



2022 Annual Report

From the Director, Dr. Neil Snow

Overview of 2022

This year's summary is somewhat shorter than that of recent years, but covers the salient activities.

The photo (top right) is of volunteer and PSU alumnus Michael Robinson assisting Rachel Styers with the mounting of some of her MS thesis collections (more details below).

This calendar year saw the completion of the NSF grant, which enabled the move to the present location in Hartman Hall, the purchase of new cabinets, databasing, imaging, and processing of backlogged specimens. So: One final and big shout out to the National Science Foundation for its support. The workload was immense, but our specimens now are more valuable and useful to students and faculty at PSU and scientists elsewhere.

Speaking of usefulness, one metric of herbarium activity comes from the Global Biodiversity Information Facility ("GBIF"). This organization, headquartered in Copenhagen, amalgamates natural history data and registers 'hits' on a given institution's database resources. As of this writing (1 Jan 2023), the Sperry Herbarium's data have been accessed or cited by researchers at other institutions 243 times. Other aggregators such as SEINet do not record requests, so the actual number is higher.

It is inconceivable that, pre-digitization, a herbarium of our size would have had 243 requests for herbarium loans or other specimen-related inquiries over a period of six years, which is the approximate time frame that our data have been online for global access. The decision by funding agencies such as NSF and governments to digitize data thus is paying big rewards to the scientific community.

When I started graduate school, email occurred only on old mainframe computers and websites were non-existent. Scientists were not trained to promote their accomplishments. Social media, however, changed that. So it was with gratitude to learn of my election as a Fellow of the Linnean Society of London, the oldest continuously operating society devoted to the study of natural history. That honor reflects personal commitments to teaching, research, and herbarium management.

Herbarium size, Updated:

As reported last year, the Sperry Herbarium currently has about 50,000 specimens, although we are more confident of that figure than previously. Existing backlog, excluding perhaps 1200 specimens of Dr. Timme, numbers approximately 2500 specimens. Some 1900 specimens were collected in 2022, over 75% of which were by students. New collections originated (in rank order) from Idaho, Kansas, Oklahoma, Missouri and Texas.

Current Taxonomic Summary

A total of 337 families of vascular or bryophyte families, 1828 genera (an increase of over 100 from last year) and 5797 species (an increase of over 400) are represented.

Personnel, Visitors and Updates

Congratulations to **Rachel Styers** on the defense of her MS thesis in November, entitled *Documenting the Rapidly Expanding Distribution of Ravenna grass (*Tripidium ravennae*) in eastern Kansas*. Rachel found this ornamental grass species in 25 counties in eastern Kansas, representing 103 populations and 17 county records.

Danielle Evilsizor completed her second season of fieldwork on the demography of Ozark Chinkapin (*Castanea ozarkensis*) in Roaring River State Park, Missouri. With a large sample size and assistance from undergraduate Tabitha Caruthers, the two measured a number of demographic variables of a randomly selected subset of over 950 trees they had documented in 2021. She presented a poster of preliminary results at the Missouri Botanical Symposium in Rolla in November.

Out west, **Michael Daines** collected approximately 1200 specimens in eastern Idaho on Caribou-Targhee National Forest lands. Snow collected an additional 434. Of particular interest is what may be a new species of *Erigeron* (flea bane) from higher elevations. **Dr. Ross McCauley**, of Fort Lewis College in Durango, Colorado, has agreed to assist our analysis by running DNA sequencing studies on some specimens. We have requested specimens on loan from several institutions and will report back on results.

The Sperry Herbarium recorded 114 visitors, including many at an Open House in September. Many others were of students confirming identifications of their plant collections using the Kansas and Regional Reference Collection.

Teaching and Education

Specimens were used for Taxonomy of Vascular Plants, Advanced Plant Taxonomy, Grass Taxonomy, Advanced Grass Taxonomy, and Wetland Plants. As reported last year, each year a few specimens in the teaching collection are replaced with newer specimens that better document aspects of the plant, such as flowers and fruits. The Spring semester of 2023 will see the most comprehensive overall yet of teaching specimens used in BIOL 405, Taxonomy of Vascular Plants.



Above: Along the Aransas River at Welder Wildlife Foundation, near Sinton, Texas, during Spring Break. (L-R): Snow, Dakota Herman, Austin Abrams, Maggie Saul, Tabitha Caruthers, Jeremiah Casner, Rachel Styers, Jamie Leeper, James Loomis.

Curatorial Outreach

Samantha Pryer (PSU alum: BS and MS) at the University of Florida requested information regarding her dissertation research (in part) on the pollination of *Rhododendron*.

Gifts of 555 herbarium specimens (mostly duplicates) were sent to Adams State University (Colorado), Chadron State College (Nebraska), Texas A & M University, and the Botanical Research Institute of Texas (Fort Worth).

New distribution records

Snow reported first county distribution records to the *Biota of North America Program* (BONAP) for 13 species: one from Louisiana, six for Kansas, and six for Oklahoma (i.e., beyond those reported by Daines et al.; see below). A specimen collected by Earl Sam Gibson in 1963 was re-determined by Snow as *Crataegus uniflora* (a species of Hawthorn), which is a first record for Kansas and a northwestern extension from Barry County, MO, and northeastern extension from Rogers County, OK. A special thanks to **Dr. John Kartesz**, who generously shares with Snow the most recent BONAP distributional data of taxa nationally.

Other information

We added 46 specimens to the Kansas and Regional Reference Collection, many of these collected by students.

This year included the mounting of 4150 specimens, probably an annual record for the Sperry Herbarium. Many were backlog of Samantha Pryer's MS thesis, but they included many collections by Daines and Snow in Idaho. Organizing and filing specimens takes as long as it does to mount them. And for assistance in filing, special thanks are due to Tabitha Caruthers and more recently Alaina Fulkerson.

KSP received 91 gift specimens from Chadron State College, with thanks to **Dr. Steven Rolfsmeier**.

New website:

<https://www.pittstate.edu/biology/the-sperry-herbarium.html>

Curatorial Assistance in 2022

Most natural history museums and herbaria with significant activity rely to some extent on the assistance of volunteers and (at universities) students.

Many thanks this year for curatorial assistance to: Tabitha Caruthers, Sara Scholes, Taylor Michael, Austin Abrams, Alaina Fulkerson, Michael Robinson and Michael Daines. Kudos also to Danielle Evilsizor for her curation of bryophytes from support off of the NSF grant in the Spring.

Professional Activity

(Student authors underlined; faculty in bold)

Daines, M., A. Anzjon, M. Gay, L. Headings, J. Huckabee, M. Marine, T. Poolman, S. Scoggins, R. Styers, I. Villafaña, **N. Snow**. 2022. Numerous distributional novelties collected by students for Idaho, Kansas, Missouri, Oklahoma, and Texas. *Journal of the Botanical Research Institute of Texas* 16: 551–557.

Daines, M. Distribution of *Astragalus amnis-amissi* (Fabaceae), a Plant Endemic to East-Central Idaho. PSU Research Colloquium.

Evilsizor, D. Preliminary insights into the demography of Ozark Chinkapin in Roaring River State Park. PSU Research Colloquium and Missouri Botanical Symposium.

Snow, N., P.M. Peterson, D.G. Giraldo-Cañas. 2022. *Diplachne* P. Beauv., Pp. 401–405, In: *Flora of Chile*.

Snow, N., J. Munzinger, M.W. Callmender. 2022. Additional taxonomic and nomenclatural notes on New Caledonian *Eugenia* L. (Myrtaceae). *Candollea* 77: 71–79.

Snow, N., J. W. Byng. 2022. Myrtaceae. In: S. Goodman (ed.): *The Natural History of Madagascar*. 2nd ed. University of Chicago Press.

Snow, N. 2022. Elizabeth Anne Kellogg-Recipient of the 2021 Asa Gray Award. *Syst. Bot.* 47:1–3.

Snow, N. 2022. *Plants of the Welder Wildlife Refuge by Major Soil Types*. Unpublished species checklist (updated from 1990 by Dr. Stephan Hatch, Texas A & M University.)