

The Vasculum

The Society of Herbarium Curators Newsletter Volume 19, Number 2: August 2024



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Message from the Past President



I would like to thank the Society of Herbarium Curators membership for all your work to promote and support herbaria nationally and internationally. Thank you to the many members of the Executive Board who selflessly volunteer to complete critical Society tasks. Thank you to our outgoing officers Erin Manzitto-Tripp, Maribeth Latvis and Socorro Gonzalez-Elizondo. Your service is appreciated. It is a pleasure to welcome our new President, Mark Fishbein, Treasurer Lisa Wallace and Member-at-Large Oyetola Oyebanji. We appreciate your willingness to support the community.

It has been an eventful couple of years as we readjusted to the post-COVID world. The SHC has stepped up and stepped forward to fill committee vacancies, build liaisons with sister societies, and grow the SHC for a sustainable future.

We continue our on-going relationship with the American Institute of Biological Studies where we have been able to participate in programming related to collections advocacy and to inclusion. The SHC has signed on to partner on several diversity and inclusion grants and initiatives that will help build an inclusive and welcoming community.

We have seen members come together to write grants and run symposia that support the curators and the collections. This year we saw two symposia from our community at the annual conference! A colloquium led by the Early Career Section that featured early career researchers and a collaborative special session with the ASPT. Both covered critical topics for herbarium advocacy and addressed the uses of natural history collections and herbaria.

The SHC has prioritized funding student awards; this is a strength of our Society. We continue to need volunteers to help with proposal review and with fundraising. Supporting the next generation of curators has been upheld as an important and critical role of the Society. Growing the scholarship program would benefit all members.

This year we heard the news regarding the closure of the Duke University Herbarium. Our Herbarium Assistance Committee jumped into action on this and composed a letter from the SHC expressing concern and advocating for Duke to revisit this decision. I was impressed with how quickly and how well this group rallied to represent the needs of the herbarium community. It was remarkable to see the energy, signatures on the petition, and advocacy from the community.

As we look to the future of SHC, there are many opportunities to build our membership, grow our endowment, and expand our scholarship program. We continue to need volunteers to assist with the various committee roles. We have a large international community; as that grows, we need to consider how we can support and include those members in the activities of the SHC.

Growing our membership and increasing our outreach are all critical to the future and sustainability of the Society and the collections we steward.

Thank you to all who have been supportive and helpful in the years of my Presidency. It has been an honor to serve in this role.

Anna K. Monfils
President, Society of Herbarium Curators (2022-2024)
Director, Central Michigan University Herbarium
(CMC)
Professor, Department of Biology, Central Michigan
University, USA

Message from the President



It is an honor and a pleasure to write this message to my herbarium-supporting colleagues. I write to you on the heels of a wonderful gathering at *Botany 2024* in Grand Rapids, Michigan, at which presentations highlighting the history, curation, mobilization, and use of herbarium specimens were prominent, in many cases taking center stage. Among the highlights for me, of course, was the SHC members meeting, after which my term as President officially began. At the meeting I was immediately impressed by the engagement and vibrancy that our members bring to our Society. I enjoyed meeting many members for the first time, or at least in-person for the first time. With a heavy heart I bade farewell to outgoing President Anna Monfils, Past-President Erin Manzitto-Tripp, Treasurer Maribeth Latvis, Member-at-Large Socorro González, and Past-President of the Early Career Section, Anthony Baniaga. I thank them for the considerable efforts they've made in building SHC and supporting our members. In their stead we welcome the new members joining me on the SHC leadership team: Treasurer Lisa Wallace, Member-at-Large Oyetola Oyebanji, and President of the Early Career Section, Jacob Suissa. I thank them for their willingness and enthusiasm for serving the herbarium community, as well as the officers and committee members who will continue to work with me in the coming year, including Secretary Abby Moore, *The Vasculum* Editor Tilo Roy, Webmaster Michael Thomas, and Members-at-Large Gilberto Ocampo and Katya Romoleroux. What a great team!

These are dynamic and volatile times for herbaria. The diversity of approaches to studying and analyzing data obtained from natural history collections has never been greater, as evidenced by the many excellent collections-based research presentations at *Botany 2024*. The power of having an historical (and ongoing) record of plant occurrences; physical specimens providing an ever-expanding array of data on morphological, genetic, and chemical diversity; a rapidly diversifying set of environmental data available at finer and finer scales; and a burgeoning set of analytic and modeling tools supported by exponential increases in computing capacity fills me with a giddy optimism about the current value and future potential of herbarium specimens. Moreover, despite the very real taxonomic impediment we face, the rapid growth in digital tools and data for understanding the existence, distribution, and loss of biodiversity has given us leverage to tackle the accelerating biodiversity crisis. I feel invigorated by the numerous students with interests in biodiversity research and conservation with whom I work in my academic position, and I am buoyed by their passion and commitment when my optimism sinks. Yet, I acknowledge we face enormous headwinds, and not only from the usual suspects.

The tragedy befalling the Duke University Herbarium reminds us that myopic and self-serving administrative decisions are a risk, even at museums, botanical gardens, and universities with long histories of valuing and supporting herbaria. Such threats to herbaria (and, by extension, to biodiversity research and education) underscore the importance of the work we do as a Society committed to supporting collections and supporting those who curate and use natural history specimens. This includes, importantly, the coming generations of herbarium curators, researchers, and educators who are trained and supported by SHC and its members. I hope you will join me in the coming years in sharing strategies and building capacity to support herbaria, both within our SHC community and by reaching out to colleagues who are not yet members. If you are so moved and are able, please consider volunteering for a committee or providing financial support. I encourage you to contact me if you would like to get more involved in SHC—there are many ways to make a difference.

After a brief hiatus at home, I will soon be off to the International Botanical Congress in Madrid, another treasured opportunity to commune with my colleagues from around the world. As you read this the Congress will be history, and much vital information will have been shared about plant biology—much of it again cen-

tered on the research we make possible as herbarium curators and users. I hope I crossed paths with you in Grand Rapids or Madrid and that we shared some thoughts, hopes, or concerns about herbaria. If not, let's talk during the coming year.

Warmly,

Mark Fishbein
President, Society of Herbarium Curators (2024-2026)
Director of the Oklahoma State University Herbarium (OKLA)
Regents Professor and Head, Department of Plant Biology, Ecology and
Evolution
Oklahoma State University, USA

The Society of Herbarium Curators (SHC) unites the world's herbarium professionals in discussion, training, action, and support for the benefit of herbaria, science, and society. SHC envisions a network of innovative, well-trained herbarium professionals, empowered to recognize and address local and global stakeholder needs with organizationally sustainable strategies that advance the well-being of herbaria, science, and society. For more information, please join us online:

— www.herbariumcurators.org —

From the Editor's Desk

Dear Herbarium Enthusiasts!

Welcome to the August 2024 edition of *The Vasculum*, our treasured newsletter dedicated to the global community of herbarium curators. As the summer unfolds, we find ourselves reflecting on the vibrant growth and resilience that define this season—both in nature and within our community. As we continue to face environmental challenges and witness the effects of climate change, especially devastating, prolonged heatwaves globally, the importance of herbaria in documenting and understanding plant species cannot be overstated. Herbaria not only present a tribute to the wonders of nature but also form a crucial component in our collective efforts to safeguard and conserve our planet's biodiversity.

This year has been tumultuous in the field of herbarium research, with the decision to close a major university facility by its administrators—a significant loss for our community, as it marks the end of a collection of botanical specimens that has contributed immensely to research and education. This event serves as a poignant reminder of the challenges we face in preserving our botanical heritage. Yet, in the face of this adversity, we must find strength in our collective resilience. As curators, researchers, and advocates, it is our responsibility to carry forward the legacy of the invaluable collections worldwide. Together, we can ensure that the knowledge and passion they represent continue to thrive, inspiring future generations and reinforcing the importance of herbaria in understanding and protecting our natural world.

Through this issue of our newsletter, we're excited to bring you a collection of articles that highlight the innovative practices and inspiring journeys in our field. From deep dives into groundbreaking studies to thoughtful commentaries on the challenges we face, we explore the vibrant specimen collections from near and far, the challenges and triumphs of digitizing collections, and the shared passion that binds us. Each article is a testament to the invaluable role herbaria play in preserving our global biodiversity, packed with insights that will fuel your passion and curiosity. For the first time, we have highlighted two herbaria in our Featured Herbarium section: an in-depth look at the Shirley C. Tucker Herbarium at Louisiana State University, as well as the Emory University Herbarium, which is celebrating its 75th anniversary this year. We hope you find inspiration and knowledge within these pages, and as always, we are deeply appreciative of your dedication to the botanical sciences. Here's to a year of discovery and progress!

Tilottama Roy
Editor, *The Vasculum*
Interim Vice Provost and Assistant Vice President, Academic Affairs
Associate Professor, Department of Biology
Missouri Western State University, USA

News from the Society

The Society of Herbarium Curators is proud to present the winners of the 2024 Student Awards

- Franchesca Austriaco at the University of Illinois at Urbana-Champaign won the Undergraduate Award (\$250) for the project “An Annotated List of Type Specimens in the Crop Evolution Laboratory (CEL) Herbarium”.
- Matthew Yamamoto at the California Botanic Garden and Claremont Graduate University won one of the two Graduate Awards (\$500) for the project “A flora of the McGee Creek Watershed, Mono County, California”.
- Maurane Bourgouin at the Université de Montréal won the second Graduate Award (\$500) for the project “Systematics of the North Temperate Clade of *Bidens* (Asteraceae)”.

The Society of Herbarium Curators (SHC) at Botany 2024

The Early Career Section of SHC hosted a colloquium titled *Herbaria for the Future: Early Career Researchers and Their Uses of Herbarium Specimens* at Botany 2024, in Grand Rapids, MI (Fig. 1). This event was co-moderated by ECS current president Jacob Suissa (the University of Tennessee at Knoxville) and past president Nina House (Jepson Herbaria).



Figure 1: Colloquium session in progress (Photo credit: Tilottama Roy)

New enhancements to online herbarium data portals: Symbiota 3.1 coming soon to a portal near you

What are Symbiota portals?

For over 20 years, herbaria have used Symbiota-based data portals like SEINet (<https://swbiodiversity.org/seinet>), the Consortium of Bryophyte Herbaria (<https://bryophyteportal.org>), the Consortium of Lichen Herbaria (<https://lichenportal.org>), and many others to digitize, curate, and share their specimen-based data with the world. These portals serve as both collection management systems and data aggregators to promote public access to millions of herbarium specimens collected across the globe—all available in a findable, accessible, interoperable, and reusable (“FAIR”) format.

How are Symbiota portals managed and improved?

While generally centered on certain taxonomic or geographic communities of practice, Symbiota portals (<https://symbiota.org/symbiota-portals>) share a central, open source codebase that has been developed collaboratively through multiple grants and contracts (<https://github.com/BioKIC/Symbiota>). This codebase is currently managed by the Symbiota Support Hub (<https://symbiota.org/contact-the-support-hub>), a service team aimed at supporting Symbiota users and code contributors as a division of iDigBio (NSF Award #2027654). The shared codebase means that new features developed by one organization or project can benefit the entire Symbiota user community. A tool funded by the Consortium of California Herbaria, for example, can also be seamlessly used by the Consortium of Northeast Herbaria once their portal is updated to the latest code version.

The Symbiota Support Hub is now organizing flurries of developments into “code releases,” during which several updates are introduced to the community at one time. This way, users can be alerted to the new tools before they show up in the portals, and adequate documentation can be developed ahead of major changes. We are excited to announce one such code release for the summer and fall 2024: Symbiota 3.1.

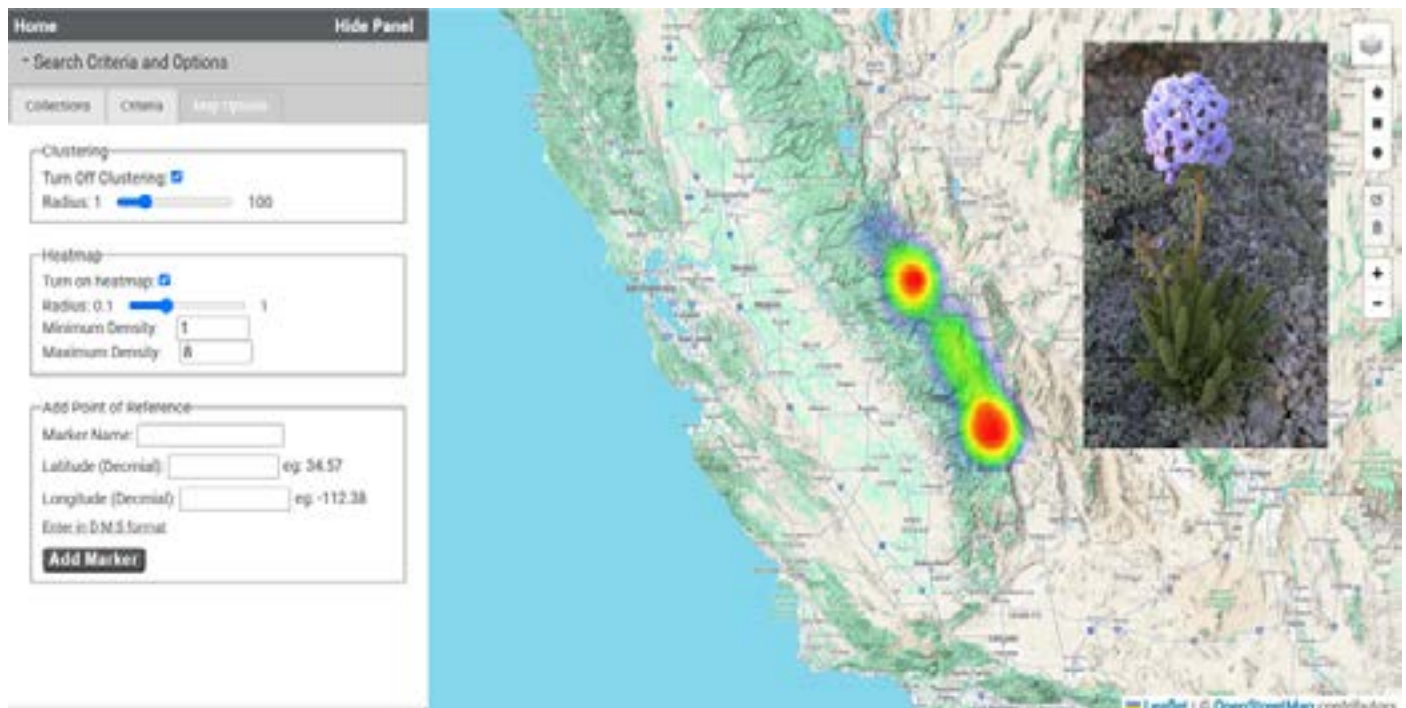
What to expect from Symbiota 3.1

The latest version of Symbiota includes several exciting new features of interest to the herbarium community.

- New, streamlined *Public Search Page*: The previous two-page search interface has been combined into a sleek, single-page search tool that includes expandable menus and a dynamic list of the selected search criteria. These developments were funded by the National Science Foundation (NSF)’s National Ecological Observatory Network, which supports the NEON Biorepository portal (<https://biorepo.neonscience.org>).
- *Additional data entry fields* in the Occurrence Editor, including End Date, Continent, Water Body, Island Group, Island, and Vitality. The latter five are Darwin Core (a widely used biodiversity data standard) terms, and thus this development enables greater interoperability with other systems. These additions were funded by the Eastern Seaboard Thematic Collections Network, a mollusc digitization project (NSF Award #2001510).
- *Improved mapping functions*, including (1) switching from Google Maps to the open source OpenStreetMap project, (2) optimization to improve mapping speed, and (3) the ability to create heat maps.
- The ability to batch upload linked resources / associated occurrences through the new *Extended Data Import Tool*. Using this tool, administrators can batch add extended data, such as links to other resources, specimens, or data repositories. The funders of this new tool—the Botanical Research Institute of Texas,

California Botanic Garden, and George Mason University—are using it to link the field notes and other extended specimen data associated with collections from the late botanist Sherwin Carlquist (NSF Awards #2133561-2).

- *New Batch Image Tagging Tool* that allows users to tag any number of images with an available text tag, such as tags indicating the age or reproductive condition of the organism or specimen in the photo. This tool was funded by the Big Bee Thematic Collections Network (NSF Award #2102006).
- *Improved look and feel*, including unified icons and replacement of some confusing icons with buttons



Screenshot of the new heatmap function showing occurrences of *Polemonium eximium* Greene (Polemoniaceae) in the Consortium of California Herbaria's CCH2 Portal. Field image in the right corner by Raymond J. Gill (CC BY-NC) from this record.

These are only a few of the many improvements that the Symbiota team is making to the code. Numerous additional bug fixes and optimizations are included in this upcoming release which are sure to make data access and management in Symbiota portals more efficient and pleasant.

What about my favorite feature or request?

The Symbiota team is dedicated to continuously improving the portals based on feedback from users like you. Still, the number of great ideas and requests to improve the Symbiota code is enormous (just check out our wishlist growing here! <https://github.com/BioKIC/symbiota-docs/issues>). Because iDigBio and the Symbiota Support Hub are not supported by NSF to develop software, we urge collections communities to consider including funding for Symbiota development in any digitization of research projects that use Symbiota portals. As previously described, because the Symbiota code is shared amongst all portals, contributions made by your project can have wide-reaching broader impacts for the community of Symbiota users. Contact the Symbiota Support Hub or a Symbiota developer early in your proposal-writing process to ensure that your portal and your data get the funding they deserve (<https://symbiota.org/sustaining-symbiota-services>).

What should I do with this information?

If you use a Symbiota Support Hub-maintained portal, you might already be enjoying the perks of Symbiota 3.1. We encourage all users with feedback or questions to email help@symbiota.org for help. If you do not already use a Symbiota portal, we invite you to try one out, either for finding data for your research or for digitizing, managing, or mobilizing your own herbarium specimen data. Existing portals are free to join (<https://symbiota.org/symbiota-portals>), and the community of Symbiota users is a growing resource of help and enthusiasm for sharing our precious biodiversity collections data with the world.

The Symbiota Support Hub is made possible by National Science Foundation Award 2027654 and others. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

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Bromus in my socks

The trail is long, the day is hot.
I haven't found the plant I want.
My knees are tired, my shoulders ache.
The bugs think I will dinner make.
The trail is steep, and full of rocks...
And I have *Bromus** in my socks.

(*The grass that is a pesky weed
With many barbed and pointed seeds,
That stick in clothing, frequently,
And prick and scratch abhorrently.)

I could sit down and start to whine
That this small plant I'll never find...
About the heat... about the trail...
The steep and rocky hill to scale...
I could turn 'round and go on back—
But then this plant collection lack.

And so I hoist my pack and go
Up one more hill, although I know
That's what I told myself—"One more,"
For each of seven hills before.
But sometimes one more is enough—
The plant is there, in country rough.
Or if it's not, perhaps next year
It will come up somewhere near here.

And if I have to come back later,
I will be sure to bring some gaiters.

Author's note:

Some *Bromus* species are native and are not always weedy. This refers primarily to the non-native annual species that have invaded much of western North America.



Top: *Bromus rubens* L. (Photo credit: Sarah De Groot); Bottom: *B. tectorum* L. KSC0001335, from the Vascular Plant Collection of the Kansas State University Herbarium. (C) 2024 CC BY 4.0 (Attribution)

Sarah De Groot, PhD, Postdoctoral Scientist
Herbarium (KSC), Division of Biology
Kansas State University Manhattan, Kansas, USA

Contributions from The Forest Herbarium Ibadan (FHI) - a repository of Nigerian plants

Preamble

Modern taxonomy in Nigeria started offshore by foreign botanists (travellers and doctors) who were mainly Europeans. Plant collectors were specially sent to West Africa to obtain materials. The need to prepare Floras for the different regions of the Commonwealth countries was recognized by the British government and the Royal Botanic Gardens, Kew, Surrey, England. This was primarily to enhance trade/commerce with the British, French, and German Colonies overseas.

Botanical Explorations and Collections in Nigeria

Botanical exploration in Nigeria was started by Michael Adanson between 1749–1754, when he travelled widely to study the flora of West Africa. He was the first botanist to discover and study the Baobab tree – *Adansonia digitata* L. (Malvaceae). Another plant explorer was Mungo Park who undertook his first expedition to Gambia on the Niger River to beyond Sansanding on the Upper Niger between 1795–1797. His second expedition took him to Bussa rapids in the present-day Niger state where he had a fatal accident. Park's collection is still at the Natural History Museum (BM) in London. The West African Locust Bean tree (*Parkia biglobosa* (Jacq.) G.Don., Fabaceae) is named after him. During the 19th century, many plant explorers visited the vegetation in Nigeria. Some of these and the period of their visit include Palisot de Beauvois (1805–1820), Theodore Vogel (1841), Edward Vogel (1854), W.G. Milne and Sir Richard Burton (1862–1866), and Rev. Hugh Goldie who collected specimens around Calabar district of old in 1888, where he discovered the plant *Pararistolochia goldieana* (Hook.f) Hutch. & Dalz. (Aristolochiaceae). Collectors of the 20th century were P.A. Talbot and Capt. G.B. Gosling (1901–1905), J.M. Dalziel (1905–1912), V.H. Lely and J. Dent Young (1905–1912), Mr. and Mrs. P.A. Talbot (1909–1914) amongst others. Talbot & Gosling collected widely during a survey expedition from Ibi to Lake Chad via Bauchi, and sent specimens collected to Kew (K). Dalziel collected approximately 1,645 specimens from Northern Nigeria, and all of these were also deposited at Kew. Lely & Young's collections from Bauchi gave an insight into the flora of the region. Mr. & Mrs. P.A. Talbot were British botanists and anthropologists. They made two sets of collections; the first set was collected between 1909–1912 and the second between 1912–1914. The first collection includes about 1000 taxa. Their collections produced nine new genera and 195 new species (Rendle and Baker, 1913). Two genera (*Talbotia* S.Moore [Acanthaceae] and *Talbotiella* Bak.f. [Fabaceae]) were named after the husband and wife from the second collections they made from Eket district in 1914. Mrs. Talbot made careful water colour drawings of the flowers of most of the new species and pencil sketches of the Nigerian species (Fig. 1). Between 1920 and 1950, major collections were those of J.D. Kennedy (1928–1938), A.P.D. Jones (1942–1946), R.W.J. Keay (1944–1951), and Dr. C.F.A. Onochie (1943–1954). Others include P.W. Richards who led the Cambridge Botanical Expedition of 1935 and 1947–1948; and J.P.M. Brenan of Oxford University, who was the principal collector of flowering plants of the second expedition. H.J. Savory of the University College, Ibadan also made collections of ferns in the Southern part of Nigeria. Most of these are kept at Kew (K), the Natural History Museum (BM), Oxford University Herbarium (OUH), etc.

The Forest Herbarium Ibadan (FHI)

The Forest Herbarium Ibadan (FHI) was established in 1954. It is housed within the Headquarters of the Forest-



Figure 1. Drawings from the collections of Mr & Mrs Talbot. Left. *Napoleona talbotii* Bak. 1- End of leaf-branch x.75; 2- portion of stem showing flower and fruit; natural size (drawn by Mrs. Talbot); 3- end of leaf branch; 4- inflorescence, natural size. Right. *Scyphostrychnos talbotii*. 1- Portion of plant x.5; 2- Small part of inflorescence x 2; 3 – Flower showing corona x2; 4 - Longitudinal section of flower x4. (Source: Rendle & Baker, 1913).

ry Research Institute of Nigeria, Ibadan, Nigeria. It is an arm of the Department of Forest Conservation and Protection and coordinates the Taxonomy Section of the Department. FHI has records of many rare and threatened plants of conservation interest and specializes in all plant groups inhabiting the country's ecological zones. The herbarium contains collections of all groups comprising algae, bryophytes, fungi/lichens, pteridophytes, and seed plants. This extensive range of taxa and numerous examples of each taxon, which are representative of Nigerian vegetation types and all under one roof, has made FHI indispensable in taxonomic studies of the country's flora. There are approx. 115,000 specimens deposited in the herbarium. Arrangement system follows Hutchinson and Dalziel, in a phylogenetic order starting from the most primitive to the most advanced group (grasses). Specimens are housed in metal cabinets and genera within each family are sorted alphabetically for ease of reference. The herbarium houses many fruits and seeds in carpological collections (Fig. 2). These are stored in well labelled boxes with their respective vouchers as assigned to the herbarium sheets. Efforts are being made to periodically check these specimens and keep them away from insect and micro-organism infestation. The first set of collections at FHI were those specimens collected by the botanists mentioned above. Indeed, FHI's collections are the result of the pioneer and exploratory taxonomic phase in Nigeria and provide a foundation for further systematic studies on the country's flora.

Type specimens

The herbarium houses several type materials (Fig. 3 & 4), mostly of African origin. Like in other herbaria, type

specimens at FHI are carefully stored in special jackets and labelled accordingly. Many of Nigerian type materials are deposited at the Natural History Museum (BM), Royal Botanic Gardens, Kew (K), and the Royal Botanic Garden, Edinburgh (E). The foreign type specimens at FHI are mainly historical exchanges from Europe and other African nations.

Activities

The herbarium renders several services including taxonomic research on Nigerian flora, assistance with plant identification and collection, training of para taxonomists, conduction of ethnobotanical surveys, biodiversity conservation, and involvement in ecological studies across Nigerian ecosystems. The herbarium plays an important national role by exchanging information and botanical collections with other herbaria within and outside the country. In fact, FHI has been a very important resource to scientists and plant lovers from all walks of life.

Some achievements

FHI contributed a larger number of specimens cited in the Flora of West Tropical Africa (FWTA). The regional flora was published in three volumes, between 1954 - 1972.



Figure 2. Carpological collections at FHI (Photo credit: FHI)



Figure 3 (Left): Type specimen of *Anemia nigerica* Alston (Schizaeaceae) (FHI21562; BM000785317) collected by Keay R. W. J. & Onochie C. F from Idanre, Ondo State, 20-10-1946. Specimen is kept in BM; Figure 3 (Right): Isotype of *Ubelinia nigerica* Hochst. (Caryophyllaceae) (FHI 29994) collected by Ujor, E from Bama-bili Bafut Ngemba, Cameroon, 24-08-1951. Specimen is kept in FHI. (Photo credit: left - JSTOR, right - FHI)

Efforts from the herbarium have also produced some reference books detailing the vernacular names of Nigerian plants in some local languages (Edo/Delta, Yoruba, Ibo and Hausa). Others include the list of rare and endangered species of the Nigerian flora published by Gbile et al. (1978, 1981). Recently, the herbarium was officially recognized as the National Herbarium by the Federal Government of Nigeria; however, it is still being funded by the Institute where it is housed. The herbarium has coordinated national projects on biodiversity digitization and is the seat of the Nigerian Node of GBIF – Nigerian Biodiversity Information Facility (NgBIF) which was established in 2016.

Towards a e-herbarium

Digitization at the Herbarium started in 2005 through the African Plants Initiative (API) project, sponsored by the Andrew Mellon Foundation, USA. The project was designed to create a database of images and information about African plants and includes type and historical specimens along with related scholarly literature, photographs, and artwork. The resulting database is available through JSTOR and holds about 2,500,000 images and associated data including nearly 450,000 articles linked from the website. FHI contributed type specimens and other selected historical collections (Fig. 3), totalling 3,167 specimens including 80 type specimens of African plants, some of which are rare, endangered taxa (<http://plants.jstor.org/partner/FHI>).

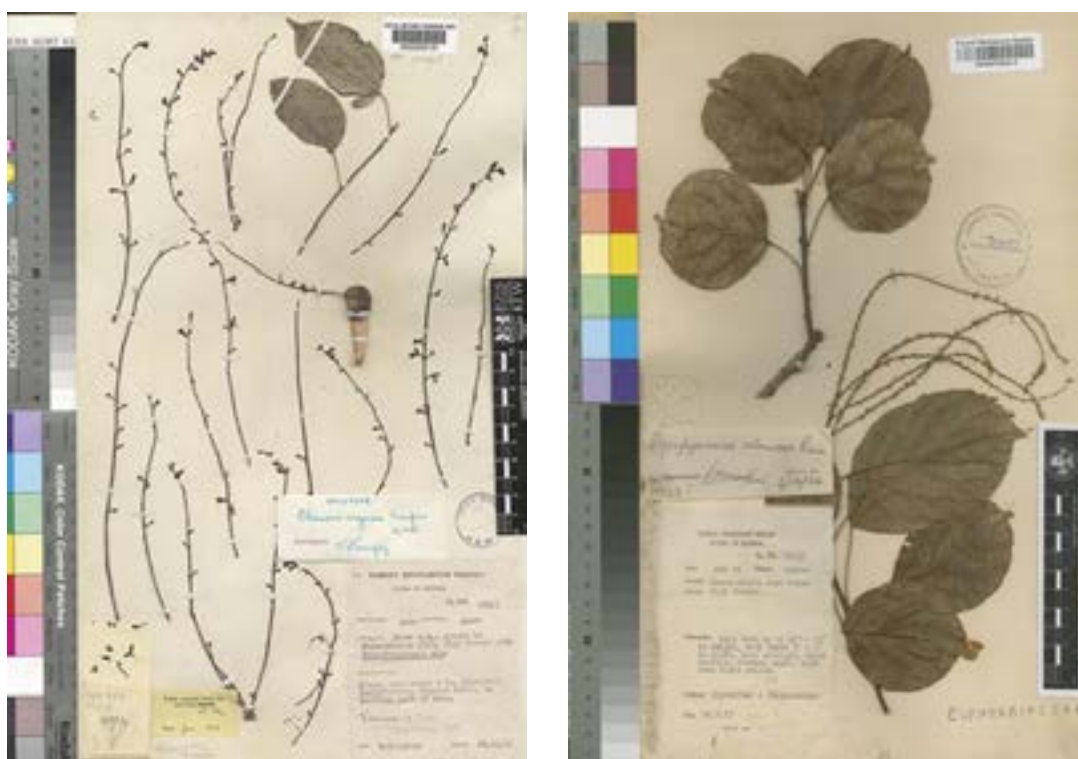


Figure 4 (Left): Holotype of *Tiliacora nigerica* Troupin (Menispermaceae) (FHI 25493; K000230121) collected by Keay, R.W.J. from Akure Forest Reserve, Nigeria, 28-10-1949. This specimen is deposited in K; Figure 4 (Right): *Discoglypsemna caloneura* (Pax) Prain (Euphorbiaceae) (FHI 70032) collected by Olorunfemi, J. & Ighanesebhor, G. from Kwara State, Nigeria, 16-05-1973. (Photo credit: left - JSTOR, right - FHI)

Since 2008, completing the databasing of FHI collections has been a major focus for the herbarium staff. Between 2015 and 2023, about 100,000 specimens at FHI have been digitized (about 65% of these captured using BRAHMS software package), and approximately 38,044 of these have been published on the Global Biodiversity Information Facility website (Forestry Research Institute of Nigeria (gbif.org)).

In 2015, the herbarium was involved in a regional project, focusing on the digitization of West African Plants. This was sponsored by the JRS Biodiversity Foundation and comprised 5 countries (Benin, Cameroon, Ghana, Nigeria and Togo). We captured and published a total of 17,105 specimens representing 34 families, 415 genera, 1432 species and 18,750 linked images (Ugbogu et al. 2019a). FHI was involved in another project in 2017 under the Biodiversity Information for Development (BID) of the Global Biodiversity Information Facility (GBIF). The goal of the project was to initiate the mobilization of biodiversity data from Nigerian data holders and institutions, estimated to house more than 700,000 data records of plants and animals within protected areas, including invasive, threatened, and endemic species. The herbarium contributed 20,939 specimens collected between 1860–2017, distributed across 72 families, 605 genera, and 2,716 species (Ugbogu et al., 2019b, 2019c, 2019d). Most of these were collected from Nigeria and other African countries, with a few from Asia, Europe, North and South America. The digitization efforts between 2005–2008 utilized the HerbScan setup, then more improved equipment starting in 2015 (Fig. 6).



Figure 6: Image capturing equipment at FHI. Left: HerbScan - Inverted Flatbed Scanner used in 2005; Right: Imaging station with Bencher Copymate II fluorescent lights included, used since 2015 to date. (Photocredit: FHI)

Other current herbarium staff at FHI

Akinniyi S. Odewo (Principal Research Fellow), Adeniji A. Kehinde (Principal Research Fellow), Adeyemi B. Ajani (Research Fellow 1), Queen R. Olopete (Research Fellow 1), Uhunwa P. Igbo-Osagie (Research Fellow 1), Adewale Ishola (Junior Research Fellow), Adejola Adeyemo (Chief Forest Technologist) – Ayodele J. Egunjobi (Principal Forest Technologist), Alex Maragaret (Principal Executive Officer) (Fig. 7)



Figure 7 (Top): Emmanuel Chukwuma captures images from herbarium specimens and explains the digitization workflow to visitors: Figure 7 (Bottom): The curator (Omokafe Ugbogu) enlightens visitors from the Federal Ministry of Environment about some of the historical collections housed in the herbarium. (Photocredit: FRINMEDIA, 2023)

Acknowledgements

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Early Career Advice

Dr. Bruce Baldwin (Fig. 1) is the Curator Emeritus of the Jepson Herbarium and a Professor Emeritus in the Department of Integrative Biology at the University of California at Berkeley, USA.

How have herbaria enriched your research?

I can't imagine what my research program would be like without access to herbaria, which collectively are the foundation of botany and especially systematic botany and floristics. Being able to step out of my Berkeley office, walk directly into the UC/JEPS stacks, and examine specimens in one of the best collections in the world has given a huge boost to my research. The Berkeley herbaria are a treasure trove for plant biodiversity and are especially valuable for anyone studying California botany, with all of the Jepson resources.

How have herbaria enriched your teaching?

In more ways than I can express. In the most general sense, my course in Systematics of Vascular Plants and my lower-division teaching in general biology, in which I taught the botany and mycology section, were informed most fundamentally by work that ultimately stemmed from herbaria, including my own personal knowledge. And my teaching to the general public in large part has been made possible by herbaria, in particular the Jepson Herbarium. And of course the collection resources of herbaria, including the Jepson slide collection, have been essential to instruction.

What types of outreach activities do you do for the general public?

I have had the privilege of being able to take part in the Jepson workshop program, which offers courses to the general public on mostly Californian botanical topics, in the classroom and the field, and has been exceptionally well organized over the years by highly dedicated coordinators and Associate Director Staci Markos. Dr. Strother and I taught the first workshop in fall 1994 and it has been one of the more enjoyable opportunities of my career to interact with avid botanists of all backgrounds from that first moment onward. During the pandemic, the Jepson workshop program started offering some of these experiences online and at greatly reduced cost, which



Figure 1: Bruce collecting a summer-flowering tarweed, *Holocarpha obconica*, in California's eastern San Francisco Bay Area, Alameda Co., August 2019.

broadened outreach considerably. In a wider sense, my convening editorship of the *Jepson Flora Project*, which offers all of its resources on California's flora online, without charge, is the most extensive and intensive outreach I have been involved in during my career.

What made you first interested in herbaria?

I remember first being introduced to the herbarium at the University of California, Santa Barbara as an undergraduate and being amazed that such places existed. It became the place on campus where I felt most at home and where I spent a lot of time, especially after beginning a botanical survey of an under-collected region of the eastern Mojave Desert in 1980, as part of an NSF-funded resource survey.

What was your first herbarium-related job?

As an undergraduate at UCSB, I was a collector for two fantastic upper-division botany courses, Vegetation and Flora of California and Plant Systematics, which mostly involved obtaining living collections but sometimes warranted accessing specimens from the UCSB herbarium for display to students. My first true herbarium position, though, was at the University of California, Davis (DAV), where I was a graduate student and where curator Billie June McCaskill hired me to identify unknown plants that were brought into the herbarium by farmers, ranchers, the veterinary school, botanists, entomologists, and the general public. I learned a lot and June was such a joy to be around—she made the herbarium a refuge for students and others who knew they would find laughter, happiness, and companionship there, in addition to serious botany.

What was the species of your first herbarium collection and where did you collect it?

It was a fern, actually, *Myriopteris parryi* (D.C.Eaton) Grusz & Windham (Parry's lip fern; Pteridaceae), from the eastern Mojave Desert in California, although it wasn't treated in *Myriopteris* then. I'm not a pteridologist, but dryland plants in general have always interested me.

What are some herbarium-specific challenges you have faced during your career and how were you able to overcome them?

By far my largest challenges have been as lead editor of the *Jepson Flora Project*, which represents a primary mis-



Figure 2: Bruce with *Phacelia grandiflora* on a recently burned slope in southern California's Western Transverse Ranges, Ventura Co., June 2018.

sion of the Jepson Herbarium, as laid out by our founder, Willis Linn Jepson. In that project, the most significant hurdle was revision of the print flora of California, *The Jepson Manual*, which involved hundreds of authors and a small but highly dedicated staff. We succeeded with that effort by sheer perseverance and hard work. Given the extraordinary effort that required and the reality that a print book of >7600 taxa is out-of-date by the time it can be published (especially in a place like California where botanical discoveries of conservation importance happen at a fast clip), we launched the Jepson eFlora to allow for at least annual targeted revisions, as necessary. That's been happening each year since 2012, when the second edition of *The Jepson Manual* was released and has worked out well.

What challenges do you see early career curators and collection managers facing and how do you think they could be met?

Reductions in institutional funding for collections and threats to herbarium space are especially acute now. In addition to fundraising challenges, curators and collection managers must ensure that herbaria resources are maximally utilized and valued by as diverse a community as possible. That goal includes extensive outreach and innovation, as well as efforts to digitize as many collections as possible. As we have seen recently, even some of the most respected and significant herbaria in the world are vulnerable to closure, so the more herbarium are valued by people inside and outside the institutions where they reside, the better.

What was the best herbarium/career advice that you received?

From a research perspective, my major professor, the late Don Kyhos, always said that scientific articles are progress reports and that you can never have the last word in science. He also always made a point of saying that questioning one's motivations in academics is important, and that the best motivation is love of the question or organism, and the worst motivation is simply to advance one's own career. Those were good lessons that have always stayed with me.

What advice could you give for early career members to be successful?

I can't give better advice than the advice that I just mentioned from Don Kyhos. I also would warn early-career botanists to try not to overcommit themselves, at least not too much, as difficult as that may be. It is so easy to find oneself without enough time to meet goals and stay healthy and happy given all of the competing demands that can come one's way.



Figure 3: Bruce using *The Jepson Manual* to identify a plant on northeastern California's Modoc Plateau, Modoc Co., May 2021.

How is being an early career curator/collections manager nowadays better than when you began your career?

As collections have become more digitized, some aspects of collection management have become simpler, although requiring a somewhat different skill set than required before. Also, there is a more connected herbarium community that has formed in many places, such as in California, through herbarium consortia and the like, where curators can work together to meet common goals, including fundraising, rather than solving all problems individually.

How is being an early career curator/collections manager nowadays more challenging than when you began your career?

I again think that ever more acute funding constraints and the increasing threat in many institutions that spaces housing herbaria will be usurped for other purposes create more daunting challenges today than when I began my career. Those challenges can be existential for herbaria.

How can early career members better leverage herbarium sciences into the future?

The increasing momentum toward innovation in how collections are used by researchers in a growing number of academic areas definitely is something to welcome and promote, in so far as those uses are non-destructive or minimally so. That warrants outreach to colleagues to facilitate such work and to make sure that the research community knows that herbaria are welcoming environments.

What are the important ways herbarium staff can promote and advocate for their collections?

Following from the previous question, by making sure that collections are highly utilized and valued, not just by researchers but also by the general public, where there are natural opportunities among plant-interested groups who may never have even heard of herbaria or how important they are to science and society, including conservation.

What are some future challenges you see early career members facing, and how can they rise to meet those challenges?

As I've mentioned, and most fundamentally, early career members must face growing limitations in institutional funding and, in many cases, growing pressure from outside for the space that houses herbaria. Unfortunately, it's not enough to excel at managing a collection well without also making sure that it is valued by the institutional and greater public community to the extent that it is viewed as absolutely essential, in addition to conducting sufficient external fundraising to provide the resources necessary for it to operate at a high level.

What is the best thing about managing a herbarium collection?

One of the things I particularly enjoy in the course of annotating specimens to update classification and correct misidentifications is the opportunity to explore the collection for hidden treasures, especially collections



Figure 4: The Compositae genus *Chaenactis* (including *C. glabriuscula* var. *lanosa*, shown here) was studied evolutionarily by Bruce's Ph.D. advisor, Don Kyhos, and Bruce continues that effort.

representing undescribed diversity. As has been well documented, plants described as new to science in most instances were already residing, undetected, in herbaria. Those moments of discovery are special and they don't necessarily involve something so dramatic as undescribed diversity, but also range extensions, unusual morphologies, novel hybrids, and informative notations by collectors or annotators, for example.

What is the one most important thing that a herbarium does?

Herbaria are the physical foundations of our understanding of botanical diversity, which is essential to life on the planet as we know it. If we lose herbaria, we lose our connection to that understanding, which is the underpinning of much of biology. Much is said about the existential nature of the biodiversity crisis, but too much is taken for granted about our connection to the understanding of biodiversity. That connection is fragile and needs to be constantly nurtured, and supporting herbaria is crucial in that regard.

What is the future of herbarium science?

The need for herbarium science is growing and I can't imagine that will change, as the importance of understanding botanical diversity in a world increasingly impacted by humans continues to grow and as more innovation increases the information that can be obtained from collections.

Do you have any closing advice for early career members?

Try to keep in touch with all of the things that you enjoy most about botany and plants in general, no matter what!

Figure 5: *Argyroxiphium sandwicense* subsp. *macrocephalum* (shown here), an iconic representative of the Hawaiian silversword alliance (Madieae, Compositae), a clade that Bruce and colleagues have studied evolutionarily since 1985.



Early Career Advice is a regular feature of *The Vasculum*. If you have questions you would like to ask or if there is someone you would like to see interviewed, please contact Nina M. House, past president of the Early Career Section (earlycareer@herbariumcurators.org). All photos in this article are credited to Susan Fawcett.



The Shirley C. Tucker Herbarium at Louisiana State University

Context

Sitting in a bend in the southern stretches of the Mississippi River in Baton Rouge, Louisiana and just a few minutes' walk from Louisiana State University's massive football stadium, the LSU Herbarium is the largest and most active herbarium in Louisiana. Comprising the Shirley C. Tucker Herbarium (LSU), the Bernard Lowy Mycological Herbarium (LSUM), and the Tulane University Herbarium (NO), the "LSU Herbarium" collectively houses more than 400,000 plant, fungi, lichen, and algae specimens. It is located on the second floor of the Life Sciences Building in a space that was tailor-made for it when the building was erected in 2001. It forms an important research and training core in the LSU Department of Biological Sciences within the College of Science, where we work closely with LSU's botanists, ecologists, plant pathologists, coastal studies scientists, and others to leverage the collections for research. The Herbarium is used in undergraduate research projects through STEM coursework and one-on-one mentorship. Beyond LSU, we collaborate with the United States Geological Survey, National Parks Service, United States Forest Service, and Louisiana Department of Wildlife and Fisheries to house a portion of the country and state's natural heritage specimens. This robust network helps to create an active herbarium community (Fig. 1).



Fig. 1. Views inside the Shirley C. Tucker Herbarium. A) Herbarium offices and specimen mounting and processing space. B) The compactorized herbarium room features workspaces for LSU botanists and visiting scientists with microscopes and computers. (Photo credits: Jennifer Kluse).

The LSU Herbarium is fortunate to be well-supported by LSU, including in staffing. There is a dedicated faculty line for Herbarium Director, currently held by Laura Lagomarsino, as well as a full-time Collections Manager, a position currently held by Jennifer Kluse. In addition, the Department supports one graduate student Curatorial Assistant during the academic year. NSF digitization and improvement grants over the past 15 consecutive years, along with endowment funds, have allowed for extra support staff and a rotating team of undergraduates and non-student Research Associates to accomplish digitization, curation, and research goals.

Additionally, a small but crucial set of affiliates and volunteers bring diverse skill sets to broaden the Herbarium's impact, including a professor emeritus, an affiliated Research Associate, and a volunteer member of the Louisiana Master Naturalist's program.

The LSU Herbarium acts as a hub of botany for the state of Louisiana. As part of this mission, LSU is committed to helping other Louisiana herbaria respond to institutional challenges. As a result, the Herbarium has more than doubled the size of its holdings within the last decade from 185,000 to 400,000 by incorporating full or partial collections from seven regional herbaria. Most notably, the 120,000 vascular plant specimens from Tulane University Herbarium (NO) are now on permanent loan to LSU, and 60,000 of the roughly half million specimens from University of Louisiana at Monroe Herbarium (NLU) are incorporated into LSU. The latter effort was completed in collaboration with the Botanical Research Institute of Texas (BRIT), who received the entirety of the NLU collection initially and subsequently pulled notable Louisiana specimens to repatriate, including specimens cited in the Louisiana Plant Atlas (Thomas and Allen 1993, 1996, 1998), Caddo Parish Flora (MacRoberts and MacRoberts 2006, MacRoberts et al. 2018), and an even taxonomic sampling across the state. In addition, the LSU Herbarium has incorporated specimens from LSU Shreveport (LSUS–partial), Tall Timbers Research Station (TTRS–partial: bryophytes only), Eglin Air Force Base in Florida, McNeese State University (MCN), and University of Louisiana at Lafayette (LAF–partial: a subset of bryophytes). In 2023 we completed the full physical and digital integration of these collections, supported by an NSF CSBR grant.

Simultaneous with this expansion, the Herbarium has also been transformed by a \$2 million endowment gifted by Dr. Shirley C. Tucker. Dr. Tucker began her career at LSU as a biology lecturer before rising through faculty ranks, eventually retiring as a Boyd Professor—an honorific that LSU reserves for their most internationally renowned researchers. With over 150 peer reviewed publications and as a former president of the Botanical Society of America and the American Society of Plant Taxonomists, Dr. Tucker leads an honorable legacy. While much of her career was focused on floral development, Dr. Tucker was passionate about lichens and is responsible for building LSU's nationally significant lichen collection. Even today, Dr. Tucker works tirelessly to curate this collection. On October 15, 2015, a ribbon cutting ceremony commemorated her contributions as a benefactor and scientist, and the LSU Herbarium was renamed in her honor. Her donation has supported LSU graduate student research and stipends, local collecting forays, and improvements to the Herbarium, as well as established the Tucker Endowed Chair in Plant Systematics, a position currently filled by Dr. Sarah Mathews. Dr. Tucker has generously supported many other herbaria, including those at the Santa Barbara Botanic Garden, University of California, Davis, and University of California, Berkeley. Her impressive academic achievements paired with her generous contributions bring pride and inspiration to a new generation of botanists and lichenologists from around the world (Fig. 2).

Composition of the Collections

The LSU Herbarium is composed of five broad taxonomic groups, each of which can be searched in their respective Symbiota portals (Gries et al. 2014): vascular plants (SERNEC), bryophytes (Bryophyte Portal), lichens (Lichen Portal), algae (Macroalgal Portal), and macrofungi (Mycportal). Vascular plants represent the bulk of the collections, numbering 313,369 specimens, and are especially rich in the Asteraceae, Cyperaceae, and Poaceae. The geographic scope of the vascular plants emphasize North America, especially the southeastern USA, with significant contributions from Central and South America; there are fewer collections from outside of the Americas. All specimens are accessible online though we continue to process approximately 15 cabinets of incoming material and older backlog. Complementing the dried and pressed vascular plant specimens, there is a spirit collection with 47 accessions (specimens stamped with the herbarium's logo and an accession number) digitized in SERNEC. Additionally, an unaccessioned seed collection fills an entire herbarium cabinet and includes wetland seeds of Louisiana recently donated by the United States Geological Survey. The lichenized fungi collections represent the largest of its kind in the Gulf South region, numbering 40,877

lichens. These collections, along with 10,036 bryophytes, were built and curated by Dr. Shirley C. Tucker. Santa Barbara Botanic Garden (SBBG), where Dr. Tucker relocated in her retirement from LSU, is the second most significant repository for her lichens. The geographic scope of lichens emphasizes North America and Australasia. Backlog includes ~1,000 unidentified lichens collected by Philip Barbour in 1979 and 1980 in Amazonas, Peru, which may prove to be hidden gems. An original LSU small algae collection (79 specimens) includes microalgae and macroalgae and is complemented by, and digitized apart from, the algae of Royal D. Suttikus (~1,200 sheets) that are associated with his extensive collection of fishes housed at the Tulane Biodiversity Research Institute (TUBRI). His mid-20th century seaweeds are collected from a wide range of localities, such as Isla Lobos de Afuera of Peru and rivers of the Gulf South states. Finally, the Bernard Lowy Mycological Herbarium (LSUM) is a collection of non-lichenized neotropical fungi built by Dr. Lowy that emphasizes such families as the Tremelliaceae and Auriculariaceae. Starting as a teaching collection for fungi of Louisiana, it grew to be recognized for its Amazonian fungi. It includes 18,364 accessions, with half identified to the species level.



Fig. 2. Ribbon cutting ceremony marking the renaming of the Herbarium in honor of Dr. Shirley C. Tucker after her significant and generous donation on October 15, 2015. Pictured left to right, with their titles at the time of the photo, are Herbarium Director Lowell Urbatsch, Senior Development Director for the College of Science Emi (Gilbert) Henry, College of Science Dean Cynthia Peterson, LSU Boyd Professor Emerita Shirley C. Tucker, LSU President F. King Alexander, and LSU Foundation Vice President for Development Ann Marie Marmande. (Photo by Jim Zietz, LSU Strategic Communication).

Research staff and students, along with botanists at the Louisiana Department of Wildlife and Fisheries, continue to grow the regional plant collections through field trips, gifts, and exchange, including forays in collaboration with BRIT. Due to interests of current LSU researchers, there has been a shift towards more tropical botany in the last decade, expanding tropical plant holdings through fieldwork in Australia, Colombia, Peru, and Costa Rica, and through generous gifts of duplicates from collaborating institutions, including the Missouri

Botanical Garden (MO) and the Royal Botanic Gardens, Kew (K). This has been complemented by hosting visiting botanists to curate relevant tropical collections, most recently Dr. Charlotte Taylor (MO). Additionally, loans from major institutions have provided essential material for asking broad questions beyond the scope of the Herbarium's holdings (Fig. 3).



Fig. 3. Tucker Herbarium botanists have a broad network of collaborators, including Dr. Charlotte Taylor, Curator at Missouri Botanical Garden, pictured here with members of the Lagomarsino Lab. Clockwise from top left: Olivia Degreenia, Shelby Oliveaux, Aislinn Mumford, Dr. Laura Lagomarsino, Laymon Ball, Charlotte Taylor, Janet Mansaray, Dr. Ana María Bedoya, Duangsamorn Boonwun Boyd, Diego Paredes-Burneo, and Katherin Arango-Gómez. (Photo credit: Jennifer Kluse).

Significant Collections

The period of largest growth for the LSU Herbarium was during Dr. Lowell Urbatsch's tenure as director (1975–2017). As an Asteraceae specialist and avid field botanist, Dr. Urbatsch and his students, along with field botany classes, collected broadly and steadily grew the collections, including his ~10,000 specimens. Several records were new and noteworthy to the state (Reid and Urbatsch 2012). A significant project during his tenure involved a collaboration with Margaret Stones, an established botanical illustrator for Kew's *Curtis's Botanical Magazine*, who exquisitely illustrated 220 Louisiana native plants while under contract by the Chancellor's Office of the University. These are published with plant descriptions by Dr. Urbatsch (Stones 2006). Margaret Stones worked closely with LSU Herbarium's botanists to collect plants and draw from freshly gathered material. While illustrations are archived by LSU Libraries Special Collections located in the Hill Memorial Library, field specimens are documented in the LSU Herbarium (Fig. 4).



Fig. 4. Margaret Stones was commissioned to illustrate native Louisiana plants, and became a part of the herbarium community during her stay in Baton Rouge. A) Margaret Stones (second from left) accompanies Florence Givens, Shirley Tucker, and Mary Ann Sternberg (LSU School of Mass Communications) during a collecting foray. (Photo credit: Lowell Urbatsch). B) A specimen of *Asclepias tuberosa* L. collected by Margaret Stones in 1982 (Credit: LSU Herbarium) and C) the final illustration of this species (Credit: LSU Libraries Special Collections, Reference: Stones 2006).

Dr. Shirley Tucker, who was contemporaneous with Dr. Urbatsch for much of her career, contributed over 400 vascular plants that serve as evidence of her research and interests in floral evolutionary development. Starting as an undergraduate at the University of Minnesota, she began to build her extensive lichen and bryophyte collections that are a true testament to her lifelong relationship with herbaria. These lichen specimens support checklists for California (Tucker 2014) and Louisiana (unpublished, annotated list by S.C. Tucker) and chart her budding interests as an undergraduate through her subsequent expertise and world travels.

Many other collectors add to the regional strength of the LSU Herbarium. Dr. R. Dale Thomas (NLU), conducted widespread parish flora inventories with his lab, amassing an herbarium of nearly 500,000 specimens. Dr. Charles Allen, a botanist affiliated with several of the state's institutions, contributed over 7,000 specimens to LSU alone, and remains iconic for nurturing the public's interest in Louisiana botany. His penciled asterisks on specimen labels denote voucher specimens for the Louisiana Plant Atlas Project that are found throughout the state's herbaria. Drs. Barbara and Michael MacRoberts (LSUS) collected as a team and transferred specimens of greatest conservation concern to LSU before retiring. Dr. Ray Neyland's interest in plant hybridization at McNeese State University (Lake Charles, Louisiana) led to an eclectic assortment of specimens, transferred from MCN to LSU before his early passing. Florence Givens was the Assistant Curator of the LSU Herbarium from 1980 to her premature death in 1990 from cancer. While her research included palynology, her 3,000 collections spanned ferns, flowering plants, mosses, and lichens. Dr. Christopher Reid, graduate of the Urbatsch Lab and former State Botanist, contributes significantly to the collections (7,000+ specimens) and regional field botany by training undergraduates, staff, and faculty alike through LSU's Renewable Natural Resources Department.

The Tulane University Herbarium (NO) is merged with the LSU Herbarium but retains its identity. Though its history has been well-documented (Bradburn and Darwin 1993), it's worth highlighting some of its collections.

Its last ties to Tulane University were through Dr. Steven Darwin, Curator and Rubiaceae specialist, and Anne Bradburn, Assistant Curator, both of whom collected plants, lovingly curated the collection, and arranged its transfer to LSU when divestment became imminent in 2016. Special collections include ethnobotanical studies of the Yucatan Peninsula, where scientific names determined by Bradburn are paired with their interpreted Mayan name (Kunow 1992). Dr. Joseph Ewan, former curator (1947–1977) and biographer of botanical explorers, with the steadfast assistance from his wife, Nesta Ewan, proves prominent in the collections. During his studies, he accumulated interesting gift and exchange materials, including an exsiccata set of Gray's grasses and sedges, nearly 800 Ynéz Mexía collections, and three vouchers from Captain Cook's first voyage. Ewan's own collections reflect his career path, with specimens of 1930s coastal California plants, 1940s Colorado montane flora, and types from several expeditions into the neotropics. Cultivated plants from the city of New Orleans are also found throughout the collection. Though most of Tulane's fungarium transferred to New York Botanical Garden (NY), over 300 of Dr. Aurthur Weldon's specimens are deposited in LSUM.

The earliest recorded Louisiana plant collections archived in-state were once part of the New Orleans' Academy of Sciences, and later Tulane University Herbarium (NO). Historic collections include those of Dr. William Carpenter who collected from the Feliciana Parishes in the 1840s, Dr. Josiah Hale from Alexandria whose collections began in 1835, Dr. Joseph Joor who collected in southern Louisiana and bordering states of Texas and Mississippi in the latter half of the 19th century, and Dr. John Riddell, who published the first in-state checklist of Louisiana plants (Riddell 1852) and collected in-state as early as 1836. The very first state flora, *Florula Ludoviciana*, was translated by C. S. Rafinesque from an earlier French publication of unvouchered travel observations by C. C. Robin (Rafinesque 1817). The earliest Louisiana state record in the Herbarium is an 1832 specimen of *Aletris farinosa* L. (Nartheciaceae) collected by Thomas Drummond in the greater New Orleans area, gifted through Ewan by the Natural History Museum (BM). Historic specimens collected in other parts of the United States (1840–1850s) include select specimens of Ferdinand Lindheimer, Charles Mohr, Charles Short, and Arthur Schott.

A Brief History

The LSU Herbarium was founded in 1869 by Americus Featherman, a professor of languages and the first instructor of botany at Louisiana State University. Featherman's *Report of Botanical Survey of South and Central Louisiana* is the state's most extensive early flora (Featherman 1871). His specimens document over 700 Louisiana plants collected between 1869 and 1872, following the Civil War. When his character was tested while responding to an errant fire which destroyed the first LSU campus, it was recorded that, "instead of saving his clothes and other possessions from the flames, he came out with his arms full of wildflowers" (LSU Archives 2015). A heroic act to which we can all aspire! During the instability of the Reconstruction period, Featherman left his unpaid position and returned to France, but his specimens still persist, including 10 types found within today's 516 type collection of vascular plants (LSU/NO) (Fig. 5).

Nearly a half century later, Brother Arsène Gustave Joseph Brouard botanized in Louisiana's hyperdiverse longleaf pine savanna as a French monk, teacher, and botanist at St. Paul's College in Covington, St. Tammany Parish, Louisiana. Of the nearly 900 LSU Herbarium specimens he collected from 1919 and 1922 that represent his brief time in this state, 60 are new state records. Though habitat loss has been especially profound in the Gulf Coast, several reserves in the region where Brother Arsène collected provide outdoor classrooms for undergraduate botany classes today.

Dr. Clair Brown, the first official director of the LSU Herbarium, worked to transfer the original collection of Americus Featherman's Louisiana plants from the state archives in the Cabildo Building in New Orleans to LSU during his tenure (1927–1969). His popular guidebook, *Wildflowers of Louisiana and Adjoining States* (Brown 1972), plus earlier publications *Fern and Fern Allies of Louisiana* (Brown and Correll 1942) and *Louisiana*

Trees and Shrubs (Brown 1957), and interest in varied topics of botanical research, from palynology to forestry science, helped position the LSU as a place for botanical studies. He contributed nearly 8,000 specimens to the Herbarium emphasizing woody plants and grasses, many significant to the state.

The Bernard Lowy Mycological Herbarium (LSUM) was founded in 1954 by Dr. Bernard Lowy. These collections represent neotropical higher fungi and contain 50 of Lowy's holotypes. During his tenure at LSU from 1951–1980, he conducted several expeditions to Mexico, Central America, and South America to study wood rot fungi and ethnomycology. Following his passing in 1992, his family established two funds in his name: the Bernard Lowy Mycological Herbarium and the Bernard Lowy Fund for Tropical Botany; the latter of which has hosted numerous LSU graduate students at Costa Rica's Organization for Tropical Studies (OTS) courses.



Fig. 5. Likely type material of *Jussiaea boydiana* Featherm. (= *Ludwigia peploides* var. *glabrescens* (Kunze) P.H. Raven) collected by Americus Featherman and deposited A) at LSU as a physical plant specimen (LSU00048490; Credit: Shirley C. Tucker Herbarium [LSU]) and B) at Harvard as an illustration (GH00054419; Credit: Gray Herbarium [GH]). While both specimens are attributed as “holotype” in annotation labels, neither original material studied nor an explicit type specimen is cited by Featherman in his original description and designation of a lectotype is needed for this name.

Dr. Meredith Blackwell served as the co-Director of the Herbarium and Curator of Fungi collections from 1993–2014. In addition to being an expert in fungus-arthropod associations, she is known for her influence in transforming the discipline of modern mycology (Spatafora et al. 2018). Today her collections reside at Gilbertson Mycological Herbarium (ARIZ) at the University of Arizona (Tucson, Arizona). Both Lowy and Blackwell have independent collections of correspondence and ephemera archived at the Hunt Institute for Botanical Documentation, complimenting material donated to the LSU Herbarium's Clair Brown Memorial Library.

Modernization and Digitization

Modernization of the Herbarium in the 1990s was spurred by several events, under the leadership of Dr. Urbatsch (Ferguson and Giddens 2009). In 1991, the Herbarium received a grant from the State of Louisiana to begin databasing the collections. A series of Associate Directors were hired to modernize the Herbarium, including Drs. Mark Mayfield, Tom Wendt, and Diane Ferguson. In 1992, the Clair Brown Memorial Endowment was established, providing the initial efforts to intentionally support the longevity of the Herbarium. Along with an increased staff and funding, the Herbarium relocated to a new facility in the Life Sciences Annex, completing a merge of disparate collections throughout the LSU campus in April 2001. From that time, LSU Herbarium aspired to become the premier collection of Louisiana and Gulf Coast plants and a resource of international importance.

Furthering this goal, an uninterrupted series of National Science Foundation awards to digitize and improve the collections began in 2009. CyberfloraLouisiana, with Dr. Tom Sasek (NLU) as principal investigator, created a framework for digitizing the state's vascular plant records, connecting the state's herbaria, and establishing LSU as the host for these digital specimen records. While the specifics of this framework have changed in recent years, digitization of the entire LSU Herbarium, which provides at least a skeletal data record and label photograph of every specimen, was completed in 2023. Data is live on Symbiota portals and regularly pushed to iDigBio and GBIF. Those who are interested and are computationally savvy can access LSU's current workflow pipeline, designed by former LSU graduate student Curatorial Assistant Dr. Genevieve Mount, on GitHub (<https://github.com/STHerbariumLSU>); code can be modified for any institution with a similar workflow. While the image workflow has proven robust over time, modifications to LSU's image workflow were conducted by a second former student Curatorial Assistant, Dr. Ben Toups, and guidance by Symbiota and former departmental IT staff, Eric Maxwell, has been key along the way (Fig. 6). The current staff work to curate, further digitize, and build the collections, maximizing the Herbarium as a resource for collections-based research worldwide.

Service and Outreach Activities

The Herbarium provides resourceful services and educational outreach activities. Among the first activities that we are aware of is from 1991, when the LSU Botany Club with herbarium affiliates, initiated "MicroKew Gardens", a mostly native garden once located behind the Life Sciences Building. The tall trees of *Ginkgo biloba* L. and *Diospyros virginiana* L. are still living today. A suspicious specimen of *Cannabis sativa* L. was collected from the gardens by the "MicroKew watchdogs" and vouchered in the Herbarium in 1995. Subsequently in the early 2000s, Dr. Urbatsch and his students taught a summer intensive wetland plants course that was popular with consultants working along the Louisiana coast. More recently, outreach activities have catered to communities living in parishes around Baton Rouge, encompassing all age ranges, and intentionally includes under-represented groups.

The Herbarium regularly gives tours of its collections to college classes, K-12 students, and the public. Tours take place within the facility, in classrooms, or outdoors. Some of these are reciprocal; after giving a tour of fiber plants, our staff and students have been invited to LSU's Papermaking and Printmaking studio to make



Fig. 6. Contributors to CyberFlora Louisiana, the first natural history digitization effort in the state and one of the first funded nationally. A 2007 photo of the people and their affiliation, named left to right; back row: unknown, Lowell Urbatsch (LSU), Barbara McRoberts (LSUS), Debra Clifton (LAF), Anne Bradburn (NO), unknown, Thomas Sasek (NLU), unknown, middle row: unknown, Michael MacRoberts (LSUS), Rick Miller (SELU), Dennis Bell (NLU), Diane Ferguson (LSU), Glenn Montz (SELU), Alex Lasseigne (THIB), first row: Garrie Landry (LAF) and Meredith Blackwell (LSU). (Photo credit: Garrie Landry).

paper from mulberry or blue jeans. School outreach events include Kids Day at the Museum, middle school science fair project mentoring, elementary botany lessons, and high school Environmental Club tours. Public events include invited talks, LSU Night Out at the Museum, a table at BioBlitz hosted by the Recreation and Park Commission for the Parish of East Baton Rouge (BREC), and participation in WeDigBio events. Through these outreach events, we have worked to increase plant science literacy in our local community, while indirectly gaining visibility and a volunteer base.

The Herbarium serves as a touchstone for a host of other activities that build LSU's botany program and strengthen partnerships within the herbarium community. A lecture series begun in 2017 brings world-renowned botanists to LSU. A museum display case rotates annual displays at the Herbarium's entrance, engaging undergraduates that wish to explore certain topics. Weekly plant identification (ID) activities fortify graduate student skills and set aside time to focus on the backlog. Each of these are voluntary, occurring on Tuesday evenings (Tropical Plant ID) and Friday afternoons (Plant ID Fridays) during the academic year. The Herbarium's website hosts matrix keys for the identification of some of the trickier genera: grasses, sedges, and asters of North America (<https://www.lsu.edu/herbarium/resources/flora-louisiana.php>). These keys were developed by Dr. Tim Jones with additional contributions by Drs. Diane Ferguson, Chris Reid, and Lowell Urbatsch, and occasionally provide a new release. Finally, participation in the Southeastern Chapter for the Society of Herbar-

ium Curators, the Botanical Society of America, and other scientific organizations helps to keep us informed and connected (Fig. 7).

In conclusion, the Shirley C. Tucker Herbarium at LSU aspires to support a world-class botany program and facilitate access to specimens for researchers in education around the world. We work to grow the collections and strengthen the herbarium community. We're excited to be caretakers of these natural wonders and invite you to visit online or in person.



Fig. 7. The LSU has a museum display case with rotating exhibits curated by students and staff, including this one on longleaf pine savannah ecology by former undergrad Olivia Degreenia. (Photo credit: Jennifer Kluse).

Acknowledgment

The authors express gratitude to Lowell Urbatsch for reviewing the manuscript for accuracy.

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The Emory University Herbarium

Celebrating 75 Years of the Emory University Herbarium

In 2024, the Emory Herbarium (GEO) marks 75 years of contributing to botanical research and education. Founded in 1949 by Professor William D. Burbanck, the then-chair of the Biology Department, the herbarium has become a cornerstone of botanical studies.

Historical Growth and Development

The Emory Herbarium flourished under the leadership of Professor Burbanck, adding voucher specimens from Dr. Don E. Eyles' 1938 master's work and Robert Thorne's Flora Collection. Dr. Madeline Burbanck made significant contributions, collecting over 12,000 specimens and leading key community outreach projects, including the establishment of Burbanck Park and the designation of Arabia Mountain as a National Heritage Area.

From 1966 to 1982, under Professor William H. Murdy's direction, the herbarium continued to expand, contributing to environmental and botanical efforts. Subsequent curators, including Professor Judith Morgan and Dr. Brian Smith, maintained a robust loan program to support further research.

In 2012, Dr. Cassandra Quave undertook a major revitalization of the Emory Herbarium, emphasizing the importance of medical botany and the digitization of the collection to improve public access and preserve valuable historical specimens. Under Dr. Quave's leadership, the herbarium was meticulously restored after a period of dormancy. She spearheaded numerous collection expeditions across Georgia, other states, and internationally, significantly accelerating the growth of the collection. Dr. Thara Samarakoon, who joined as Collection Manager in 2015, played a crucial role in this transformation. The entire collection underwent comprehensive repairs, remounting, and identification, elevating the herbarium's status as a recognized institution. Through the combined efforts of Dr. Quave's visionary leadership and Dr. Samarakoon's diligent management, the herbarium has strengthened its ties with the university and the broader community, enhancing its outreach activities and expanding its impact.

Mission and Vision

Today, the Emory Herbarium's mission is to serve as a vital botanical research and educational resource for both the Emory and global communities. It aims to foster education and understanding of the human-nature interface by collecting, preserving, researching, and exhibiting botanical specimens and ethnobotanical objects.



Collections and Digitalization

The Emory Herbarium boasts an extensive and diverse collection of approximately 21,000 vascular plants, 250 bryophytes, and 1,500 lichens and fungi. These specimens primarily originate from Georgia, with additional contributions from other states and countries. The entire collection is fully databased, with all specimens imaged and included in four consortia: Plants, Bryophytes, Lichen, and Fungi. This comprehensive digital cataloging enhances both the accessibility and the research value of the herbarium's holdings.

In addition to its general collection, the Emory Herbarium houses several unique special collections that significantly enrich its scientific and educational value. These include the Thorne Collection, the Medical Botany Collection, the Granite Outcrop Collection, the Don Eyles Collection, and the Southern Appalachian Collection. These specialized collections underscore the herbarium's commitment to preserving a wide range of botanical diversity and supporting various research endeavors.

Research Contributions

The Emory Herbarium plays a crucial role in both environmental and biomedical research, contributing significantly to various scientific studies and conservation efforts. Its extensive collection of granite outcrop specimens has been instrumental in recognizing Arabia Mountain as a National Heritage Site. The historic data on Southeastern plants provided by the herbarium supports a range of research, including climatic studies, pollinator studies, and phenology studies, offering valuable insights into the region's ecological dynamics. Additionally, the herbarium fosters the integration of indigenous science, enriching our understanding of traditional medicinal knowledge.

In the biomedical field, the herbarium's Medical Botany Collection is particularly vital. This specialized collection serves as an essential resource for plant-based drug discovery, aiding researchers in the development of new medicinal compounds and therapies. The focus on medical botany has enabled significant advancements in identifying and utilizing plants for therapeutic purposes, highlighting the herbarium's impact on health-related research.

Future Initiatives

Looking ahead, the Emory Herbarium aims to document and monitor plants used in research, medicinal plants for drug discovery, poisonous plants for medical professionals, wild food plants for food security studies, economically important plants for educational outreach, and endangered species for conservation efforts. Through these initiatives, the Emory Herbarium continues to support local and international scientific communities, ensuring its role as a dynamic and essential institution.

Community Outreach and Education

The Emory Herbarium is a dynamic center for research and education, drawing Emory students and researchers into the fields of medicinal, taxonomical, and ecological studies. It serves as both a botanical resource and an educational center, fostering a deep understanding of the intricate connections between humans and nature. Students immerse themselves in hands-on learning with the herbarium's extensive collection of botanical specimens. Undergraduate volunteers and research students, along with high school participants, work alongside seasoned researchers, gaining invaluable experience. The herbarium also plays a crucial role in training physicians to identify poisonous plants, underscoring its importance in medical education.

Community outreach is a key part of the herbarium's mission. Collaborating with local schools, museums, and science festivals, the herbarium brings the wonder of botany to life for diverse audiences. From engaging STEM outreach programs and teacher training sessions to interactive workshops and public science events, the Emory Herbarium actively connects with the broader Atlanta community. These dynamic initiatives not only

highlight the herbarium's commitment to education and research but also its dedication to inspiring a love for plants and nature in people of all ages. As the Emory Herbarium celebrates its 75th anniversary, it remains dedicated to advancing botanical research, fostering education, and enhancing community engagement, ensuring its legacy will continue to grow for many years to come.



Fig. 1. Dr. Cassandra Quave (Curator; left) pressing plants during a plant collection expedition at Ichauway Plantation (Newton, Georgia).

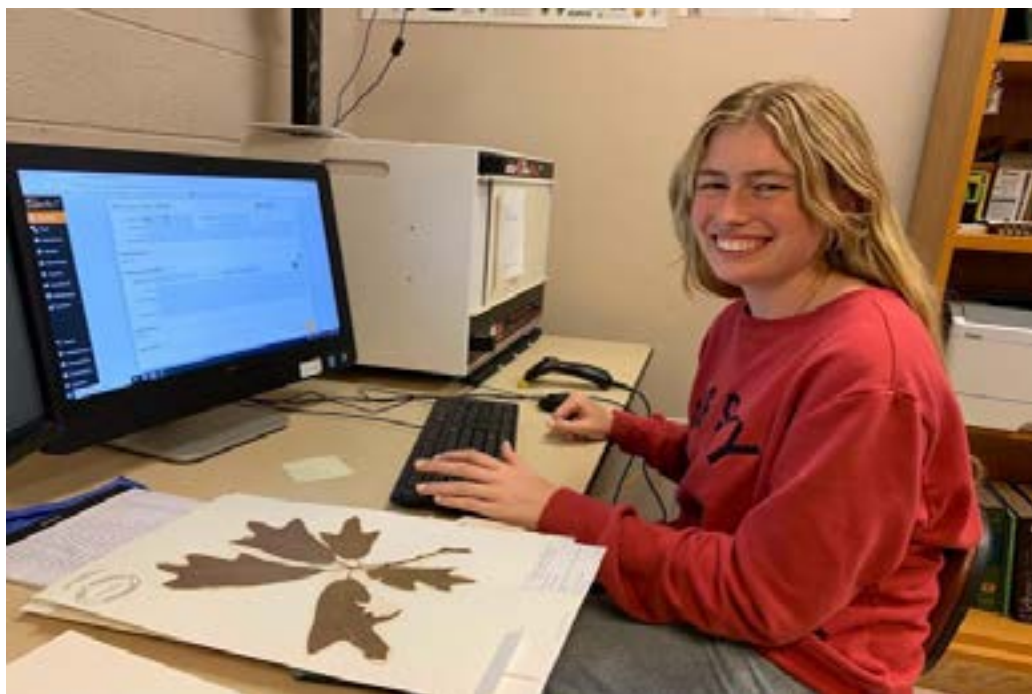


Fig. 2. Herbarium research student Nell Cox databasing plant specimens.



Fig 3. Herbarium Collections Manager Dr. Thara Samarakoon with students during an expedition to collect aquatic plants. In the background is a pond of yellow lotus (*Nelumbo lutea* Willd.; Nelumbonaceae).



Fig 4. Well-preserved and beautiful GEO specimens.

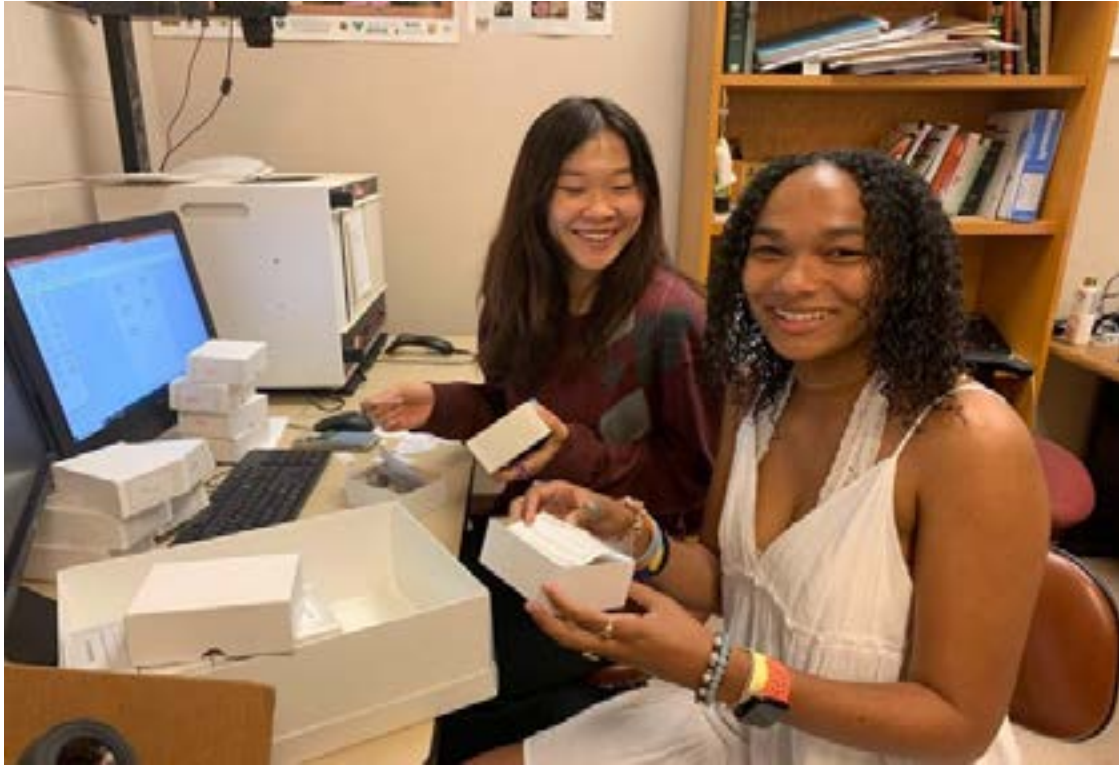


Fig 5. Herbarium volunteer students Monica Duan and Christina Stearns labeling fungi specimen boxes.



Fig 6. Plant taxonomy workshop at Oak Grove Elementary,. At the end of the event, 5th graders mounted miniature herbarium specimens as keepsakes.

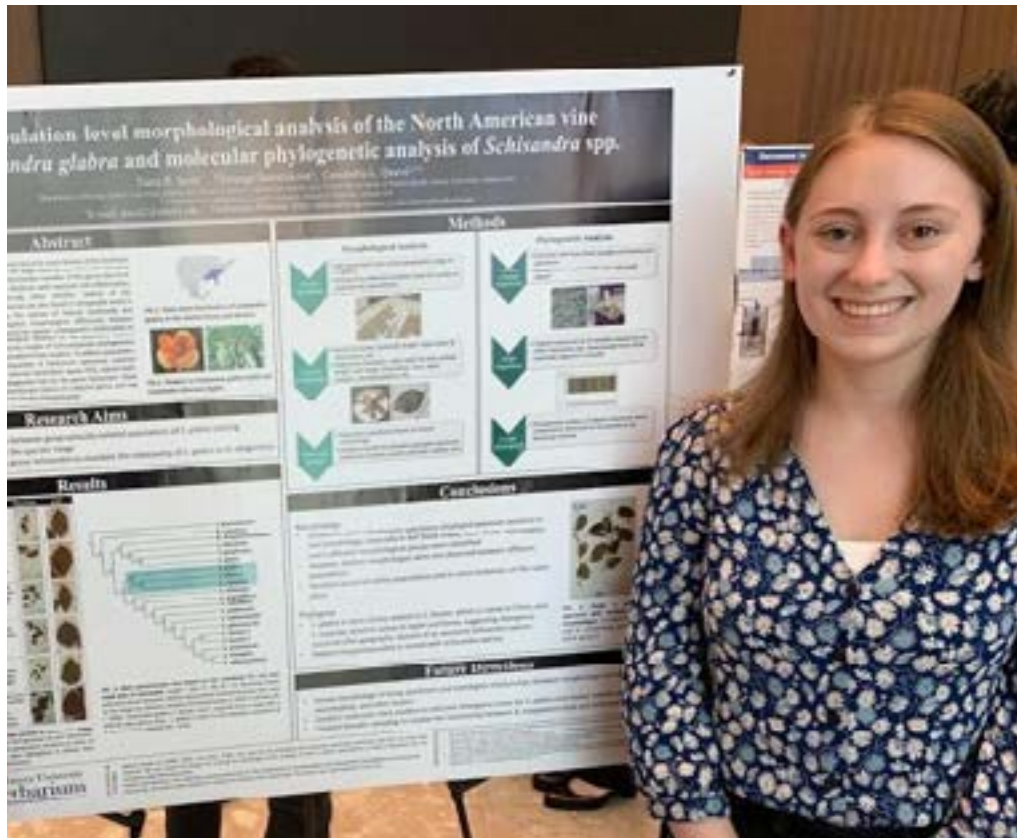


Fig 7. Emory Herbarium research student Tiana Scott presenting phylogenetic analysis of *Schisandra* spp. (Schisandraceae) at the undergraduate research symposium.



Fig 8. Emory Herbarium research student Matt Menkart explaining poisonous plant specimens at Kittredge Magnet School (Atlanta, Georgia) Science Night.



Fig 9. Current Curator, Dr. Cassandra Quave

Tharanga Samarakoon*, Collections Manager,
Emory University Herbarium, U.S.A

*All photos in this article are credited to the author except figure 3, for which the credit is unknown



Society of Herbarium Curators Worldwide Herbarium Carmen L. Cristóbal (CTES): History, current state of its collection, and outreach activities

Welcome to the column where we highlight various projects accomplished by SHC members from across the globe. We are thankful to Manuel Luján at the Royal Botanic Gardens, Kew (UK) for arranging this article.

History: The “Carmen L. Cristóbal” Herbarium began in 1964 when Dr. Carmen L. Cristóbal and Eng. Antonio Krapovickas, researchers of the National Council of Scientific and Technical Research (CONICET), arrived in the city of Corrientes (Corrientes, Argentina) to work as professors at the Faculty of Agricultural Sciences of the National University of the Northeast (UNNE). From that moment on, both of them, in addition to their teaching and research work, were surrounded by disciples whom they initiated into research. They also began to make collections in Corrientes and neighboring regions, thus generating the herbarium, which over the years grew not only through their collections but also through the exchange of specimens, a program established with herbaria in Argentina and other countries of the world. In 1969 the herbarium was registered in the Index Herbariorum and adopted the code CTES, which identifies it internationally. The herbarium is part of the Instituto de Botánica del Nordeste (IBONE), a research center founded by Eng. Krapovickas, dependent on CONICET and the UNNE.

Collections: The CTES herbarium currently has more than 486,000 specimens of vascular plants, among which there are 2,722 type specimens; about 45,000 samples of lichens, around 10,000 non-lichenized fungi, and nearly 2,500 mosses and liverworts. The lichen collection is the most important in Argentina. Part of the personal collection of Eng. Krapovickas was the basis of the herbarium, which later incorporated other important collections such as those of Don Augusto Schulz, Eng. Romeo Carnevali, and Dr. Troels Myndel Pedersen. The last collection documents the Floristic Inventory of the Mburucuyá National Park made by Dr. Pedersen himself, before handing over the property to the National Parks Administration (APN); it also contains numerous specimens collected in other places of Argentina, America, or Europe, most of them identified by Pedersen or other specialists.

The herbarium is the basis of several research programs; it is a permanent source of information and consultation. In the CTES herbarium are kept the voucher specimens of taxonomic, floristic, genetic, phytotechnical, morpho-anatomical, and palynological studies carried out by the scientific-technical staff of IBONE and other institutions. Examples include the works such as *Flora del Iberá* (wetlands of the Corrientes province, Argentina) and *Flora Polínica del Nordeste Argentino*, and numerous other publications produced by IBONE members.

The collection of vascular plants is particularly rich in families such as Gramineae, Compositae, Leguminosae,

Malvaceae, Rubiaceae, Sapindaceae, Sterculiaceae, and Turneraceae, because specialists in these groups were part of the IBONE research team, and some disciples of these taxonomists are currently working at CTES. Many type specimens conserved at CTES come from specimens received as gifts for identification by specialists, as well as from collections financed by CONICET, FONCYT (National Agency of Scientific and Technological Promotion), UNNE, and international projects, such as CAPFTA (Advisory Commission for Agricultural Technology Development), CGIAR (Consultative Group for International Agricultural Research), European Community, FAO (Food and Agriculture Organization), Carolina Foundation, IBPGR (International Board for Plant Genetic Resources), USDA (United States Department of Agriculture), National Geographic Society, Myndel Botanica Foundation, among others.

Digital Collections: The digitization of the type specimens was initiated through the LAPI (Latin American Plants Initiative) project, a program funded by the Andrew W. Mellon Foundation. The high-resolution images are published online in JSTOR Global Plants and are accessible and open to the community. It should be noted that IBONE continues to digitize type specimens.

The SNDB (National Biological Data System) also contributed to the digitization of the specimens. As of 2021, the CTES herbarium implemented its system for processing biological collections, which can be accessed by following the link: <http://ibone.unne.edu.ar/herbariovirtual/>. Currently, more than 140,000 specimens are databased, belonging to the general herbarium, the Pedersen herbarium, and type specimens. GBIF (Global Biodiversity Information Facility) contains more than 12,000 records of collections from the CTES herbarium. The work of digitizing the information contained in the labels of the herbarium specimens is carried out on a permanent basis, sometimes with the collaboration of interns. We hope in the future to complement the digital records with the images of the corresponding specimens.

Other Herbarium activities: Through the Extension Project of the UNNE, different research groups of the IBONE held temporary exhibitions at the “Amado Bonpland” Museum of Natural Sciences in the city of Corrientes, during the last few years. The CTES herbarium had its space with an exhibition of “Samples from the CTES Herbarium” during the second half of the year 2022, to showcase the type of samples that are kept in the herbarium and fundamentally to make visible the botanical institution that documents the regional flora. A temporary exhibition was conducted in 2023, which included the display of various samples of fungi and lichens.

The CTES herbarium also conducts training courses on “Collection, herborization, and registration of botanical specimens” for university students, postgraduate fellows, researchers, and others who need to prepare research specimens and deposit them into the CTES herbarium for conservation. Similar training was given to members of an inter-institutional project between INTA (National Institute of Agricultural Technology) and APN. The purpose of the project is to collect specimens that document the flora of the Chaco National Park (Chaco province); this material will be conserved in herbariums in the region: CTES and SPHU (Herbarium of the Universidad Nacional del Chaco Austral).

The CTES herbarium is open to the public from February to December, and people or institutions interested in visiting it can contact us and arrange a visit in advance. During the year 2023, students from secondary schools visited the herbarium, where students and teachers were able to visit part of the herbarium's rooms. In this way, the function of an herbarium, the biological diversity it documents, and the value of the preserved collections are explained. During the tour, students can talk to those who work there every day, technical staff of the herbarium, and researchers of the IBONE taxonomy area, observe specimens of different botanical groups, and achieve real knowledge about the importance of the herbarium in knowledge of the flora.

VIII International Rubiaceae and Gentianales Conferences: The staff of the Herbarium organized the VIII International Rubiaceae and Gentianales Conference in October 2023. The previous conference was held in Copenhagen, Denmark, in 2017, and the main organisers have accepted the responsibility of hosting this conference in Argentina for the first time. The organisers belong to the Rubiaceae and Apocynaceae Research Group, which represents an almost 60-year tradition of studying the Gentianales.

The first meeting was held by the Missouri Botanical Garden in St. Louis, USA, in 1993 (I International Rubiaceae Conference), which brought together researchers of Paleotropical and Neotropical groups for the first time. The following meetings were hosted by: II) the National Botanic Garden, Meise, Belgium, in 1995; III) by the Katholieke Universiteit Leuven and the National Botanic Garden of Belgium, in Leuven, Belgium, in 2006; IV) the Instituto de Biología and the Instituto de Ecología A.C., both associated with the Universidad Autónoma de México (UNAM), in Xalapa, Veracruz, Mexico, in 2008; V) the Royal Swedish Academy of Sciences and the Stockholm University, in Stockholm, Sweden, in 2010; VI) by four universities in the northeast of Brazil, Salvador, Bahia, Brazil, in 2014; VII) by the the Statens Naturhistoriske Museum, in Copenhagen, Denmark, in 2017. During this conference, the Instituto de Botánica del Nordeste (IBONE), Argentina, was selected to organize the next event, the VIII International Rubiaceae and Gentianales Conference, after almost five years since the last meeting.

The organizers chose the Club del Río Hotel in the Jesuit town of San Ignacio, Misiones, Argentina, to host the conferences. The beautiful landscape, with its savannahs, forests, and the Paraná River, was the perfect natural setting to share the latest findings on Gentianales. The event provided an opportunity for constructive debates, the exchange of original ideas, and the initiation or strengthening of international collaborations. The conference program consisted of three days of presentations, followed by a one-day excursion to explore the landscapes and flora of Misiones.

In this meeting, we gathered almost 80 Gentianales specialists working in America (Argentina, Bolivia, Brazil, Ecuador, Peru, and the United States) and Europe (Belgium, France, Germany, Sweden, and the United Kingdom). More than half of the works included here deal with phylogenetic inquiries at various levels using molecular data, including whole genome sequencing methods. These phylogenetic analyses serve as foundational frameworks for exploring morphological evolution and biogeography in select investigations. Morphology, anatomy, and palynology are also used for delineating taxa. Taxonomic and floristic studies were also represented. The participation of both young and experienced researchers working on the Gentianales represents a continuity for other organisations.

As part of these conferences, a warm tribute was also paid to Dr. Elsa Leonor Cabral for her extensive and productive career in Neotropical Rubiaceae. Her legacy in establishing the current Rubiaceae research group at the Corrientes Herbarium and her tireless work in teaching botany at the Universidad Nacional del Nordeste were also highlighted.

We look forward to the next conferences in Belgium in 2026, which will be organized by the Meise Botanic Garden .



Fig. 1. View of the CTES herbarium collection room. B: Metal cabinets where specimens of vascular plants are kept. C: Troels M. Pedersen collection arranged in original wooden cabinets (where Dr. Pedersen kept them). D: Lichen specimens preserved in paper envelopes, arranged in wooden boxes inside metal cabinets (A-C: Photo credit: María M. Arbo y D: Andrea Michlig).



Fig. 2. Visit of high school students and teachers to the CTES herbarium (Photo credit: Myriam C. Peichoto).



Fig. 3. Training on herborization of plant samples for conservation, carried out by CTES herbarium staff (Photo credit: A-Mariela Nuñez Florentín y B- Myriam C. Peichoto).



Fig. 4. Exhibition at the Amado Bonpland Museum (city of Corrientes) on Fungi by the IBONE Mycology group (Photo credit: Mycology Group from IBONE).



Fig. 5. Members of IBONE, Taxonomy Area, in charge of organizing the VIII International Rubiaceae and Gentianales Conference (Photo credit: Roberto Salas).



Fig. Participants of the VIII International Rubiaceae and Gentianales Conference (Photo credit: Roberto Salas).

Dr. Myriam C. Peichoto, Curator and Researcher
 Dr. Roberto M. Salas, Researcher
 The Carmen L. Cristóbal Herbarium, Argentina

**If you would like to be interviewed for a future column, please get in touch with us via
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Join or Renew your membership today! Our growing Society currently has over 475 members from more than 55 countries. We also offer complimentary membership for colleagues in developing countries; this initiative supports inclusivity and broadens the international diversity of our membership.

We also encourage our members to donate to The Society to support our General Fund, our Student Research Grant Fund, or our nascent Endowment. As we grow our student research funding, it is our goal to increase award amounts, the number of awards granted, and to diversify grantees, all while supporting innovative research that benefits herbaria.

Cover Photo: (Top) Bruce Baldwin collecting a summer-flowering tarweed, *Holocarpha obconica*, in California's eastern San Francisco Bay Area, Alameda Co., August 2019; (Bottom) *Argyroxiphium sandwicense* subsp. *macrocephalum*; Photo credit: Susan Fawcett. For details please see the 'Early Career Advice' section.



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