



Friends of the University of Montana Herbarium



Spring 2025



Herbarium night on mosses at the University of Montana led by Joe Elliott on March 25, 2025

30 Years of Support

by Scott Mincemoyer

This year marks the 30th Anniversary of the founding of the Friends of the UM Herbarium (MONTU). In 1995, a small group of folks within the botanical community who were concerned with the on-going viability and lack of institutional support for the herbarium decided to formally organize. In short order, the “Friends” was formed under The UM Foundation to provide support for the herbarium in the form of lobbying on its behalf when needed, providing financial support via fundraising, and providing professional, botanical expertise. Those early supporters of the effort, formed the first Board of Directors; Joe Elliott, Peter Lesica, Jean Parker, Steve Shelly and Peter Stickney as well as Molly Galusha and Dave Dyer. Three of those initial founders of the group, Peter Lesica, Steve Shelly and Joe Elliott remain active supporters and contributors to the herbarium 30 years later. In the intervening years, two dozen dedicated members have served on the Board of Directors.

In that first year, the “Friends” recruited 75 members and embarked on a campaign to raise funds for additional cabinets as the existing cabinets were at or over capacity. By December 1997, ten new cabinets had been purchased and were being installed in the herbarium. Two years later another 6 cabinets were purchased bringing the total number of cabinets in the herbarium to 80. Fast forward to 2017-2018 when another fundraising effort raised over \$16,000 for the purchase of 11 additional cabinets allowing the herbarium to grow and accession new specimens once again. Other support the Friends have provided over the years include facilitating the movement of the Forestry Science (MRC) collections to MONTU in 2010, providing technical guidance on herbarium policies, providing

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NOTES from the BOARD

by Dave Hanna

Last spring's newsletter included an article by Peter Lesica and Scott Mincemoyer about the botanical exploration in Montana over the last sixty years. They noted that discoveries of state-record, native species in Montana have declined in recent times, and reflected on the possibility that there are simply fewer unexplored places in state. As luck would have it, while doing some rare plant monitoring in the wetlands at The Nature Conservancy's Pine Butte Preserve last summer, I collected a plant I hadn't seen before. It turned out to be a new state record, *Rhynchospora capillacea*. While these wetlands have been explored for some time, this new species indicates that even familiar places have discoveries yet to be made. I was initially unsure of the identification of my collection, but reviewing the Pacific Northwest Herbaria database helped inform my preliminary determination. The specimen records also pointed me to a regional botanist who has collected the species a number of times, who could be consulted for a positive identification. The high quality image of the accessioned specimen made at the UM Herbarium was invaluable in the process.

In a similar vein, Scott Mincemoyer emailed me earlier this winter to let me know that he had annotated one of my collections from a number of years ago to *Carex petricosa*, which, while not a state record, was only the second time it had been collected in Montana. So not only are there new discoveries to be made in the field, there are also many discoveries yet to be made within the existing collections at MONTU – another demonstration of the value of the herbarium.

Publications using MONTU specimens

Bishop, G. and P. Lesica. 2024. The University of Montana Herbarium, Missoula's Hidden Gem. Montana Naturalist.

Rink, G. and M. Licher. 2024. *Carex atropiscata* (Cyperaceae), sp. nov., from the Rocky Mountains. Phytoneuron 92: 1–21.



Friends
of the University
of Montana
Herbarium

Board of Directors

Scott Mincemoyer, President

Joe Elliott

Dave Hanna

Amanda Hendrix

Jessie Salix

ex officio members

Giovanna Bishop, Herbarium curator

Peter Lesica, newsletter editor

Kathy Lloyd, copy editor

Visitors to MONTU in 2023

General Public & Private Consultants

Scott Mincemoyer, Jana Gallinger, Gertner, Stokes, Booth Family homeschool tour, Skinner Family, Courtney Blethon, Toffer Lenher, (Missoula historian), D.L. Blank

UM Researchers & Students

Sol Ziegert (O'Conner Center for Rocky Mtn. West), UM Rocky Mtn. Flora Class

Other Academic Researchers

Dave Roberts (MSU retired)

Federal, State, Tribal and NGO Biologists

Grahm Johnson (City of Missoula), Kenda Herman (Montana Natural Heritage Program)

Loans for Research

5 *Polemonium viscosum* specimens to Jennifer Ackerfield University of CO/Denver Botanic Gardens

2 *Psoralidium tenuiflorum* leaf samples to Roxi Kellar University of Nebraska for DNA study

2024 FOH Annual Meeting

The annual business meeting of the Friends of the UM Herbarium will be Friday, October 24th from 10 AM to 2:00 PM on the UM Campus (location to be announced). Open to the membership.

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financial awards and stipends to herbarium volunteers and interns, and assisting with initial efforts to digitize the collections. Recently, board members helped the collections manager sort through the collection of reference books and literature accumulated over decades to remove duplicates and un-needed material to free up space and improve organization. For other past activities and history of the “Friends” and of MONTU, take a look at past issues of the newsletter on the herbarium website.

In the last few years, MONTU has been fortunate to see continued progress and growth. Our new Curator was hired in early 2023. She has implemented numerous improvements and overseen an increase in activity. Additional space has been acquired, including a new room to house the MRC collection. New digitization equipment and software is now in place, which will allow for higher quality specimen images than previous equipment (see P. 5). These images will become an integral part of the specimen data that are available through the Consortium of Pacific Northwest Herbaria website, a site that already includes data for 78,000 Montana specimens housed at MONTU. Perhaps most noteworthy, as of 2011, MONTU has an endowment fund, which was started and largely funded by past member, Peter Stickney with additional contributions provided by other members and supporters of the herbarium. Today the endowment has a balance of over \$500k! Coupled with the tens-of-thousands that the “Friends” has directly contributed to the herbarium over three decades, these contributions show a great level of outside support and interest for maintaining and growing this irreplaceable collection. The “Friends” remains as important today as it was 30 years ago as the lack of institutional support is still a problem, not only on the UM Campus but at many universities around the country. Consistent funding and support from the University may again be at a crossroads with decreases in available funding, especially from federal funding sources resulting in the potential need to reduce staffing and programs. Prior to these recent federal funding issues, talks were already underway for the likely administrative transfer of the herbarium from its long-time home in the Division of Biological Sciences to a Research Center under the Vice President for Research and Creative Scholarship at UM. This is not necessarily a bad move and may have some benefits, but it will likely mean that outside grants, fundraising and donations will be even more important for sustaining the herbarium than it was in the past. Since the “Friends” formed, more than 100 herbaria around the country have closed. Without your support over the years, MONTU may have met a similar fate. Let’s hope MONTU continues to thrive for many decades to come and that the “Friends” will be there as an instrumental part of that journey.

New Acquisitions

Kurt Hansen, Custer-Gallatin N.F.: vascular plants from eastern MT

Grahm Johnson, City of Missoula: 100+ vascular plants from Missoula area

Dan Turk, Stillinger Herbarium: 70+ aquatic plants

Libby Knots: 1 specimen of the rare *Lobelia spicata*

Kenda Herman & Andrea Pipp, Montana Natural Heritage Program: 9 Montana *Physaria* specimens

O’Connor Center, U of MT: 50+ Montana vascular plant specimens

John Pierce: 30+ Montana moss and lichen specimens

Scott Mincemoyer: 100+ Montana vascular plants

Peter Lesica: 63 Montana vascular plants

Scott Freeman: 1 Montana specimen of *Subularia aquatica*, a state record

Joe Elliott: 50+ Montana mosses

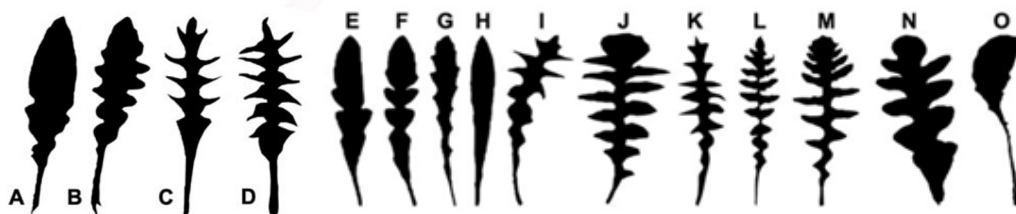
Herbaria Contribute to Plant Physiology Research

Peter Lesica

One of the most important developments affecting the value of herbaria has been digitization of both label data and specimen photography. MONTU began digitizing label data in 2005 after receiving a grant from the National Science Foundation. The great majority of our Montana vascular plant specimens have been digitized, including photographs, and are available to the public through the Consortium of Pacific Northwest Herbaria website (www.pnwherbaria.org/data/search). This effort has made doing research in several fields of plant biology much more accessible. For example, creating county-level range maps is now a simple matter of pressing on the keyboard a few times. Having a good photograph of a specimen can often make specimen identification possible without having to request a loan. Specimen digitization has made many areas of research more practical than heretofore.

One example is provided by a recent article in the American Journal of Botany. Most previous physiological research on the subject of leaf shape indicates that lobed or elongated leaves are likely adaptive in particularly cold, hot, or dry habitats. However, researchers at Michigan State University used the Consortium for Midwest Herbaria online database to find a different answer. They quantified basal leaf shape of shepherd's purse (*Capsella bursa-pastoris*), a common introduced mustard, from over 500 specimens across the United States and used this data to look for correlations between leaf lobing and climate. Contrary to what studies of many other species have found, they concluded that lobing decreased as growing-season temperature increased in the southern portion of the U.S.

It appears that the adaptive significance of leaf lobing may not be as simple as we thought. Nonetheless, it's pretty clear that herbaria and their digital databases are going to make this research a lot easier.



Schematic of leaf shape types
from Hightower et al. 2024

Further reading

Ferris, K. G. 2019. Endless forms most functional: uncovering the role of natural selection in the evolution of leaf shape. *American Journal of Botany* 106: 1532-1535.

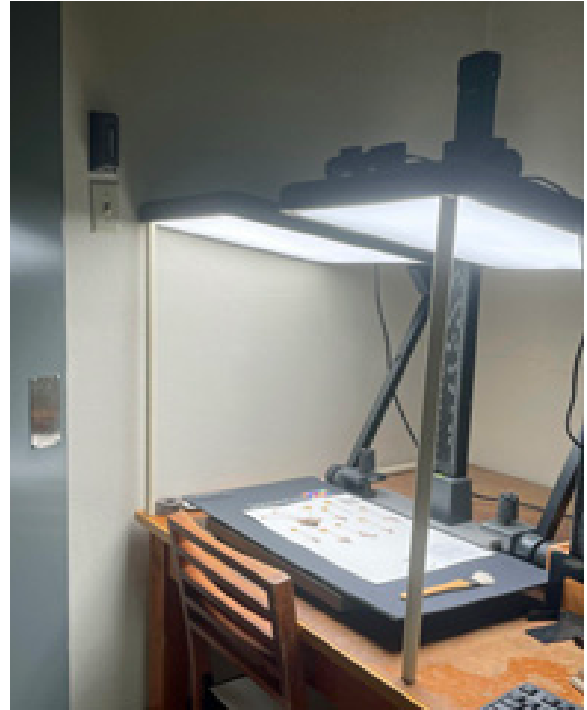
Hightower, A.T., D.H. Chitwood, E.B. Josephs. 2024. Herbarium specimens reveal links between leaf shape of *Capsella bursa-pastoris* and climate. *American Journal of Botany* DOI: 10.1002/ajb2.16435.

MONTU Upgrades

Giovanna Bishop

There were a lot of exciting developments at MONTU over the course of 2024. Perhaps the biggest news is that the digitization and imaging equipment are fully up and running in their own room adjacent to the main cabinet room. Specimen photos are noticeably better; you can find new batches of images on the Consortium of Pacific Northwest Herbaria website. Vascular plant specimens from the past 2 years are being barcoded and imaged. We hope to tackle the imaging backlog before too long. The new equipment was purchased with a gift from Gary Laursen

MONTU has joined herbaria at Washington State University, University of Washington and Oregon State University in submitting a grant proposal that would help fund the digitization of non-Montana specimens as well as updating Montana collections with barcodes and new images.



MONTU's new imaging station



Image made with old equipment

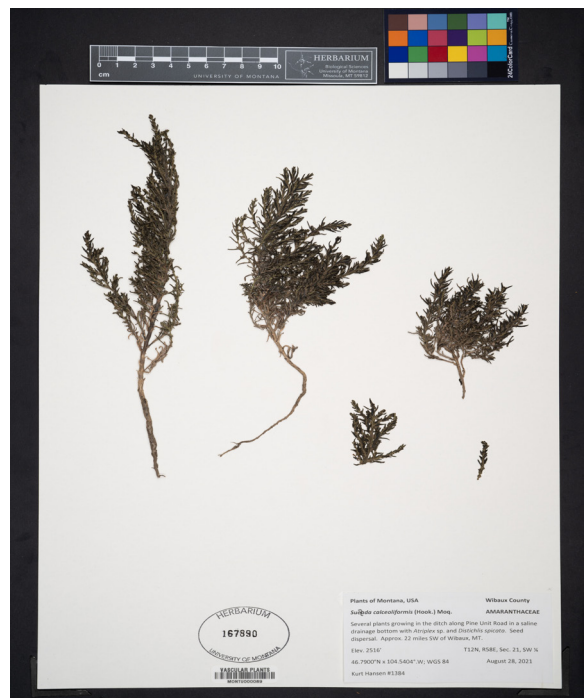


Image made with new equipment

MONTU Activities and People

Giovanna Bishop

We had several new volunteers and interns, with projects getting started and finished. In the spring of 2024, Alex Messer was the FOH Undergraduate Intern. He had already been volunteering in the collections and quickly took charge of Pest Management. Alex was re-hired in the Fall prior to receiving a grant to finish his degree doing hydrology research in Japan. Before he left, Alex trained local Hellgate High freshman, Max Mace, to take over pest management. Max has a passion for insects and natural history and has been volunteering at the Butterfly House/Insectarium in Missoula. It has been really great to have Max come in every Friday to check the pest traps and help sort vascular plant specimens.



Alex Messer



Katia Chavez



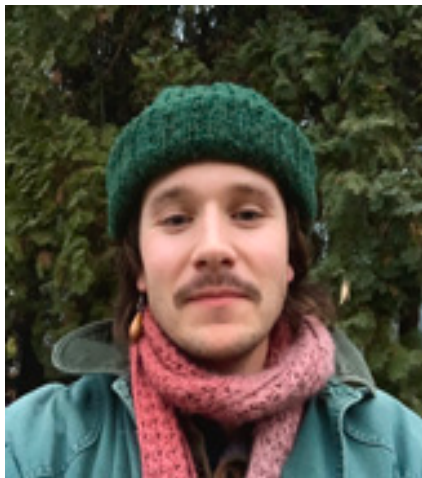
Max Mace

Our fall 2024 interns were Katia Chavez and Reese Gallinger. Katia entered over 1,000 bryophyte specimens into the Consortium database. She is currently in Chile but is excited to come back to MONTU to work and volunteer during her senior year. Reese, a Forestry student, helped to barcode all of the lichens (2,500+), algae (400+), and liverworts (500+), as well as helped to create a catalogue for the algal collection.

Other student volunteers in 2024 included Asher Ackerman, Lauren Western, Mason Wiggins, Elsie Flemming, Audrey Gustafson, Alcyone Max, A.J. Toledo, Trey Good, Morgan Frazer, Jared Western and Morgan Kelly. All of these students worked on a myriad of projects, and all helped to finish digitizing the mosses, start databasing the lichens, finish the catalogues for the liverworts, and continue to organize MONTU vascular specimens by county within folders. Non-student volunteers Marty Skinner and Rowan Grassi helped with other projects in the herbarium this past year. Marty Skinner has been consistently coming in every Monday and Wednesday for the past few years. During 2024 he created the moss catalogue of over 5,000 specimens.



Morgan Kelly



Kian McDonough

MONTU re-hired Nic Gravley and Dorothea Kast in 2024 (see 2024 newsletter). Nic continued updating the taxonomy of the MRC (U.S. Forest Service) collection to follow the nomenclature of the 2nd edition of the Flora of the Pacific Northwest. The MRC collection is now 95% updated, and we are really thankful to have had Nic for a few months this past fall before he embarked on a climbing trip in Patagonia. Dorothea spent her sixth winter at MONTU mounting specimens and working to decrease the imaging backlog. We look forward to having her back next year. Kian McDonough was hired by MONTU with funding from the Brodie and Fishman Labs on campus to work on tropical tree specimens from Jedidiah Brodie's PhD work. These specimens will be the first collections from a UM Professor added to the herbarium in a very long time. Seasonal hires, like Dorothea, Nic and Kian, are essential for moving MONTU forward. Much of the money spent on hiring interns and buying supplies necessary to complete all of the work reported above came from dues and donations made to the Friends of the UM Herbarium.

Outreach

In January of 2024 the Montana Native Plant Society hosted a Herbarium Night focused on the genus *Juncus* (rush) led by Peter Lesica.

During UM's spring semester Giovanna gave tours to the labs from the Rocky Mountain Flora class.

Yes! I want to help protect the irreplaceable collections and enhance the facilities of the University of Montana Herbarium



Name: _____
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Send checks to:
Herbarium, Division of Biological Sciences
University of Montana
Missoula, MT 59802
or join or renew online:
www.hs.umt.edu/herbarium/support.php

Regular Member	\$15
Sustaining Member	\$25
Contributing Member	\$50
Organization	\$50
Lifetime Membership	\$300

Dues are for a period of **two years**. Dues for current members are payable in even-numbered years. New memberships are accepted at any time. All contributions to the Friends are tax deductible to the full extent provided by law. All checks should be made payable to: U.M. Foundation/ Friends of UM Herbarium

Additional Donation (choose one of the following and note on check or electronic form)

\$ _____ Endowment Fund: accrues annual interest, part of which can be used for hiring workers.
\$ _____ FOH Account: funds are used for student internships after Board approval.
\$ _____ Operational Account: funds are used for day-to-day supplies, mailing etc.

FRIENDS
of the
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