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## Featured Herbarium: BUT—The Friesner Herbarium of Butler University

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## Featured Herbarium: BUT - The Friesner Herbarium of Butler University

Butler University is a private, primarily undergraduate liberal arts school located in Indianapolis, Indiana, USA. Butler was founded in 1855 by attorney and abolitionist Ovid Butler. From the beginning, women and minority members were admitted on an equal basis with white males. Current enrollment is 4,800 students. Butler's 300-acre park-like campus is located five miles from downtown Indianapolis.

Butler's Friesner Herbarium (BUT) is housed in the Biology Department, a unit of the College of Liberal Arts and Sciences. Staff are a full-time salaried director (Rebecca Dolan, for 30 years) and a part-time technology assistant (Marcia Moore, for 21 years). Located in room 72 of Gallahue Science Hall, BUT occupies 900 ft<sup>2</sup> on the garden level (=basement). We have three rooms. One for staff, student, and visitor work space, one for cabinets, and a small adjacent room for miscellaneous collections, mounting, and imaging. Wireless and hard-wired internet connections are available, along with botany reference books with a focus on Indiana flora and a dissecting microscope on a boom arm to examine mounted specimens.

Accession books were lost decades ago before current staff started. We estimate BUT is comprised of over 100,000 primarily vascular plant specimens, about 40% collected in Indiana. BUT is largely a legacy collection. Donations of new specimens are accepted, primarily of new state records, including invasive non-native species, and vouchers of site-based plant inventories. We have accepted small orphan collections, including several thousand sheets from St. Meinrad College's Henrietta Herbarium, focused primarily on plants of southern Indiana. Some Indiana collections, including specimens collected in the 1880s by John Coulter, were repatriated at BUT after the herbaria of Wabash College (WAB) and DePauw University (DPU) were given to the New York Botanical Garden (NY) in the early 1990s.

**Establishment and History** - The Botany Department of Butler University started in 1919 with the hiring of Ray C. Friesner (1984-1952; B.A. Ohio Wesleyan University, Ph.D. University of Michigan) as Chair (Fig. 1). He was an avid collector and exchanger, recognized as an excellent teacher and mentor. Students enthusiastically signed up for his classes, which had Saturday morning labs and field trips (Fig. 2). His collection books detail over 50,000 specimens. He was a contemporary of Charles Deam, author of the last comprehensive manual of the flora of Indiana, published in 1940. Deam determined identifications for many specimens at BUT. Friesner died of a heart attack in his late 50s after taking on the job of Dean of the College (message = don't give up

field work). The former "Butler Herbarium" was rededicated and renamed to honor Friesner in 1987.



Figure 1 - Ray Friesner in the field with his vasculum. Undated.

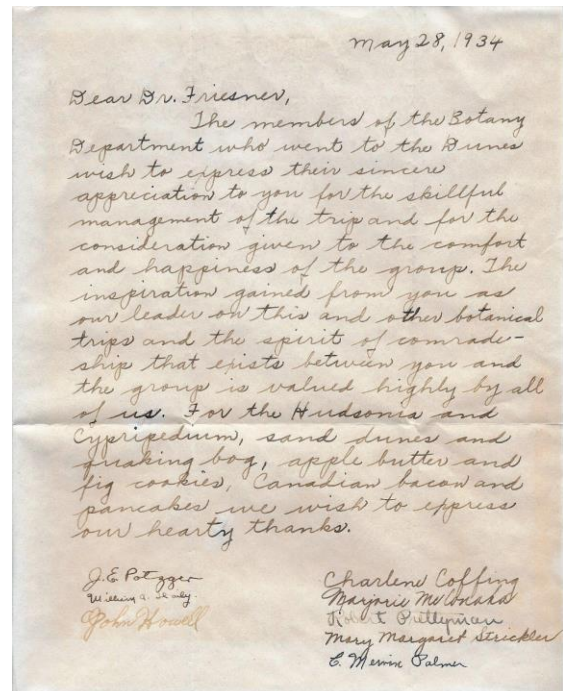


Figure 2 - Thank you letter to Friesner after field trip to the Indiana dunes on Lake Michigan.

From its earliest days, Butler botany was focused on community ecology, “phytosociology.” Researchers were mostly interested in species distributions and associations, focusing on flora of the state (Fig. 3). Butler had a very active master’s degree program in the 1930s-1950s. Prominent faculty and students included Stanley Cain, John Potzger, Willard Nelson Clute, Rex Daubenmire, and Dwight Billings. Details of early Butler botany have been published in *Brittonia* (Dolan 1991), including a list of botanists with whom Friesner exchanged specimens. John Pelton and Willard Yates served as BUT curators in the 1960s through mid-1980s.



Figure 3 - Butler University Plant Ecology class field trip to local natural area Bacon’s Swamp in 1928. Photo provided by Rex Daubenmire, second on the right.

**Butler University Botanical Studies journal -**  
<http://digitalcommons.butler.edu/botanical/>.

The *Butler University Botanical Studies (BUBS)* journal was published by the Botany Department from 1929 to 1964. The scientific journal featured original papers primarily on plant ecology, taxonomy, and microbiology. The papers contain valuable historical studies, especially floristic surveys that document Indiana’s vegetation in past decades. Authors were Butler faculty, current and former master’s degree students and undergraduates, and other Indiana botanists. The journal was started by Cain, and edited through most of its years of production by Friesner. It was distributed to learned societies and libraries through exchange. Requests for use of materials, especially figures and tables for use in ecology text books, from *BUBS* continue to be granted. *BUBS* is available digitally at the above address and through JSTOR and the Biodiversity Heritage Library at Harvard. A complete index to the journal was compiled by Dolan (1992). Hardcopy original reprints of most articles are available by request.

**Recent activities**

**Digitization and imaging** - Starting about 20 years ago, herbarium assistant Marcia Moore created a Paradox database to hold label metadata and we began capturing information from our Indiana specimens. Ten years of hourly wage student data entry into controlled vocabu-

lary fields later, we had completed the effort. We mobilized our data to the web, with the help of the Dean of Libraries and a metadata librarian at Butler University Libraries, and the Friesner Herbarium Digital Collection was created (FHDC; [palni.contentdm.oclc.org/cdm/landingpage/collection/herbarium4](http://palni.contentdm.oclc.org/cdm/landingpage/collection/herbarium4)). We received funding totaling \$56,282 from 2009-12 from the Institute of Museum and Library Services, under the provisions of the Library Services and Technology Act, administered by the Indiana State Library. The collection can also be accessed through the [Indiana Memory](#) site of the Indiana State Library and the [Digital Public Library of America](#). We began by imaging specimens from the largest plant families in Indiana, making them and the associated metadata of all our Indiana holdings searchable on the web as a special collection of the Butler University Libraries, using the internet content management system, CONTENTdm, as the management software. Imaging was outsourced to the IUPUI University Libraries because they had equipment and staff to handle to work.

BUT has recently been part of two NSF-funded TCNS. We contributed ca. 5,000 specimens to the macroalgae TCN. We recently completed imaging ca 14,000 specimens for the aquatic invasives TCN using an imaging station loaned from the University of Wisconsin (Fig. 4). Success using that equipment in-house gave us confidence to continue imaging with student assistants on our own. We purchased a customized imaging station based on a model developed by Deam Herbarium staff at Indiana University, sharing the cost with our library. They have 3-dimensional materials in their special collections that they wish to image. Using monies from our gift and endowment funds, we plan on completing our imaging of Indiana sheets by June of 2018 (Fig. 5).



Figure 4 - Student Rachel Terheide working at imaging station loaned by University of Wisconsin for Invasives TCN.



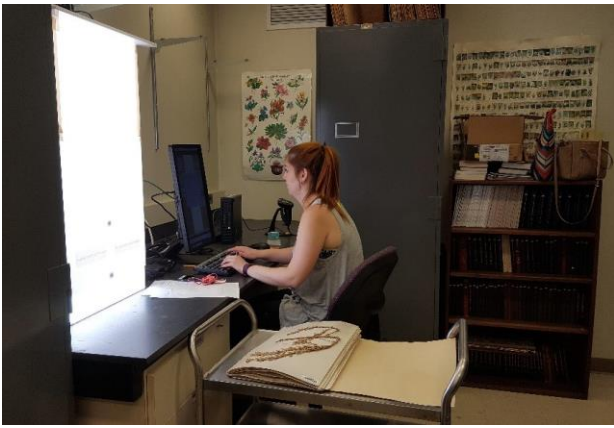


Figure 5 - Student Jacqueline Juett working at the new image station.

**Herbarium Website** - [www.butler.edu/herbarium](http://www.butler.edu/herbarium). The website for BUT is managed by Marcia Moore. Over the years, she worked to make the site an outreach tool for the University and an avenue for informal botany education. Photos of spring wildflowers, prairie plants, and trees of the Butler campus are featured, along with identification tips. In 2016, the site had over 4,400 unique visitors.

**Indiana Plant Atlas (IPA)** - <http://www.indiana.plantatlas.usf.edu/>.

In 2012, Dolan received an Innovation Fund grant of \$20,000 from Butler University to create an online atlas of the Indiana flora. This project was also supported financially by the Indiana Academy of Science and the Indiana Native Plant and Wildflower Society. Using a customized template designed by the staff of the University of South Florida already in use in Florida, New York and Alabama, we launched the Indiana Plant Atlas in 2016. The Atlas uses our plant images and metadata, displaying county-level distribution maps. It has links to specimen images from the FHDC and to *in situ* photos of live plants taken by Indiana photographers, most of whom are amateur botanists, along with additional information about each species. We plan to add Indiana records from other in-state herbaria as they become available digitally and hope to include records of Indiana plants in out-of-state herbaria from Symbiota in the future, to make the atlas as comprehensive as possible.

**Endowment and Gift Funds** - BUT has a small operating budget provided by the college. The Friesner Herbarium also has an endowment that generates about \$12,000 a year for general support of operations. The fund began with a \$100,000 estate gift from Ray Friesner's widow Gladys in the 1990s. Two alumnae subsequently made large estate gifts. All three lived to be 100 years old or more, reflecting the many benefits of a lifetime enjoyment of botany. The endowment funds

student assistants, technology improvements, and additional salary for staff. We also have a gift fund that receives smaller donations that supports special purchases like volumes of FNA.

**Public Relations and Outreach** - Every year we produce an annual report summarizing all activity in the Herbarium. This includes loans and inquiries, calls from the public, formal and informal presentations, publications citing BUT, student worker activities, materials used in Butler classes, etc. This has proved to be a great institutional memory resource. Copies are shared with administrators, donors, and members of the University Advancement Department staff.

We have hosted an Annual Open House and Special Lecture for 29 years. Speakers usually are local and talk on local botanical natural history, but have included Butler graduates speaking on their research. The lecture is attended by students and staff. For the lunch we invite members of the community, including local agency personnel, not-for-profit staff, academics, alumni, emeriti, and members of the Indiana Native Plant and Wildflower Society. Herbarium tours follow each year's talk.

We also organize an annual garlic mustard pull in the Butler Woods, a 5-acre older-growth beech-maple woods remnant on the campus. Students from botany classes, both majors and non-majors work for a few hours on a Sunday around Earth Day on hands-on environmental stewardship and then share a lunch. For many years BUT also had monthly informal interpretive natural walks open to faculty, students, staff and guests. Dolan led the walks. We visited all parts of the campus to see what was going on, botanically speaking, throughout the year. We maintain a campus tree walk, with accompanying brochure and web info. Dolan teaches an upper-division elective Local Flora class every-other spring.

The Director of BUT also manages the Butler Prairie, a 3-acre planted prairie demonstration on campus that is used as an outdoor lab. We produce and update a brochure on the prairie, thought to be the oldest prairie reconstruction in Indiana. Herbarium staff have led successful efforts to have the campus recognized as a Tree Campus USA and to be certified by the Indiana Wildlife Federation as a Sustainably Landscaped campus. Rebecca sits on the campus Greenspace Committee.

In recent years, the herbarium has partnered with Butler's Center for Urban Ecology on plant-related projects, including inventories of city parks, an urban BioBlitz in 2016, and quantitative vegetation analysis of ecological restoration projects. These projects have resulted in twelve recent peer-reviewed journal articles, including one comparing the historical flora of Indianapolis with its current flora based on herbarium specimens and recent inventories (Dolan, Moore and Stephens 2011). See [https://works.bepress.com/rebecca\\_dolan/](https://works.bepress.com/rebecca_dolan/) for other papers.

**Additional Current Projects** - We have been working for many years with Kay Yatskievych on an Indiana Vascular Plant Catalogue, a comprehensive listing of all plants documented to occur in the state via an herbarium specimen. The Catalogue will include synonymy and direct reference to names used in Deam's flora and other historical manuals. Publication by Indiana University Press is anticipated in 2018.

**Successful Grads** - Former students who worked in or were associated with the herbarium, who pursued botanical careers include Matt Halfhill (Professor, St. Ambrose University), Troy Weldy (Director of Ecological Management, The Nature Conservancy in New York), Matt Julius (Professor, St. Cloud State University), Raelene Crandall (Assistant Professor, School of Forest Resources and Conservation, University of Florida), and Jess Stephens (Post-doc in Tia-Lynn Ashman's lab at the University of Pittsburgh). Apologies to anyone not mentioned here who should be - contact me! Many other former BUT student assistants are now pharmacists, doctors, stay-at-home parents, native seed nursery owners, environmental consultants, etc.

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