

Harvard University Herbaria & Botany Libraries

Year in Review - 2019

REFLECTIONS FROM THE (INTERIM) DIRECTOR



It has been a great pleasure and honor to begin my service as the Interim Director of the Harvard University Herbaria. Over the last six months, I have learned a great deal from our highly talented and professional staff. I want to thank everyone for their warm welcome and their continued patience as I learn about the workings of the HUH. Of course, I also want to thank my colleague Chuck Davis, who stepped down as Director in July, for his tireless efforts over the previous six years to make the HUH an international leader in natural history collection digitization. It has certainly been an exciting and productive year for everyone in the HUH. The new Texas Oklahoma Regional Consortium of Herbaria (TORCH) Collections Network grant will support the digitization of 60,000 specimens from the focal states of Texas and Oklahoma, complementing on-going projects focused on alpine plants of the Southern Rockies and particularly threatened plants, such as succulent cacti and orchids. These efforts continue to reach new milestones with over 1.3 million specimens now digitized and largely available on the HUH website and the community portals GBIF and iDigBio. Consistent with this, the usage of HUH digital resources is up 41% from 2018 and a staggering 300% from 2017. These accomplishments are thanks to our exceptional digitization and IT teams, as well as the broader efforts of the entire curatorial staff. You all should be very proud of yourselves! I look forward to even greater success with the recent addition several new curatorial assistants focusing on digitization (see below). Actually, the list of things to look forward to in 2020 is rather long – our on-going tenure search in Plant and Fungal Biology, which promises to bring exciting new faculty to the HUH; the planned release this spring of a beautiful new book on the Glass Flowers; and the arrival of dozens of visiting scientists, many of them supported by the generous travel grants and fellowships from the HUH. Thank you all again for making my first six months so exciting and stimulating, this is a fantastic team to be a part of and I know we will continue to find great success.

STAFF NEWS

2019 Dean's Distinction Award

Jeannette Everitt, Administrative Manager

Service Anniversaries

Donald Pfister, 45 years

Judith Warnement, 30 years

Danielle Hanrahan, 30 years

Chris Robson, 20 years

Weclome new staff!



Zachary Bailey
Curatorial Assistant
Digitization Projects



Madeline Schill
Curatorial Assistant
Digitization Projects



Kala Brzezinski
Curatorial Assistant
Digitization Projects



Emma Tanner
Curatorial Assistant
Digitization Projects



Allen Milby
Curatorial Assistant
Digitization Projects



Luiza Teixeira-Costa
HUH Research Fellow

CONFERENCES & PROFESSIONAL MEETINGS

- **Kathy LoBuglio** received professional development support to attend the **2019 Mycological Society of America Annual Meeting** in Minneapolis, MN. She presented a poster, *The biology and distribution of morels in Southern Chile: the balance between forest sustainability while supporting a morel-gathering economy*
- **Genevieve Tocci** received professional development support to attend the **Society for the Preservation of Natural History Collections (SPNHC) Annual Meeting** in Chicago, IL. She presented a poster, *Fungarium Feasting: Which Pests are Eating Mycological Collections?*, and talk, *Large Institutions' Post-TCN Struggles with Data Maintenance*
- **Jeannette Everitt** attended the **Society for the Preservation of Natural History Collections (SPNHC) Annual Meeting** held in Chicago
- **Diane Rielinger** participated in **Harvard Library Carpentries Committee** planning and attended the **Library Carpentries and Data Carpentries workshops**
- **Diane Rielinger** co-presented a talk on the Biodiversity Heritage Library at **Harvard Library Learns Symposium**
- **Judy Warnement** attended the **Biodiversity Heritage Library's Annual Meeting** hosted by the Albert R. Mann Library of Cornell University
- **Gretchen Wade** attended the annual meeting of the **Council on Botanical and Horticultural Libraries** hosted by the Desert Botanical Garden in Phoenix.
- **Michaela Schnull** gave a Specimen Spotlight presentation, *The Mummy's Lichen at the Farlow Herbarium*, at the **Society for the Preservation of Natural History Collections (SPNHC) Annual Meeting** held in Chicago
- **Madelynn von Baeyer** presented a poster, *A New Approach to Digitizing and Imaging the Harvard University Herbaria Wood Slides*, at the **Society for the Preservation of Natural History Collections (SPNHC) Annual Meeting** held in Chicago
- **Genevieve Tocci** attended the **Integrated Pest Management Working Group** held at the Indianapolis Museum of Art
- **Anne Marie Countie** attended the **iDigBio Summit** and participated in meetings with collaborators for the Southern Rocky Mountains TCN
- **Kanchi N. Gandhi** served as the Course Director for the **3rd Botanical Nomenclature Course** organised by the Botanical Survey of India
- **David Boufford** gave a presentation at **Academia Sinica, Taiwan, Ching-I Peng Memorial Symposium**; National Taiwan University

ADMINISTRATION HIGHLIGHTS

- @HarvardHerbaria Twitter account was launched; we have gained 465 "followers" in our first year!
- The HUH Food and Drink Policy was rolled-out
- HUH Seminar Room was successfully renovated
- **Claire Gallagher** supervised our first School-to-Work high school student, Cristian Jurado

COLLECTIONS HIGHLIGHTS

- Participated in the Harvard Extension School J-term class MUSE-E-117
- *Fruits in Decay*, a new special exhibit in the Glass Flowers gallery at the Harvard Museum of Natural History, opened August 31
- Items from our collections are part of the *Resetting the Table* exhibit at the Peabody Museum of Archaeology and Ethnology, which opened November 16
- Repatriation of the archeobotanical corn to Peru
- **Jennifer Brown, Scott Fulton, and Don Pfister** have been hard at work on a new Glass Flowers book, due out Spring 2020
- **Walton "Tinker" Green** has nearly completed the rehousing of the Paleobotanical Teaching Collection

Statistics for 2018-19

- Welcomed 134 visitors
- Processed 57 outgoing loans; 2594 total specimens
- Processed 173 return loans; 8918 total specimens
- 19 borrows returned; 148 specimens
- 17 borrows in; 133 specimens
- 57 exchanges out; totaling 4934 specimens
- 25 exchanges in; totaling 3424 specimens
- Sent 60 gifts out; totaling 1718 specimens
- Accessioned 58 gifts; totaling 1061 specimens
- Accessioned 31 staff collections; totaling 9620 specimens

INFORMATICS HIGHLIGHTS

- Completed the development of key software components for the mass digitization workflow, including the much-anticipated Transcription App which streamlines label transcription using online specimen images
- The IPT instance which shares our specimen records with partners and community aggregators was upgraded
- Over 224,000 herbarium specimens were digitized in 2019 by HUH curatorial staff!
- Our specimen data was downloaded approximately 25,000 times from GBIF, an increase of 31% from the previous year



BOTANY LIBRARY HIGHLIGHTS

- **Danielle Castronovo** and **Gretchen Wade** exhibited archival items at the Harvard Library Materials Fair
- **Danielle Castronovo** and **Diane Rielinger** prepared a special exhibit on *Tangible Things* in honor of Prof. Laurel Ulrich's retirement celebration
- **Danielle Castronovo** attended the New England Archivists Spring meeting in Burlington, VT
- Provided tours to staff of the American Antiquarian Society staff and Elliot House residents
- Launched the Botanical Illustrations exhibit via CURIOsity, Harvard Library's new digital exhibit platform
- Achieved the half-way mark in the digitization of botanical illustrations
- Participated in transition-planning with Harvard College Library administration as of Sept 1

RESEARCH FUNDING AWARDED

Travel Grants

- **William J. Davis**, USDA - Agricultural Research Service: *Diversity of downy mildew pathogens on Poaceae*
- **J. Sebastian Moreno Silva**, Icesi University, Columbia: *Lepanthes in the neotropics: an herbarium revision of the genus*
- **Timothy M. Perez**, University of Miami, Florida: *Climate change-driven shifts in leaf temperatures and species distributions*
- **Shabir Ahmad Rather**, Northwest A&F University, China: *Systematics of the neglected genus Saussurea DC in India especially from Kashmir Himalaya*
- **Daniel Sánchez Mata**, Complutense University, Madrid, Spain: *Typification of ultramafic endemics in the Californian biogeographical region described by Asa Gray (1810-1888)*
- **Elton J. Lirio**, University of São Paulo, Brazil: *Systematics, cytogenetics, sexual systems evolution and conservation of Monimiaceae (Laurales)*
- **Pedro Alejandro González-Gutiérrez**, Institute for Investigations and Environmental Services, Holguín, Cuba: *Revision of the genus Byrsonima (Malpighiaceae) in the West Indies*
- **Katya Mitsuko Zuquim Braghini**, Pontifical Catholic University of São Paulo, Brazil: *Commercial School Museum market, science, teaching (1890-1940)*

HUH Research Fellowship

- **Luiza Teixeira-Costa**, *Investigating the issue of parasitic plant host-specificity using the herbarium collections*

SPONSORED RESEARCH FUNDING RECEIVED

New Awards

- **Digitization TCN: Collaborative: American Crossroads: Digitizing the vascular flora of the south-central United States (NSF TORCH)**
PI: Davis
Project Dates: 9/1/2019-8/31/2021
Award Amount: \$119,593
- **Phenological synchrony and symbioses: assessing climate change impacts on plant-insect interactions in the Atacama Desert of Chile (DRCLAS Chile)**
PI: Davis
Project Dates: 7/1/2019 – 6/30/2020
Award Amount: \$29,998

Continuing Awards

- **1000 species and counting: Harnessing the power of herbarium digitization, crowdsourcing, and phylofloristics to assess and predict phenological responses (NSF 1000 Species/CrowdCurio)**
PI: Davis
Anticipated Dates: 8/1/2018-8/31/2021
Total Anticipated Award: \$586,474
- **Digitization TCN: Collaborative Research: Using Herbarium Data To Document Plant Niches In The High Peaks And High Plains Of The Southern Rockies - Past, Present, And Future (NSF SoRo)**
PI: Schnull
Project Dates: 9/1/2017-8/31/2021
Award Amount: \$404,974
- **Digitization TCN: Collaborative Research: Digitizing endless forms: Facilitating Research on Imperiled Plants with Extreme Morphologies (NSF PoE/ Endless Forms)**
PI: Davis
Project Dates: 8/15/2018-7/31/2021
Award Amount: \$583,153
- **Phenological synchrony and symbioses: assessing climate change impacts on plant-insect interactions in the Atacama Desert of Chile (CCSF Brazil)**
PI: Davis
Project Dates: 7/1/2018 – 3/31/2020
Award Amount: \$149,910

Completed Awards

- **Mycological exploration in Tierra del Fuego (DRCLAS (FY19))**
PI: Pfister
Project Dates: 12/10/2018 – 5/31/2019
Award Amount: \$4,800

HUH FACULTY-CURATOR HIGHLIGHTS

Davis Lab News

- **Camille DeSisto**, organismic and evolutionary biology concentrator, won the Hoopes award for research on lemur dispersal of invasive strawberry guava
- **Emily Meineke**, postdoctoral fellow, accepted a position as Assistant Professor in Entomology and Nematology at the University of California, Davis

Publications

- Segovia, R., et al. 2019. Freezing and water availability structure the evolutionary diversity of trees across the Americas. *bioRxiv* 728717.
- Marinho, L., et al. 2019. Plastomes resolve generic limits within tribe Clusiaceae (Clusiaceae) and reveal the new genus *Arawakia*. *Molecular Phylogenetics and Evolution*, 134, Pp. 142-151.
- Davis, Charles C. and Sarah Matthews. 2019. *Evolution of Land Plants*. Oxford Bibliographies.
- Pearse, William D., et al. 2019. Author Correction: A statistical estimator for determining the limits of contemporary and historic phenology. *Nature Ecology & Evolution*, 3, Pp. 499.
- Cai, L., et al. 2019. Thrive with Additional Sets of Genome: Widespread Paleopolyploidization Buffers plants Through Eocene Climatic Upheaval. *Oxford University Press* 59, Pp. E29-E29.
- Cai, L., et al. 2019. Widespread Ancient whole-genome duplications in Malpighiales coincide with Eocene global climatic upheaval. *New Phytologist*, 221, 1, Pp. 565-576.
- Hedrick, B.P., et al. 2019. Digitization and the future of natural history collections. *PeerJ Preprints*, 7: e27859v1.
- Liu, Xiaoqing, et al. 2019. Diverse trajectories of plastome degradation in holoparasitic *Cistanche* and the whereabouts of the lost plastid genes. *Journal of Experimental Botany*, erz456.

Knoll Lab News

- **Jessica Creveling**, former graduate student, was awarded the Donath Medal by the Geological Society of America for outstanding achievement by a young scientist in contributing to geologic knowledge through original research that marks a major advance in earth sciences

Publications

- Strullu-Derrien, C., et al. 2019. Testate amoebae in the 407 million-year-old Rhynie chert. *Current Biology* 29: 461-467.
- Muscente, A.D., et al. 2019. Ediacaran biozones identified with network analysis provide evidence for pulsed extinctions of early complex life. *Nature Communications* 10: Article number 911.
- Morais, L., et al. 2019. Insights into VSM diversity and Neoproterozoic biostratigraphy in the light of recent Brazilian discoveries. *Journal of Paleontology* 93: 612-627.
- Gilbert, P.U.P.A., et al. 2019. Biomineralization by particle attachment in early animals. *Proceedings of the National Academy of Sciences, USA* 116: 17659-17665.
- Strullu-Derrien, C., et al. 2019. The Rhynie Chert. *Current Biology* 29: R1218-R1223.

Pfister Lab News

- **Donald Pfister** was presented with the Distinguished Mycologist Award by the Mycological Society of America, marking his distinguished career in mycology

Publications

- Haelewaters, D., et al. 2019. Laboulbeniales (Ascomycota) of the Boston Harbor Islands II (and Other Localities): Species Parasitizing Carabidae, and the *Laboulbenia flagellata* Species Complex. *Northeastern Naturalist*, 25 (9).
- Saba, M., et al. 2019. *Geopora ahmadii* sp. nov. from Pakistan. *Mycotaxon*, 134 (2), pp. 377-389.
- Kraisitudomsook, N., et al. 2019. Resurrecting the genus *Geomorium*: Systematic study of fungi in the genera *Underwoodia* and *Gymnohydnotrya* (Pezizales) with the description of three new South American species. *Persoonia - Molecular Phylogeny and Evolution of Fungi*, 44, pp. 98-12.
- Quijada, L., et al. 2019. The Asian-Melanesian bambusicolous genus *Myriodiscus* is related to the genus *Tympanis*, the North American-European tree pathogen. *Forest Pathology*, 49 (4).
- Quijada, L., et al. 2019. Cones, needles and wood: *Micraspis* (Micraspidaceae, Micraspidales fam. et ord. nov.) speciation segregates by host plant tissues. *Fungal Systematics and Evolution*, 5, pp. 99-111.
- Quijada, L., et al. 2019. Disentangling the identity of the genus *Biatorellina* (Leotiomyces, Ascomycota). *Phytotaxa*, 411 (3), pp. 183-193.
- Johnston, P.R., et al. 2019. A multigene phylogeny toward a new phylogenetic classification of Leotiomyces. *IMA Fungus*, 1 (1), pp. 1.
- Karakehian J.M., et al. 2019. Placement of Tribliaceae in Rhytismatales and comments on unique ascospore morphologies in Leotiomyces (Fungi, Ascomycota). *MycKeys*, 54, pp. 99-133.
- Xu, F., et al. 2019. On the co-occurrence of species of *Wynnea* (Ascomycota, Pezizales, Sarcoscyphaceae) and *Armillaria* (Basidiomycota, Agaricales, Physalacriaceae). *Fungal Systematics and Evolution*, 4, pp. 1-12.
- Kraisitudomsook, N., et al. 2019. Systematic study of truffles in the genus *Ruhlandiella*, with the description of two new species from Patagonia. *Mycologia*.
- Haelewaters, D., et al. 2019. Birth of an order: Comprehensive molecular phylogenetic study excludes *Herpomyces* (Fungi, Laboulbeniales) from Laboulbeniales. *Molecular Phylogenetics and Evolution*, 133, pp. 286-301.
- Haelewaters, D. & Pfister, D.H. 2019. Morphological species of *Gloeandromyces* (Ascomycota, Laboulbeniales) evaluated using single-locus species delimitation methods. *Fungal Systematics and Evolution*, 3, pp. 19-33.
- Daru, B.H., et al. 2019. A novel proof of concept for capturing the diversity of endophytic fungi preserved in herbarium specimens. *Philosophical Transactions of the Royal Society*, 374 (1763), pp. 20170395
- Saba, M., et al. 2019. *Amanita mansehraensis*, a new species in section *Vaginatae* from Pakistan. *Phytotaxa*, 409 (4), pp. 189-201.