list <botany.si.edu/colls/fieldguides/fldbookslong.html> frequently do not provide enough data for a researcher to determine if the field book is relevant to their work without viewing the actual item. The Field Book Project cataloging approach involves providing a wealth of additional information, including contex-

Department of Botany field books in their new home at NMNH Main Library

tual profiles on the botanists who created the materials, abstracts describing the content of each volume, detailed geographic coverage, and linkages between related field books. This level of detail can help determine which volumes a researcher wants to spend his or her time reviewing before actually consulting the physical volumes. These detailed records for each item will also be very helpful to researchers in navigating between the digitally imaged volumes of the collections once they are made available online. Over 150 of the Department of Botany field books have been cataloged at this level in the Field Book Registry.

To learn more about the Field Book Project, visit <www.mnh.si.edu/rc/fieldbooks/> and follow the project blog <nmnh.typepad.com/fieldbooks/>.

The Department Has a Strong Presence at the XVIII International Botanical Congress

The XVIII International Botanical Congress was held 23-30 July in Melbourne, Australia. This major international event in botany is held only every 6 years. The Department of Botany was well-represented with 11 attendees and coauthoring 22 scientific presentations and posters. The most significant outcomes of the meeting include major changes to the rules of how algal, fungal, and plant species are scientifically named and communicated. These changes were enacted through votes of attendees at the Nomenclature Section held just before the Congress. The *International Code of Nomenclature for algae, fungi, and plants* (previously called the *International Code of Botanical Nomenclature*) will now allow for the electronic publication of names of new taxa. In an effort to make the publication of new names more accurate and efficient, the requirement for a Latin validating diagnosis or description was changed to allow either English or Latin for these essential components of the publication of a new name.

Edward E. Terrell (1923-2011)

Edward Terrell passed away on 1 August. He received his undergraduate degree from Wilmington College, a M.S. from Cornell University, and a Ph.D. from the University of Wisconsin. He taught Biology at Pembroke State University and Guilford College in North Carolina. He retired after 25 years of service as a Taxonomic Botanist with the Agricultural Research Service of the U.S. Department of Agriculture. He continued botanical research after his retirement with the Department of Botany at the University of Maryland and as a Research Collaborator with the Smithsonian Institution, where we worked on Rubiaceae, Poaceae, economic plants and the local flora. He was a lead or contributing author for over one hundred publications in botanical journals, including many collaborative publications with **Harold Robinson**, **Paul Peterson**, **Robert Soreng** and **Warren Wagner**.

Travel

Continued from page 2

sion, and was elected Chair of the Historical Section of the Botanical Society of America; to Riverside, California (9/22 – 9/24) to work with the Center for Conservation Biology at the University of California Riverside in developing proposals for collections based education initiatives; and to the San Jacinto Mountains, California (9/25 – 10/2) to lead an Earthwatch Team studying historical changes using herbarium data at the University of California James Reserve.

Robert Soreng traveled to Turkey (6/15 – 7/2) to collect grasses from western Anatolia**.**

Alice Tangerini traveled to Olympia, Washington (7/10 – 7/18) to participate and give a presentation at the annual conference of the Guild of Natural Science Illustrators.

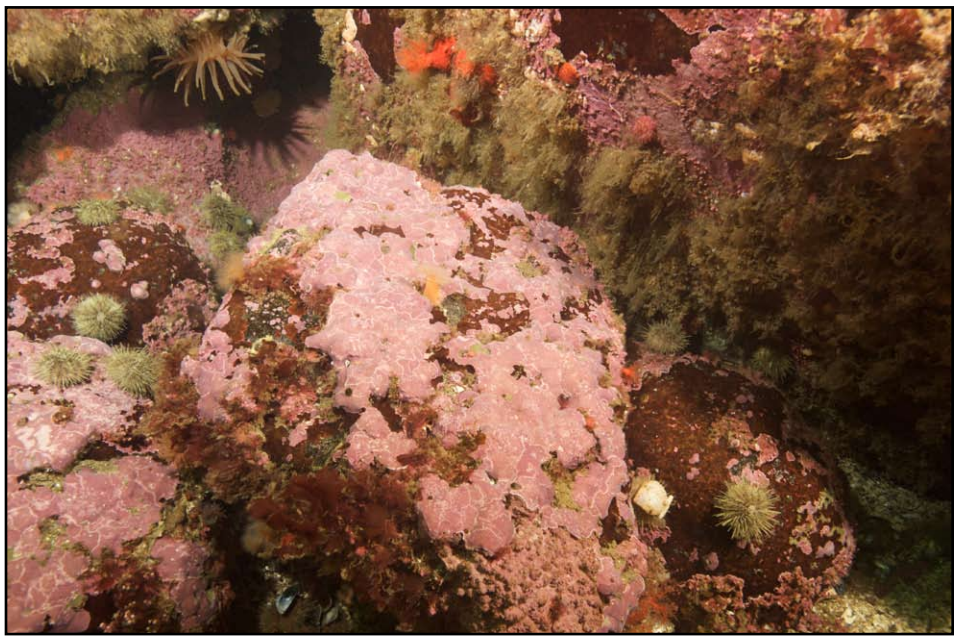
Alain Touwaide traveled to St. Louis, Missouri (7/10 – 7/12) with **Emanuela Appetiti** to deliver a paper at the Botany 2011 meeting; to Paris, France (9/1 – 10/9) as an invited Visiting Professor at Université Paris Diderot–Paris 7 to deliver a series of classes and lectures, conduct library research and analyze Greek manuscripts on materia medica and medicinal plants; and to Kusadasi, Turkey (9/15 – 9/20) to give a presentation at the 2nd International Conference on Biomedical Sciences and Methods in Archaeology.

Warren Wagner traveled to Melbourne, Australia (7/15 – 7/31) to participate in the International Association for Plant Taxonomy (IAPT) council meeting and the 18th International Botanical Congress**;** to Kauai, Hawaii (8/11 – 8/26) to conduct research on the Marquesas Islands flora at the National Tropical Botanical Garden; and to San Francisco, California (9/17 – 9/21) to attend the National Tropical Botanical Garden board meeting.

Jun Wen traveled to China (7/11 – 7/22) to conduct collaborative research and field work; to Melbourne, Australia (7/22 – 7/30) to participate in the 18th International Botanical Congress; and to Sydney, Australia (7/30 – 8/7) to participate in the 7th International Apiales symposium.

Kenneth Wurdack traveled to Melbourne, Australia (7/22 – 8/11) to give a talk at the 18th International Botanical Congress**.**

Collecting Corallines to Measure Climate Change



Boulder with 200-year-old *Clathromorpum compactum* crust at 20 m depth on the southern Labrador coast. The sea urchins are 50-70 mm in diameter. (Photo by Nick Caloyianis)

For over 40 years, the National Museum of Natural History has been the largest repository in the world of a calcified, lichen-like group of red seaweeds called corallines, mostly collected by **Walter Adey**. Early in his career, Adey found that like most woody plants (unlike all other red algae), corallines have an intercalary meristem (cambium) that produces an overlying (in this case photosynthetic) epithallium (= bark) and builds up a thick underlying perithallium (= wood). However, there the analogy ends. In the cellulosic walls of coralline cells, dense layers of calcite crystals are formed to produce a "limestone" rather than wood. In the tropics, corallines can produce reefs, often called algal ridges. In the 1970s, through core-drilling, Adey was able to show continuous coralline carbonate build up of up to 3,500 years.

Since Adey's early work, it has been known that species of the Arctic/Subarctic coralline genus *Clathromorhum*, growing on rocky bottoms, accumulates many thick yearly layers (200-400 um thick) of cellular calcite. Equally interesting, just as tree rings, the thickness of the coralline "rings" depends upon water climate (mostly temperature). However, of even greater interest, the calcite, structurally a chemical lattice-work, holds trace elements that are indicators of water and atmospheric physical and chemical state. The most important indicator is magnesium, which replaces the calcium in the crystalline lattice as a function of temperature (the higher the temperature, the more the lattice vibrates, and the greater the amount of magnesium replacing the chemically similar calcium). While this has been published since the 1960s, the instrumental techniques capable of utilizing this information as an indicator of past sea water temperature was lacking.

During the last decade, a group of geochemists at the University of Toronto, led by Adey's colleague Jochen Halfar, applied a new instrumental tool, laser/mass spectrography to corallines. A laser beam, passed from younger to older layers on the vertical surface of a sectioned coralline, vaporizes a groove. As it moves, the vaporized carbonate is transferred to a mass spectrograph, where the amount of magnesium relative to calcium can be measured with considerable precision. This provides a proxy measurement of the ambient water temperature at the time the cells formed their calcite crystals. Recently it has been demonstrated that by measuring the replacement of calcium by barium, the ambient water salinity can also be determined.

The Labrador Sea is a primary source for the thermohaline current (also known as the global ocean conveyor belt). This density current, starting as cold Atlantic Deep Water and returning as the Gulf Stream, is a major heat transfer system, and is a key to much of global climate. Since it is driven by water density, created primarily by temperature and salinity,

Research vessel *Alca i* with iceberg in abandoned fishing village, Square Island harbor, in southern Labrador. (Photo by Karen Loveland)

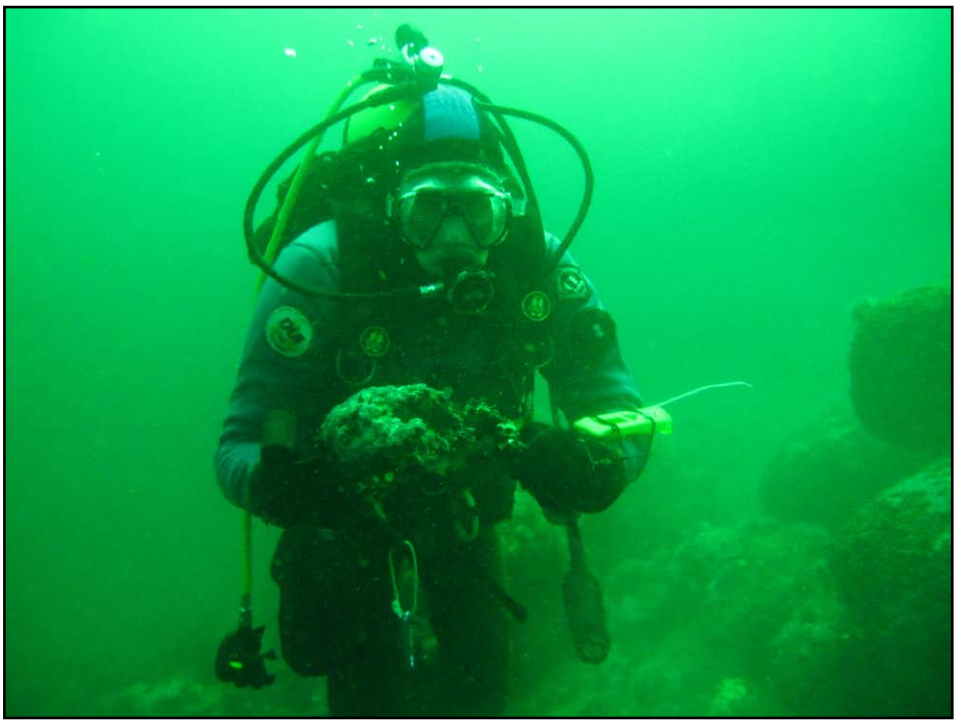
knowledge of these parameters, and the flow of Atlantic Deep Water in the past, can provide crucial climate information on what to expect in the future. Particularly concerning, as the Greenland Ice sheet melts with global warming, will density instability produce rapid flip-flops of climate?

Clearly, the measurement of changes in coralline growth bands and their chemical composition (called schlerochronology) can give us a climate archive and an understanding of how the Labrador Sea and the thermohaline current have changed in the past. However, the oldest specimens in the Museum coralline collection provided information only back to 1912. The large collection of North Atlantic specimens in the Museum, taken through the 1960s and early 1970s, were collected to provide a measure of relative species abundance, in turn to document ecological and biogeographic patterns; determining thickness of carbonate had not been part of the collection protocol.

In the summer of 2010, using the research vessel *Alca i,* Adey returned to the Labrador Sea coasts of Labrador and Newfoundland with a team of divers to determine ecological and geographic patterns of variation in thickness in *Clathromorphum compactum*. Specimens up to 300 years old were found. It was shown that within the now more finely understood ecological framework of this target species, that iceberg scouring of the bottom provided an important limitation. The coralline crusts would continue to grow for thousands of years, but if large waves and icebergs were to scour the bottom, even once in 100 years, then corallines of significant age would be lacking.

During the summer of 2011, Adey and his crew, returned to central Labrador with the *Alca i.* Here, an archipelago of islands provided a wide variety of environmental conditions that would provide protection from storm waves and icebergs, and yet be far enough from the mainland to avoid sediment burial. Here, the geomorphological factors could also be examined. Steep eroding rocky cliffs that would provide an unstable bottom and talus or a thick overlying glacial till would provide an endless supply of coralline eroding cobbles and pebbles. Armed with new ecological and geomorphological understanding, the divers were able to recover specimens nearly twice as thick as those of 2010. Since these sites were further north, in colder water, growth rates were slower and annual layers thinner; the age of specimens was expanded nearly three times, to over 800 years. Since divers could spend only a few hours per day working at these cold temperatures, and only a small fraction of potentially optimum bottoms could be examined, it seems likely that much older specimens remain to be found in future expeditions.

During the winter, between the summer expeditions, while studying *Clathromorphum* anatomy with SEM, Adey has been able to show considerably greater complexity of both tissue anatomy and cell wall construction than previously known. The laser beam width of 65um is too coarse, even with a rapid scan and sampling rate, to differentiate the finer parts of the anatomy; this technique, although a great advance, is still missing a large part of the considerably more precise climate archive written by the corallines into their intricate crusts as calcite crystals. A new tool, an EDS microprobe, could make elemental analyses in a 2-5µm spot. Given the ability to carry out even more precise analyses of Labrador Sea corallines, an accurate archive of past climate, in one of the most sensitive climate-determining regions of our globe, can be obtained. This can provide input for the sophisticated climate models that will help us manage our uncertain future.



Diver Thew Susquewicz holding a 600-year-old *Clathromorpum compactum* crust at 25 m depth on the north coast of Labrador. (Photo by David Grimard)

Dedication of *Flora of North America* Volume 18 to Stanwyn Shetler

By Nancy R. Morin
(Adapted from Flora of North America Newsletter *25(1): 3; 2011)*

The Flora of North America Association Board has recognized the contributions of **Stanwyn G. Shetler** to North American botany by dedicating Volume 18 of *Flora of North America* to him. This volume is scheduled to be one of the last to be published and will mark the completion of the series. Shetler was the leader in developing a strategy for the Flora of North America project in the mid-1960s, continuing in a central role until the early 1970s. Once the project was established, he served as executive secretary and program director. His vision for how computers could be used in creating modern floristic publications was revolutionary at the time and has continued to inspire the project ever since. Beyond that, however, Shetler is a wonderful botanist and naturalist; his career has included both local and international projects, monographs,

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Shetler

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and checklists, and his audiences have ranged from groups visiting the herbarium at the Smithsonian Institution to international congresses.

Shetler received his Bachelor's and Master's degrees from Cornell University and his Ph.D. from University of Michigan. In 1962, he joined the staff of the Botany Department, National Museum of Natural History, Smithsonian Institution, as assistant curator and then curator. From 1984 to 1994, he served as associate director and then deputy director of the Museum. He retired in 1995, although he continued working in the herbarium until 2010.

Volume 18 will contain the treatment of Campanulaceae, which is another reason for dedicating this volume to Shetler. His dissertation was on "Variation and Evolution of the Nearctic Harebells *(Campanula)* subsect. *Heterophylla*." In 1963, he published a checklist of the species of *Campanula* in North America (in *Rhodora*) that is still the only comprehensive work on the genus in North America. He studied the pollen collecting hairs in *Campanula*. Later, I was fortunate to work with him in a study of the seeds of North American Campanuloideae as a Smithsonian post-doctoral fellow. The beautiful and rare *Campanula shetleri* Heckard, a California endemic, was named for Shetler.

Shetler has demonstrated the power of documenting local floras to help us understand global phenomena. He is an expert in the flora of the greater Washington, D.C., area and has led field trips for native plant and bird watching groups for decades, giving talks about the local flora to many groups. He and colleagues analyzed data on first flowering dates recorded by Smithsonian botanists since 1970 and found that plants were blooming on average 4.5 days earlier in the year 2000 compared with 1970. He and **Sylvia S. Orli** published the *Annotated Checklist of the Vascular Plants of the Washington-Baltimore Area. Part I. Ferns, Fern Allies, Gymnosperms, and Dicotyledons* in 2000 and *Monocotyledons* in 2002.

Shetler was instrumental in developing collaborations with botanists in Russia, especially with those at the Komarov Botanical Institute, and in the translation to English of the *Flora of the U.S.S.R.*, thus making this tremendous body of botanical knowledge more accessible to western botanists. He edited the English translations of the last eight volumes, including the alphabetical index. He has also published on the flora of the Arctic.

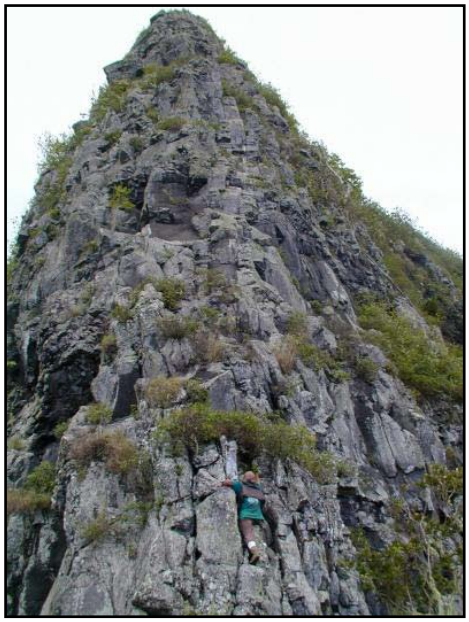
Many of the resources that were developed by Shetler for *Flora North America* were the basis for resources for the current Flora of North America project, including the provisional checklist of species, the Guide for Contributors, and the glossary of terms. The Flora of North America Association Board is grateful for his vision and leadership in that seminal project and for his dedication to increasing our knowledge of the plants of North America, which ultimately will lead to the completion of this outstanding project of fundamental importance.

Marquesas Islands Yield 18 New Species

New findings by **Warren Wagner** and David H. Lorence (National Tropical Botanical Garden), in collaboration with French IRD and French Polynesian researchers, have brought to light 18 new species and one new variety of ferns and flowering plants from the rugged Marquesas Islands. Since 1988, 62 new species have been described in conjunction with the *Vascular Flora of the Marquesas Islands* and the *Flore de la Polynésie Française* projects, representing a 20 percent increase in the known native flora. Ten precursor papers by the authors and collaborators describing the new species were published in an issue of the open access journal *PhytoKeys*.

According to Lorence, "Intensive field work has revealed that most of these new species are extremely rare and localized endemics, often confined to a single island. Many are known only from one or two localities harboring intact native vegetation that have so far escaped pressures from invasive plant species and feral animals. Consequently we assigned preliminary IUCN Red List ratings of Critically Endangered (13), Endangered (5), or Vulnerable (1) to these new species." Over 6,000 herbarium specimens collected by field botanists were pressed, dried, and distributed to collaborating institutions in Tahiti, Hawaii, Washington DC, Paris, and elsewhere for study by botanical special-

***Oxalis simplicifolia* growing on cliff, Ua Huka, Marquesas Islands, shows distinctive simple leaves, flowers and fruits. (Photo by Steve Perlman, NTBG)**

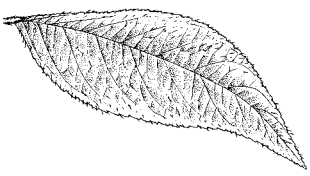


Steve Perlman collects *Oxalis simplicifolia* on cliff, Ua Huka, Marquesas Islands. (Photo by Jean-Yves Meyer, Tahiti)

ists. Ferns comprise an important element of the Marquesas flora, and 11 of the 18 new species are ferns. In addition, the botanists collected numerous new island records for native species and documented non-native, potentially weedy species that comprise about half of the islands' flora.

As this project clearly shows, the biodiversity of many tropical islands is still poorly documented and explored. Field work and biological inventories of this type are essential to enhance our knowledge of insular biodiversity and provide critical information for conservation of these organisms and their habitats. However, staffing and funding for this type of work are scarce. Results of this project are available on the Flora of the Marquesas Islands website <botany.si.edu/pacificislandbiodiversity/marquesasflora/index.htm>, which provides access to a database with species descriptions, photos, distribution, literature, specimen lists, and other information.

The final goal of this project is publication of a comprehensive two-volume book covering the *Vascular Flora of the Marquesas Islands*, a goal which is nearing completion with the publication of these new species.



Profile

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Pacific islands, and 5) how does knowledge of the evolution of Pacific Island biota contribute to the conservation of island (and continental) ecosystems. During the three-day conference a total of 26 invited presentations, 60 contributed papers, and 30 posters were presented covering a wide variety of taxa across the Pacific Islands.

At the conclusion of the presentations on Sunday afternoon, Funk closed the conference with a wrap-up and summary of major points gleaned from the broad range of topics covered. The prior conference in 1992 resulted in the publication of *Hawaiian Biography: Evolution of a Hot Spot Archipelago* and identified 14 overarching patterns between individual taxa; this conference allowed for a more comprehensive examination of Pacific research and brought to light the emergence of many new paradigms. In her concluding remarks, Funk put forward 22 key observations as follows:

1. The line between "within" and "among" lineage(s) studies has blurred.
2. There are a lot more species than we thought.
3. Beware of extinction! Single colonization events may be result of extinction.
4. Islands are not a dead end—they can also be a source area for other islands and continents.
5. We can finally begin to see the importance of North America and Asia as a source area.
6. Trend is towards a Pacific-wide view of things rather than taxon or archipelago based.
7. There is a connectivity between terrestrial and marine ecosystems.
8. Taxonomy allows us to understand patterns of diversity.
9. Speciation can happen in sympatric situations.
10. Marine systems have higher endemism than predicted.
11. We can study the patterns of movement within the islands; it is more than we thought.
12. Progression Rule has become the null hypothesis.
13. Often an island group is strongly monophyletic but there is little resolution at the 'among species' level.
14. We have the ability to distinguish between evolutionary and ecological associations.

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Vicki Funk, Randy Thaman, Rosemary Gillespie, George Roderick, and Jean-Yves Meyer (left to right) at the Bishop Museum. (Photo by Carol Kelloff)

Profile

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15. Organisms do not disperse or radiate alone.
16. There is a new focus on co-evolution and establishment.
17. Species interactions can drive speciation.
18. Ecosystem function provides a bridge between conservation and biogeography.
19. The rising appreciation of indigenous knowledge shows the need to involve local communities.
20. Comparing and recognizing variation in the human footprint across the Pacific is changing our ideas about the past movement of the biota.
21. Paleoecology has a big role in informing conservation.
22. For conservation purposes we cannot return to pre-human conditions.

As well, several emerging trends in approaches and methodologies became apparent by the end of the conference. These included an increase in collaborative research, the availability of new tools and methods, and the addition of new models for data analysis.

Other activities over the weekend included a festive Hawaiian luau on the great lawn at the Bishop Museum on Friday evening. Overlooking downtown Honolulu and protected from unusually stormy weather by large tents, conference participants were treated to a traditional meal including fish poke, Kalua pig, lomi lomi salmon and sweet potatoes, and haupia followed by an alluring hula halau performance. However, the most entertaining moment of the evening arrived when a number of "spirited" conference participants joined in the final hula routine and gave an impromptu dance recital.

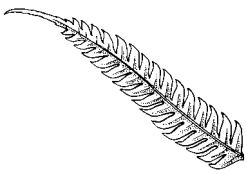
Sam Gon in a traditional costume of kihei, lukaluka, and lei with Nancy Khan. (Photo by Carol Kelloff)

Conference participants Vicki Funk, Jon Price, Cristián Samper, and Helen James (left to right) exploring lava tubes at Pu`uwa`awa`a on Hawai`i. (Photo by Warren Wagner)

A poster session and reception on Saturday evening gave conference participants a chance to review and discuss the 30 research posters that were displayed throughout the conference. An engaged and enthusiastic crowd filled the garden level reception rooms until the conference center closed for the evening. In addition, a post-conference field trip, led by Chuck Blay of TEOK (The Edge Of Kauai) Investigations, to the Big Island provided an excellent overview of the volcanic history of the island interspersed with many opportunities for an exchange of natural or cultural history knowledge between members of the group.

Overall, the conference was well-received by all participants and many students have since commented on how valuable it was for them to have the opportunity to interact with more senior researchers working in their fields. Over the span of just a few days this diverse cadre of Pacific Island researchers formed a congenial group that not only shared important knowledge, but also many moments of lightheartedness.

While the conference provided an excellent forum for the sharing of information and generation of new ideas, it also clearly reinforced the idea that everything is more complicated and interconnected than we thought. Several ideas concerning publishing the results of the symposium are being considered and a follow up meeting of core participants will be held in Washington, DC (funded by the Smithsonian Institution and the US Department of Agriculture).



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Art by Alice Tangerini

Pteris hivaoensis Lorence & K.R. Wood

Pteris hivaoaensis is described in a special issue of the journal *Phytokeys* published just prior to the International Botanical Congress in Melbourne, Australia. *Pteris hivaoaensis* is one of 18 new Marquesan species described in nine papers of *Phytokeys* (see story, page 12). It is known only from Hiva Oa, Marquesas Islands and is restricted to about 250 individuals, making it of serious conservation concern. All of the illustrations of these rare plants were done by Alice Tangerini. Field work in the Marquesas Islands over the past 20 years is part of a collaborative project *Vascular Flora of the Marquesas Islands* between the National Tropical Botanical Garden and Smithsonian Institution, and with French IRD and French Polynesian researchers.

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