Department of Botany & the U.S. National Herbarium

The Plant Press

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Botany Profile

Restoring the Forgotten Botanical Legacy of Agustin Stahl

By Judith Knight

A new illustrated facsimile of the first edition of *Estudios Para La Flora de Puerto Rico* (Studies of the Flora of Puerto Rico), written by Agustin Stahl from 1883 to 1888, presents for the first time 390 of the author's botanical watercolors in their intended context: printed alongside the original text. *Estudios*, which is the earliest scientifically rigorous treatment of Puerto Rico's flora, was originally published without the illustrations during Stahl's lifetime due to lack of support and funding.

The new three-volume edition, published by the Smithsonian Institution, was compiled and annotated with updated nomenclature by Curator Pedro Acevedo, marking the culmination of over a decade of research and painstaking digital restoration work on hundreds of scanned images of Stahl's original watercolors. These works are currently housed at the University of Puerto Rico in Mayaguez and the Institute of Puerto Rican Culture in San Juan. Many are poorly conserved and are rapidly deteriorating. The Atherton Seidell Endowment Fund of the Smithsonian Institution generously provided financial support for the publication of this rare book, complete with surviving illustrations, in both hard copy and digital formats (the latter will be available through the Department of Botany website).

Stahl (1842 – 1917) was Puerto Rico's most significant botanist of the 19th century. A medical doctor and prolific scholar, he combined his profession with the study of natural history, researching, collecting, and illustrating specimens from around the island, as well as raising public awareness of botany as an educator. His academic contributions, which were written in Spanish and therefore accessible to local readers, provided a catalyst for Puerto Rico to develop a sense of pride and responsibility for its natural and cultural heritage. According to Acevedo, the *Estudios* marked "the beginning of a scholarly journey that has resulted in Puerto Rico currently being one of the better known Floras of the region, if not worldwide."

Stahl wrote and published his *Estudios* based on the study of plants in their natural environment for which he produced copious watercolors. His analyses and descriptions are scientifically rigorous and verifiable. His work was based on the criteria of previous and contemporary botanists and followed the widely accepted classification system of the time: de Candolle, with the exception of re-positioning certain families. He also documented the distribution, the timing of flowering and fruiting of species, and the local names of many Puerto Rican plants.

Despite the significance of the first edition of Stahl's *Estudios*, knowledge of the book and Stahl's contributions were effectively lost in time due to the book's rarity and the fact that this work was never finished in its entirety. Forty years after his publication, his work was superseded by that of Nathaniel L. Britton and Percy Wilson from the New York Botanical Garden. However, Stahl's work remains relevant and important to botanical research as it refers to early representations of the Puerto Rican flora, including the recording of introduced plants, the economic importance of the local flora, and a general ecological assessment of the island. Stahl reported for the first time the occurrence of several plant species, including his description of a new species *Clusia gundlachii*. Some of these species have not been collected on the island since, such as *Malanea glabra*, *Psychotria officinalis*, and *Schultesia brachyptera*. As most of his original collections were destroyed, the watercolors are in many cases, the only surviving original material on which Stahl based his floristic studies. They remain integral and essential for the ongoing interpretation of his *Estudios*.

Volume One of the new illustrated edition includes an introductory section, prior to the facsimile, written in both Spanish and English, which provides valuable contextual and historical information on Stahl and the setting in which he produced his *Estudios*, with supporting photographic images, and further chronological information provided in the appendix. In the prologue, Dr. Ariel E. Lugo, renowned ecologist and Director of the International Institute of Tropical Forestry (Puerto Rico), emphasizes

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Travel

Pedro Acevedo traveled to San Juan, Puerto Rico (8/27 – 9/1) to present on the scientific contribution of Agustin Stahl at the Museum of Wildlife.

Barrett Brooks traveled to Carrie Bow Cay, Belize (7/8 – 7/16) and to Willemstad, Curaçao (8/25 – 8/30) to supervise the training of scientific divers and to collect algae; and to Key West, Florida (9/29 – 10/6) to attend a symposium of the American Academy of Underwater Scientists.

Monica Carlsen traveled to Edmonton, Canada (7/25 – 7/29) to present a talk at the Botany 2015 conference.

Laurence Dorr traveled to Edmonton, Canada (7/25 – 7/29) to attend the Botany 2015 conference.

Ashley Egan traveled to Edmonton, Canada (7/25 – 7/29) to present a talk at the Botany 2015 conference; to Webster Springs, West Virginia (8/18 – 8/20) to train students in collecting plants and to sample population levels of kudzu; and throughout Midwestern U.S. (9/3 – 9/24) to collect native legumes from Manti-La Sal National Forest, Denver Botanic Gardens, Missouri Botanic Gardens, and other areas along the way.

Christian Feuillet traveled to northwest California and southwest Oregon (7/10 – 7/27) to collect plants.

Vicki Funk traveled to Bronx, New York (8/24 – 8/25) to work in the herbarium of the New York Botanical Garden.

Carol Kelloff traveled to Widewater, Virginia (7/23) to collect plants for the Global Genome Initiative-Gardens project.

Gary Krupnick traveled to Montpellier, France (8/1 – 8/6) to present a poster at the International Congress for Conservation Biology.

Sue Lutz traveled to Ohio, Missouri, Tennessee and South Carolina (8/26 – 8/30) and to Vermont, New Hampshire, and New Jersey (9/9 – 9/12) to collect sumac, gall aphids, and mosses for a research project.

Paul Peterson traveled to Edmonton, Canada (7/26 – 7/29) to present a talk on the molecular phylogeny of the Cynodonteae (Poaceae) at the Botany 2015 conference; and from Washington, D.C. to Pueblo, Mexico (9/18 – 10/20) to collect grasses and present an invited lecture at the VI Congreso Internacional de Maneje de Pastizales in Durango entitled "A molecular phylogeny of the Cynodonteae (Poaceae: Chloridoideae) and new subgeneric classification of *Bouteloua*."

Caroline Puente traveled to Guelph, Canada (8/17 – 8/21) to attend the 6th International Barcode of Life Conference at the University of Guelph; and to Mexico City, Mexico (9/21 – 10/2) to work with collaborators at the National Autonomous University of Mexico (UNAM) on DNA barcodes for plants from Puebla, Mexico.

Rusty Russell traveled to Cleveland, Ohio (9/10 – 9/12) to speak about the Field Book Project at a citizen science symposium.

Eric Schuettpelz traveled to Puebla, Mexico (7/14 – 7/27) with **Spencer Goyette**, **Amanda Grusz**, **Greg McKee** and **Erin Sigel** to collect fern specimens; and to São Paulo, Brazil (9/19 – 9/27) to collaborate on a research project focused on the phylogeny and evolution of neotropical *Pteris* (Pteridaceae).

Laurence Skog traveled to Edmonton, Canada (7/25 – 7/29) to attend the Botany 2015 conference.

Alice Tangerini traveled to Glenside, Pennsylvania (7/5 – 7/10) to present a portfolio and to demonstrate techniques at the conference of the Guild of Natural Science Illustrators at Arcadia University; and to Edmonton, Canada (7/25 – 7/30) to present a workshop using botanical illustrations at the Botany 2015 conference.

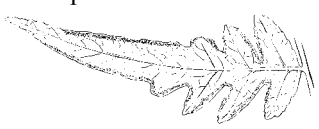
Alain Touwaide and **Emanuela Appetiti** traveled to San Marino, California (7/9 – 8/14) to update the design of the garden of medicinal plants of the Huntington Botanical Gardens and to build a new historical and ethnobotanical itinerary and discourse, to attend the "Weird, Wild, and Wonderful Symposium" held at the Huntington Library, Art Collections and Botanical Gardens, and to organize the workshop "Plants, Artists, Languages: A Sense of Times and Places"; Touwaide also delivered a keynote lecture entitled "The Beauty of Ancient Plant Representations: Weird or Wonderful?"; and Appetiti traveled to Norman, Oklahoma (9/23 – 9/28) to work at the University of Oklahoma on editing the forthcoming issue of the yearly ISIS-*Current Bibliography* published by the History of Science Society.

Mohammad Vatanparast traveled to Chiba, Japan (8/29 – 9/22) to conduct research on *Dalbergia*, *Canavalia*, and *Phaseoleae* (Fabaceae).

Warren Wagner traveled to Edmonton, Canada (7/25 – 7/30) to receive the Asa Gray Award at the Botany 2015 conference.

Jun Wen traveled to Edmonton, Canada (7/26 – 7/30) to attend the Botany 2015 conference and to collect plant specimens.

Ken Wurdack traveled to from Bethesda, Maryland to Aiken, South Carolina (7/18 – 7/23) and points in between to collect spice bushes and Euphorbiaceae; to Edmonton, Canada (7/26 – 7/30) to attend the Botany 2015 conference; and to Coral Gables, Florida (8/6 – 8/16) with **Aleksandar Radosavljevic** to collect specimens at Fairchild Tropical Gardens.



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Transitions

Chair With A View

L.J. Dorr

To be perfectly frank I have mixed feelings about becoming Chair of Botany. It is clearly an honor to be entrusted with this position but it comes with a price. My personal scientific ambitions will have to be subordinated to the needs of the Department, the Museum, and the Institution. In those fleeting moments when I am being honest with myself, I will have to admit that I will never finish all of the research projects I contemplated or even a number of those that I initiated. This might have been the case regardless of whether or not I became Chair, but now I can delude myself and blame my new administrative responsibilities for my failure to realize all of my dreams. My tendency to complain (well known to my fellow curators) also will have to be severely curtailed. The reason for this should be obvious: I am not fond of criticizing myself. I will however accept responsibility for my decisions and I trust that most of them will be reasonable and fair.

The transition to becoming Chair was interesting.

Laurence Dorr began his first week as Chair of the Botany Department while on vacation in Egypt and Turkey. (photo by Lisa Barnett)

Technically, the baton was passed on October 1, 2015, but anyone watching this race would have seen the former and present Chair running side by side for a good amount of time before then. In fact, I think we are still running side by side. Shortly before I officially took the helm, I felt as if a tidal wave had washed over me, but I appear to have survived. I never realized the extent of the email traffic the Chair receives nor could I have imagined the number of meetings one is required to attend. My first official act (a very wise one) was to go on annual leave but even while I was on vacation in Egypt and Turkey, I found myself reading email each day at breakfast and trying to respond to those messages that demanded my attention. If I had not done this, this column would not have been written by the deadline. I would also still be sorting through two weeks of accumulated emails.

One of the nice things about becoming the Chair of Botany is that it is liberating. By that I mean I feel free to approach other department and unit heads in the Museum (and elsewhere) and ask them how we in Botany can find common ground to improve our science, collections, and exhibits. I have worked at the Smithsonian for almost 25 years and I thought I had a good understanding of our Department, the Museum, and the Institution. I now realize that I do not. I am learning new things every day and I find this exciting and challenging.

During my tenure as Chair I intend to work hard and I expect all members of this Department to work just as hard. I am committed to helping all of you succeed with your research. We are very privileged to be working in this Museum and Institution and with privilege comes obligation. We are obligated to do the best that we can with the resources we are given. I know we need more money, more space, and more help, but placed in a global perspective our current resources are quite generous. I intend to have fun while helping improve our research and collections and I hope all of you will have fun, too. My ultimate goal as Chair is simple: I hope to help make a very good Department even better.

Visitors

Craig Costion, University of Adelaide, Australia; DNA barcoding (11/3/14 -10/31/15).

Liang Zhao, Northwest Agriculture and Forestry University, China; *Dichocarpum*, *Pulsatilla*, *Trollius* (Ranunculaceae) and its close relatives (2/5/15-2/26/16).

Monica Carlsen, Missouri Botanical Garden; Araceae and Zingiberales (2/17/15-2/16/17).

Kenia Velasco, Sociedad para el Estudio de los Recursos Bióticos de Oaxaca, Mexico; Traditional ecological knowledge of the Dixaza-speaking Community (4/4-7/31).

Peter Schafran, Old Dominion University; Southeastern U.S. *Isoetes* (Isoetaceae) (5/5-7/31).

Caitlin Redak, Kenyon College; Historical expeditions and herbarium curation internship (5/25-8/15).

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Staff Research & Activities

Alice Tangerini and Botany illustration volunteer, **Mary Monsma**, attended and participated in the annual conference of the Guild of Natural Science Illustrators (GNSI) at Arcadia University in Glenside, Pennsylvania during the week of July 5 through July 11. Tangerini presented "Ink and Graphite on film in Botanical Illustration" at an afternoon workshop as part of the Techniques Showcase, an event with hands on illustration techniques and vendors showing their products. Her digital print of *Eriolaeana rulkensii* (Malvaceae) was included in the Annual GNSI Exhibit held in the Campus gallery during the meeting.

Tangerini also taught a one day workshop, "Introduction to Botanical Illustration" to 24 students at the Botany 2015 Conference in Edmonton, Canada, held July 25-30. Aided by American Society of Botanical Artists (ASBA) Conference Coordinator, Marilyn Garber, Tangerini chose *Acer ginnala* as her class subject. With the help of botanist Diane Haughland of the Royal Alberta Museum in Edmonton, who collected and dried specimens of the maple, Tangerini was able to guide the class to each finish a pen and ink drawing of their own specimen. Tangerini and Garber also presided over a booth for ASBA doing demonstrations on drawing techniques and answering questions about illustration.

Tangerini and Monsma participated in "Anatomy of Sports Day" as part of a program to promote an understanding of medicine through art at the National Health and Medical Museum in Silver Spring, Maryland on August 22. Representing members of the local GNSI DC Chapter, Tangerini and Monsma were the only two non-medical illustrators in the group of 15 biomedical illustrators painting the muscle and bone anatomy of Armed Forces athletes. Using watercolors and pan pastels, the two were enlisted to paint the bones and muscles on the legs of Eric Marshall, U.S. Marine Corps Super Marathoner. After learning that the two were botanical artists Eric quipped, "I thought they would make me look like a tree."

Gary Krupnick speaks with a guest about native pollinator gardens at a "FOOD in the Garden" event at the National Museum of American History. (photo by the Smithsonian Institution)

On September 17, **Gary Krupnick** participated in "FOOD in the Garden: How Does Your Garden Grow" at the National Museum of American History (NMAH). Sponsored by NMAH and Smithsonian Gardens, the event explored innovations in American food and gardens with tastes, talks, and tours outside in the Victory Garden. Krupnick hosted a table displaying historic specimens of food plants from the U.S. National Herbarium along with literature, handouts and posters about the importance of pollinator health in food production. Advice was given to attendees about planting native plant species in home gardens that support local pollinator populations.

New Faces

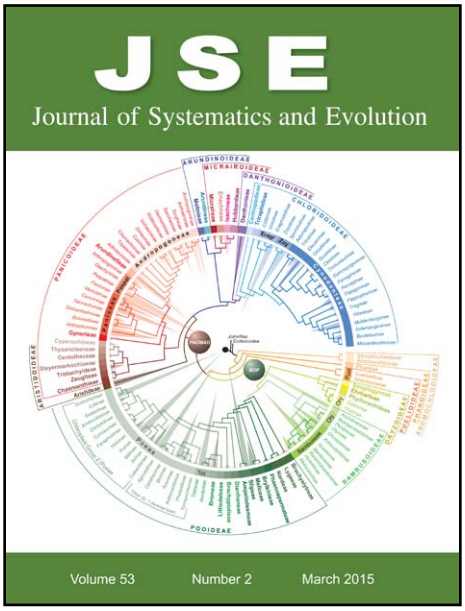
In September, **Erika Gardner** became the newest employee of the Botany Department as a Museum Specialist on the Core Collections Management team. Gardner arrives with an excellent knowledge and understanding of classic taxonomy and brings a great deal of experience in herbarium collections. A native of southern California, Gardner received her bachelor's degree in Biology from Cal Poly-Pomona in 2009, and recently completed requirements for her master's degree in Botany from Claremont Graduate University. She began her career as a Getty Multicultural Undergraduate Intern at Rancho Santa Ana Botanical Garden working with Sula Vanderplank. Upon graduation, she went full-time at RSA and, over the last 7 years,

Erika Gardner

has been involved in all aspects of collections management. Her data management and digitization skills contributed to the success of the Latin American Plants Initiative and Global Plants Initiative projects at RSA. She has done extensive geo-referencing of herbarium specimens, conducted field work in support of her master's thesis on the floristics of the Scodie Mountains in Kern County, California, and is Arc-GIS certified by ESRI. Most recently, Gardner has been responsible for acquisitions processing in the RSA herbarium, supervising a large volunteer staff, graduate students, and undergraduate interns.

Wen Joins Editorial Board of *Journal of Systematics and Evolution*

Jun Wen has joined the editorial board of *Journal of Systematics and Evolution* as the Co-Editor-in-Chief. *Journal of Systematics and Evolution* (*JSE*, since 2008; formerly *Acta Phytotaxonomica Sinica*) is an international journal in systematics and evolution dedicated to the description and understanding of biological diversity that covers the description of new taxa, monographic revisions, phylogenetics, molecular evolution and genome evolution, evolutionary developmental biology, evolutionary ecology, population biology, conservation biology, biogeography, paleobiology, and evolutionary theories. *JSE* is an official journal of Botanical Society of China, sponsored by the Institute of Botany, Chinese Academy of Sciences. Several research scientists from the Botany Department have recently published in *JSE*, including **Rob Soreng**, **Paul Peterson**, and **Konstantin Romaschenko**'s recent cover article on the worldwide phylogenetic classification of the Poaceae, and several papers by **Vicki Funk**, **Jun Wen**, **Elizabeth Zimmer**, **Ning Zhang** and **Morgan Gostel** in the new special issue on "Phylogenomic Approaches to Deciphering the Tree of Life." **Laurence Dorr** also serves on the *JSE* editorial board.



Visitors

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Roy Moger-Reischer, University of Rochester; *Pueraria montana* var. *lobate* (Fabaceae) internship (5/26-7/31).

Chloe Siegel, University of Illinois; DNA extraction internship (5/27-8/15).

Florence Stevenson, University of Maryland; DNA extraction internship (5/27-8/20).

Elizabeth Strohbeck, Smith College; Araceae and Zingiberales internship. (6/1-8/7).

Sarah White, Wake Forest University; Historical expeditions internship (6/1-8/22).

Elizabeth Jacobsen, Williams College; Plant Press scientific writing internship (6/08-7/31).

Sarah Jones, Safety Harbor; Herbarium curation internship (6/8-7/2).

Anna Raffeld, Brown University; Listed species project internship (6/8-8/22).

Sara Pineda, Universidad Nacional Autónoma de México; Herbarium curation internship (6/29-7/24).

Mary McKenna and 10 students, University of Virginia Blandy Field Station; Herbarium tour, plant conservation (7/10).

Melissa Logies, California State University Monterey Bay; Scientific illustration internship (7/13-8/15).

Magdalena Grenda, Independent researcher, United Kingdom; Conservation of specimens (7/14-7/16).

Ana Paula Fortuna Perez, Universidade Estadual Paulista, Brazil; *Eriosema* and *Rhynchosia* (Leguminosae) (7/27-7/31).

Fabio Espirito Santo, Universidade Estadual de Feira de Santana, Brazil; Apocynaceae (8/3-8/6).

Petala Gomes Ribeiro, Universidade Estadual de Feira de Santana, Brazil; Leguminosae and other families (8/3-8/6).

Natalie Cook, National Herbalist Association of Australia, and **Claudia Joy Wingo**, Maryland University of Integrative Health; Mediterranean ethnobotany (8/19).

Fernanda Paz, Museu Paraense Emílio Goeldi, Brazil; Brazilian Amazonian Cyatheaceae (8/21-8/24).

Pedro Filho, Universidad Federal do Rio Grande do Sul, Brazil; *Rhynchospora* section *Tenues* (Cyperaceae) (8/31-9/30).

Alison Shapcott, University of the Sunshine Coast, Australia; Southeast Queensland Rainforest Plant DNA barcoding project (8/31-9/25).

Adebola Bamigboye, Obafemi Awolowo University, Nigeria; *Pteris* (Pteridaceae) and other pteridophytes (9/1-9/11).

Morgan Gostel, George Mason University; Compositae and GGI-Gardens project (9/1/15-8/31/17).

Araik Sinanyan, Georgetown University Medical School; Armenian ethnobotany (9/1).

Warren Cardinal-McTeague, Canadian Museum of Nature; Plukenetieae (Euphorbiaceae) (9/8-12/11).

Ronald Liesner, Missouri Botanical Garden; Biological Diversity of the Guiana Shield Program family determinations (9/14-9/19).

Audrey Ragsac, University of Washington; *Jacaranda* and *Digomphia* (Bignoniaceae) (9/14-9/15).

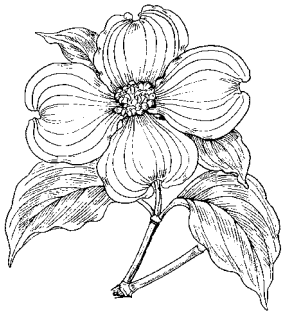
Bruno Amorim, Universidade Federal de Pernambuco, Brazil; Atlantic rainforest *Myrcia* (Myrtaceae) (9/16-9/17).

Fernanda Cabral, Universidade Estadual de Campinas, Brazil; *Caraipa* (Clusiaceae) (9/16-9/17).

Claudia Rapp, University of Vienna, Austria; History of Greek science (9/18).

Tom Croat, Missouri Botanical Garden; Araceae (9/21).

Anne Richard, Royal Library of Belgium; Ancient botanical documentation (9/22).



Wagner Receives the ASPT Asa Gray Award

-Adapted from aspt.net

The American Society of Plant Taxonomists (ASPT) selected **Warren Wagner** for its 2015 Asa Gray Award, one of the most prestigious honors in the botanical sciences. The award is named for Asa Gray (1810-1888), considered by many to be the most important American botanist of the 19th century. The award recognizes outstanding lifetime achievement in the field of plant systematics.

Wagner's recognition follows a nomination consisting of numerous testimonial letters from experts from across the fields of ecology and evolutionary biology. Kenneth Sytsma (University of Wisconsin – Madison), the primary nominator, attributes this broad show of support to Wagner's impressive contributions to not only plant systematics, but to disciplines including biogeography, ecology, restoration biology, and conservation. Letter writer Peter Hoch (Missouri Botanical Garden) spoke to Wagner's core passion for biodiversity when he wrote, "As a 'field and floristic' taxonomist, there are few in his generation who have accomplished more."

A native of Las Cruces, New Mexico, Wagner attended college at the University of New Mexico where he completed his bachelor's degree in 1973 and, subsequently, a master's degree in 1977. Under the advisement of Peter Raven, Dr. Wagner completed his doctorate at Washington University in 1981. Following a postdoctoral appointment at the Missouri Botanical Garden, he spent 1982-1988 at the Bishop Museum before arriving at the Smithsonian in 1988. He has held the prestigious McBryde Chair at the National Tropical Botanical Garden since 2004.

In his career, Wagner has published nearly 200 scholarly articles and edited four books. He has authored or co-authored seven taxonomic monographs, but is perhaps best known for his multidisciplinary work on South Pacific floras, evolution, and biogeography. Bruce Baldwin (University of California Berkeley) cites Wagner as "unquestionably the world authority on the Hawaiian angiosperm flora," a reputation that was solidified and nourished by his publication of (and continued work on) the *Manual of Flowering Plants of Hawai'i* a quarter century ago. That effort was followed by his co-editorship (with **Vicki Funk**) of the symposium volume *Hawaiian Biogeography: Evolution on a Hot Spot Archipelago*, a publication that Sytsma credits as "laying the foundation for integrative evolutionary and biogeographic research on Hawaiian organismal diversity that has continued to this day."

As the longtime Chair of Botany at the Smithsonian Institution, Wagner has done much to ensure the health of systematics at one of the primary centers in the field. In this vein, he has been what Smithsonian colleague **Jun Wen** calls a "fantastic mentor" of young scientists, with a gift for "letting the young colleagues maximize their creativity and productivity on important evolutionary and systematic research projects."

Wagner's previous honors include the Merit Award from the Botanical Society of America, the Robert Allerton Award from the National Botanical Garden, the Henry Gleason Award from the New York Botanical Garden, and (twice) the National Museum of Natural History Science Achievement Award. He is the 34th scientist to be recognized with the ASPT Asa Gray Award.

Kenneth Sytsma (left) presents the 2015 Asa Gray Award to Warren Wagner during the American Society of Plant Taxonomists (ASPT) banquet in Edmonton, Canada. (photo by Ally Boni)

Wiersema Receives the ASPT Peter Raven Award

-Adapted from aspt.net

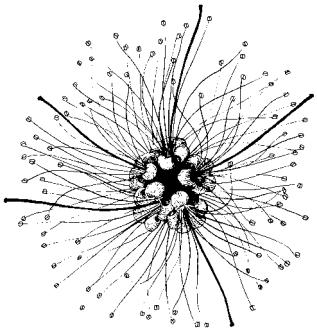
The American Society of Plant Taxonomists (ASPT) awarded John H. Wiersema the 2015 Peter Raven Award. Wiersema, a Research Associate at Smithsonian's Department of Botany, is a botanist of the National Germplasm Resource Laboratory, U.S. Department of Agriculture, Agriculture Research Service (USDA-ARS), The award is named for Peter Raven, eminent botanist and President Emeritus of the Missouri Botanical Garden, who has made significant contributions to research, education and outreach in botanical sciences throughout his esteemed career.

Wiersema has greatly served the plant systematics and broader plant biology communities during a long, productive career that includes over 25 years of service to the U.S. government. Fellow scientists working for museums and governmental organizations in four countries wrote in strong support of his nomination, highlighting the various roles he has played supporting international botanical research. In his current position with USDA-ARS, Wiersema has been principally responsible for the development and oversight of the Germplasm Resources Information Network (GRIN) website, <http://www.ars-grin.gov/>, a worldwide resource for taxonomic and nomenclatural

information about cultivated, weedy, and economically important plants.

Wiersema's command of the rules of plant nomenclature have made him a valuable resource and respected member of editorial committees that standardize naming of wild and cultivated plants. The complexities of this ongoing process, essential for effective communication about biodiversity, are daunting. He is senior author on the most recent *International Code of Nomenclature for algae, fungi and plants (ICN)*, which a nominator states is the most correct, complete, and readily accessible Code of any to date thanks to Wiersema's efforts.

Wiersema earned a Bachelor of Science degree from Western Michigan University and both Master of Science and Doctoral degrees from the Department of Biology at the University of Alabama, writing thesis projects on biology and systematics of the water lily family Nymphaceae. Water lilies continue to be his major area of botanical interest, and his numerous field collections and research projects have contributed many publications and new species descriptions.



Highlights from Botany 2015

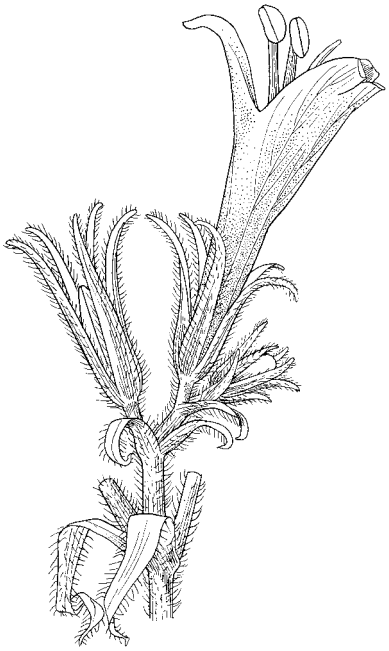
By Monica Carlsen, with contributions from Laurence Dorr, Paul Peterson and Jun Wen

During the week of July 25-30, the city of Edmonton, Alberta, in Canada welcomed more than 1,600 botanists and mycologists for Botany 2015, the annual meeting of the Botanical Society of America and 13 other similar Canadian and international societies (http://www.botanyconference.org). Very pleasant 60°F sunny summer days and spectacular views of the North Saskatchewan River valley greeted us at the Shaw Conference Centre, a former coal mine from the 1800s. The place is now transformed into a convention center with big halls and smaller lectures rooms, as well as steep stairs that served as our daily workout when trying to run from one talk to the next.

The Botany Department of the Smithsonian National Museum of Natural History was well-represented at the conference by curators **Laurence Dorr**, **Ashley Egan**, **Paul Peterson**, **Laurence Skog**, **Warren Wagner**, **Jun Wen** and **Kenneth Wurdack**, along with Peter Buck Postdoctoral Fellow **Monica Carlsen** and botanical illustrator **Alice Tangerini**, as well as many former Smithsonian scientists and collaborators. More than 600 talks and over 500 posters included a variety of topics from agronomy to paleobotany, biogeography to phylogenomics, and everything else in between.

Wagner was honored during the American Society of Plant Taxonomists (ASPT) banquet with the 2015 Asa Gray Award for outstanding lifetime achievement in the field of plant systematics. During the banquet, ASPT President Elect Tom Ranker gave his inaugural address entitled "Teaching Plant Systematics Today: Classic Techniques & Novel Approaches," an extremely interesting and current topic for most of us concerned with the future of botany as a career field and with ensuring that the next generation of plant scientists is alive and healthy. Ranker's slide presentation is available online, provided courtesy of ASPT: <http://www.aspt.net/uploads/4652/media_items/ranker-aspt-pres-elect-presentation-2015.original.pdf>.

It was also wonderful to witness so much progress in the field of plant phylogenomics at Botany 2015. Just a few years ago, the use of genome level data (i.e., hundreds or thousands of gene regions) to answer questions in plant sciences was not a common subject at these meetings. This year, almost 70 talks and posters as well as three workshops were fully dedicated to the topic. The lag time for use of cutting edge technologies in botany is finally getting shorter. More strikingly, scientists studying plant phylogenomics can now use specimens stored for decades in herbarium collections. Projects using these specimens have had very high success rates. This opened the possibilities of complete sampling in many of the projects presented. We witnessed an amazing blend of "old school" botany and "new school" laboratory techniques that highlights once more the value of natural history collections, like the Smithsonian's U.S. National Herbarium, for generations to come.



Critically Endangered Gesneriad Discovered in the Pakaraima Mountains of Guyana

By Elizabeth Jacobsen, Botany Intern

Its range may be small, and its flowers even smaller, but it couldn't hide forever: *Anetanthus disjuncta* (Gesneriaceae) is described for the first time by **Laurence Skog** and **John L. Clark** in the journal *Phytotaxa*. The new find is located at a single location on Mt. Ayanganna in the Pakaraima Mountains of Guyana, at elevations between 800 and 1100 m. This restricted range signals that *A. disjuncta* should be listed as Critically Endangered according to IUCN Red List criteria.

Anetanthus disjuncta gets its name from its spatial separation from the other two *Anetanthus* species, which are found farther west—in Brazil and the Andes from Colombia to Bolivia. *Anetanthus gracilis*, described in 1877, is the most widespread species in the genus, and it contains a subspecies, *Anetanthus gracilis* subsp. *munchiquensis,* which was described in 1995. The remaining *Anetanthus* species, *A. rubra*, is known only from its type locality in Amazonas, Peru, and was described by Skog in 1982. Skog and Clark are the world's leading experts on neotropical gesneriads. Skog is an emeritus research botanist at the Smithsonian and Clark has been a Research Associate at the Smithsonian since 2006.

The Smithsonian has a long history of research in the Guiana Shield, most visibly since 1983 when the Biological Diversity of the Guiana Shield Program (BDG) got started in the Guianas. The area known as the Guiana Shield includes parts of Venezuela, Colombia, Brazil, Guyana, Suriname, and French Guiana. The region is biologically rich, but much remains to be uncovered by scientists. Its largely pristine conditions are threatened by logging and mining, and the BDG has been dedicated to studying and preserving this biodiversity hotspot, an especially important task as it continues to reveal new species like *Anetanthus disjuncta*.

***Anetanthus disjuncta* was first collected from Guyana by David Clarke in 2001. (Photo by John L. Clark during a 2014 field expedition to Mt. Ayanganna).**

Populations of *Magnolia acuminata* may become increasingly isolated and may experience reduced genetic diversity without intervention. (photo by R.A. Howard)

Canadian Populations of *Magnolia acuminata* Have Low Levels of Gene Flow

By Elizabeth Jacobsen, Botany Intern

Magnolia acuminata, the cucumber tree, is not the social type. Even where it is widespread, it is never abundant, existing in small populations throughout its range. The northern end of the species distribution lies in Ontario, Canada, where around 200 trees occupy fragmented habitats consisting of small populations of no more than 50, and usually fewer, mature trees. It is considered endangered in Canada and critically imperiled in Indiana, Oklahoma, and Florida. Concerned about its lonely distribution, **Elizabeth Zimmer** joined Trent University biologists Cara Budd and Joanna Freeland to investigate the tree's genetic diversity using DNA microsatellites, comparing Canadian populations with each other and with populations in the United States (across the heart of *M. acuminata*'s range). Their findings were published in *Conservation Genetics*. "For other groups of plants with this distribution," comments Zimmer, "in some cases you see there have been bottlenecks, and that's a stronger warning that you have to manage plants."

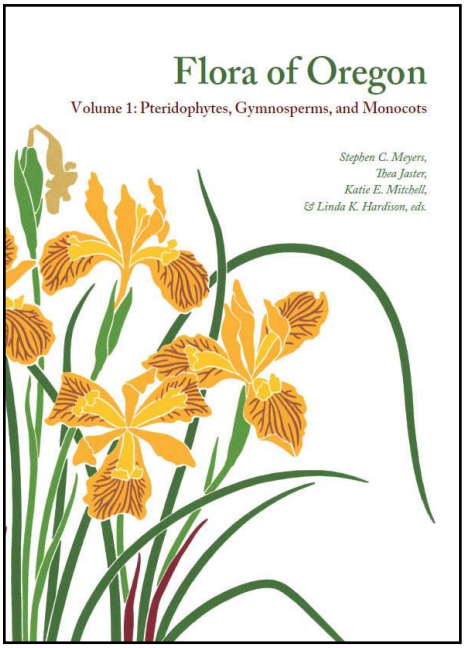
As it turns out, the northern populations of *M. acuminata* in Canada have lower levels of genetic diversity than populations across the United States. Zimmer explains, "may not be pollination that

maintains genetic diversity, it may be seed dispersal." The beetle species that pollinate the trees likely do not disperse as far as other major pollinating animals, but the plant's seeds are likely dispersed greater distances by birds or in some cases waterways. However seeds must find suitable habitat to germinate, which can be a challenge in today's altered and fragmented environments.

Canadian populations have little gene flow between them; many alleles are found only in one population or another. The trees are long-lived, not reaching fertility until they are 30 years old, and the genetic information in older trees may not represent the state of populations today. This is confirmed by lower levels of genetic diversity found in *M. acuminata* saplings. The information gathered in the study indicates that the most effective way to protect genetic diversity in peripheral populations is to protect the habitat and dispersers that could facilitate the exchange of seeds between populations.

Flora of Oregon

A revision of the genus *Poa* in Oregon, written by **Rob Soreng** and colleagues Barbara Wilson, Richard Brainerd and Nick Otting, was recently published in *Flora of Oregon, Volume 1* (2015; BRIT Press, Fort Worth). This new book, edited by Stephen Meyers, Thea Jaster, Katie Mitchell and Linda Hardison, covers Pteridophytes, Gymnosperms, and Monocots, along with biographies of major plant collectors and details of the ecology of the state. All plant genera and about half the taxa are illustrated, and all species and infraspecies are mapped. More than 20 taxonomists contributed to the first volume of the first statewide flora for Oregon published since the second edition of Morton Peck's flora in 1961. Volumes 2 & 3 are expected in 2017 and 2020. Visit the Oregon Flora Project website <http://www.oregonflora.org/> for more information and data.



Profile

Continued from page 1

Stahl's worldwide credibility and important scientific contributions. In "Notes towards a biography of Agustin Stahl" Dr. Eduardo Rodríguez explores Stahl's career and his contributions to many other academic disciplines. This is followed by a detailed essay written by Dr. Acevedo on "Stahl and the Botany of Puerto Rico"– a fascinating historical and botanical analysis of Stahl's work including: the contemporary academic and local milieu, Stahl's expeditions and scientific methodology, his collections and watercolors, challenges encountered in the production and the reception of his *Estudios*; and the processes by which the new annotated and illustrated edition came to fruition.

As the original first edition of *Estudios* was published in six fascicles, the new facsimile edition maintains the original pagination presenting two fascicles per

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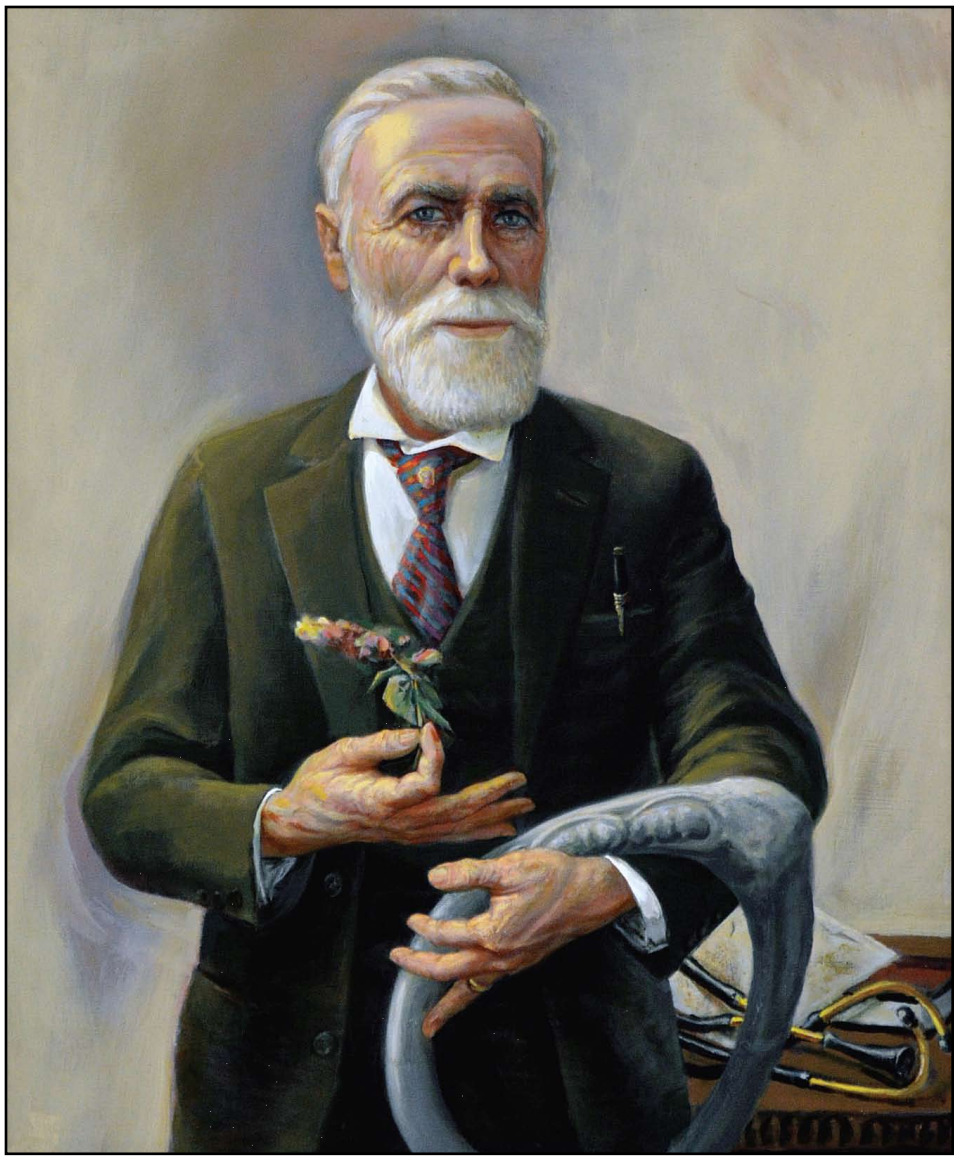
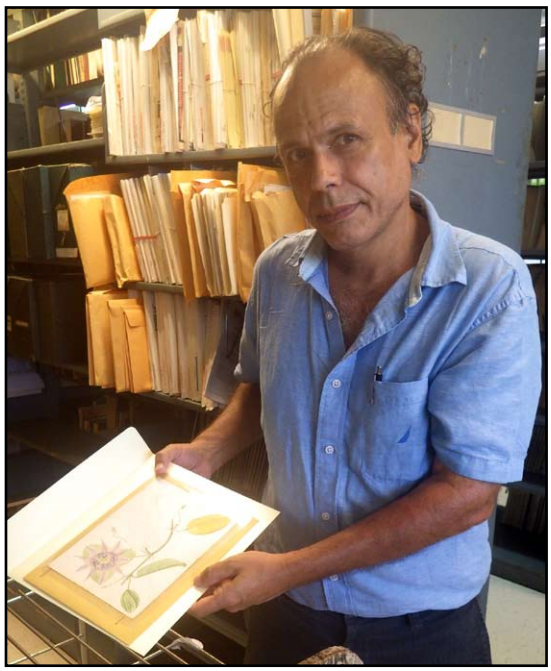


Painting of Dr. Agustín Stahl (1842 –1917) by Félix Bonilla Norat, Sala de Colección Puertorriqueña, UPR-RUM. Reproduced in the new illustrated facsimile of the first edition of Stahl's *Estudios* (Volume 1) with permission by Juan Bonilla, Cataño, Puerto Rico.



On the left is an example of one of Stahl's watercolor images digitally restored by Fiona Wilkinson published in Volume II, Fascicle IV. WATERCOLOR 325. *Passiflora serratodigitata* L.

Dr. Pedro Acevedo, above, examines one of Stahl's original watercolors at the Division of Puerto Rican Collections in the Library of the University of Puerto Rico in Mayaguez. The same illustration is reproduced in the new edition, Volume II, Fascicle IV WATERCOLOR 324. *Passiflora maliformis* L. (Passifloraceae) Original: UPR-RUM, #426. Size: 21.6 × 16 cm. (photo by J. Knight, 2013)

Profile

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volume. Stahl's illustrations of represented species (identified and numbered) are provided as color plates at the end of each volume. Descriptions are directly linked with the relevant illustrations and nomenclature of species updated through the use of footnotes provided below the original text. In addition, there are useful summaries presented as appendices including a synopsis of plants described in *Estudios*, nomenclatural types based on Stahl's collections, a list of the watercolors, updated scientific names, and indexes of common and scientific names.

In his lifetime, Agustin Stahl reportedly expressed his ambition for his watercolors to be used by the Smithsonian, as evidenced through a report compiled in 1899 by the special commissioner Henry K. Carroll to the President of the United States on the conditions of the island of Puerto Rico:

> *Dr. Stahl, who has made numerous and careful studies in the natural history of Porto Rico, with admirable illustrative drawings in colors, very kindly furnished the commissioner with the following brief survey of the subject* [*La fauna y la flora de Puerto Rico,* Stahl, 1899]. *His ambition is to be permitted to complete his most important work and present it to the Government at Washington for the use of the Smithsonian Institution. He does not ask compensation for his work – simply support while he is completing it, which would, I am assured, take no long time.*

Over a century later, this Smithsonian publication both fulfills Stahl's request and honors his legacy through restoring, updating, and printing this critical contribution to the history and development of Botany and the study of Natural Sciences in Puerto Rico.

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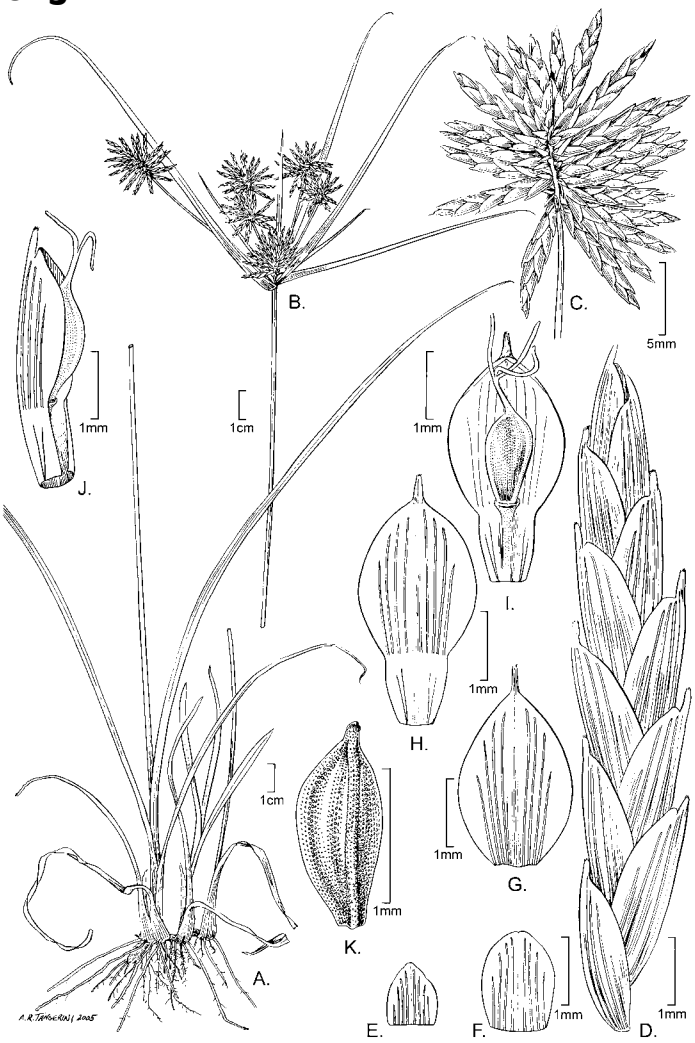
Art by Alice Tangerini

Cyperus pulguerensis M.T. Strong

Cyperus pulguerensis **(Cyperaceae) was published in "Monocots & Gymnosperms of Puerto Rico and the Virgin Islands" (*Contr. U.S. Natl. Herb.* 52: 1-415; 2005). The brush and ink illustration was drawn in 2005 from the holotype at the U.S. National Herbarium (Proctor & Thomas 43804, June 24, 1987, El Pulguero, Manati, Puerto Rico) and an isotype from the herbarium of the Departamento de Recursos Naturales y Ambientales in San Juan. Originally identified as *Cyperus confertus*, the type differed in the spikelet scales which have the carina prolonged at the apex as a straight thickened mucro versus a distinctly to slightly excurved cusp in *C. confertus*. This species and the beak-rush *Rhynchospora depressirostris*, are sedges endemic to the white sand areas of the Manati-Vega Baja area, north-central Puerto Rico. This is an area of high diversity where other rare and endemic plants are known to occur as well.**



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