



College of Agriculture, Life Sciences

and Natural Resources

Botany

BOTANY DEPT. NEWSLETTER

JANUARY 2026

ISSUE #3

LETTER FROM THE DEPT. HEAD

Dear Friends and Alumni of the Botany Department,

Welcome to the Winter Edition of the Botany Department Newsletter. As we close out 2025, this issue highlights developments and accomplishments from across the department since our last newsletter.

In these pages, you'll read about recent faculty and student achievements, including new NSF-supported research linking forest biodiversity, climate stress, and carbon storage, and meet new graduate students who have joined the Botany community this semester. We also spotlight faculty leadership in teaching, mentoring, and research that continues to shape our department's impact at UW and beyond.

This issue features a detailed update on the Rocky Mountain Herbarium, documenting recent progress in revitalizing this nationally significant collection. These efforts reflect ongoing commitments to stewardship, student training, and making Wyoming's botanical heritage accessible for research and education.

You'll also find highlights from our fall department picnic, where we welcomed new students, staff, and faculty and celebrated the community that supports our shared work. Together, these stories offer a snapshot of the momentum and collaboration that define Botany at UW.

Thank you for staying connected with the department. We are grateful for your continued interest and support, and we look forward to the opportunities ahead in 2026.

Sincerely,
Brent Ewers
Botany Department Head

Department Head Brent Ewers



Faculty Highlight:

I am an Associate Instructional Professor in the Botany Department and the UW Science Institute. I teach several courses including LIFE 1010 General Biology, LIFE 1020 Life Science, LIFE 1050 Introduction to Ecological Research, LIFE 2300 Scientific Communication, LIFE 3400 General Ecology, and special topics courses for undergraduate research students. My background is in wildlife ecology, and I enjoy threading my experiences studying river otters and aquatic-terrestrial linkages into these courses.

I am a big proponent of experiential learning, and getting students exposed to real, hands-on research as early as possible. In addition to teaching, I direct the one of the largest undergraduate research program on campus - the Wyoming Research Scholars Program. This program funds students to work in faculty labs and provides numerous professional development opportunities. Several Wyoming Research Scholars have participated in mentored research with Botany faculty, including Liberty Cleveland with Dr. Lauren Shoemaker - both of whom were featured in our previous two newsletters.

In recent years, I have worked with colleagues in Botany and other departments to develop new Course-Based Undergraduate Research Experiences (CUREs). CUREs integrate original research projects into classes, and they allow many more students to engage in this powerful form of experiential learning than can be accommodated by traditional one-on-one apprenticeships. The LIFE 1050 course I teach with my Botany colleague Dr. Chris North is an example of one such CURE. In this course, freshman and sophomore-level students investigate research topics of their own choice, based in beaver ponds in the nearby National Forest. It is an engaging way for students to, literally, get their feet wet in authentic research right away in college. I recently began a summer research project using trail cameras to study mink ecology in beaver ponds, and I am integrating data from this project into our CURE. I am excited that we will be adding more CUREs to the Botany and Biology curriculum.

Beyond teaching and working with undergrad researchers, I enjoy participating in STEM outreach around Wyoming. For instance, I frequently speak about otters and engage K-12 students in hands-on activities with mammal skulls for K-12 students. I recently helped lead a sheep brain dissection activity with a local Girl Scout troop, and I work closely with some of our STEM outreach programs such as the Science Kitchen and Science Roadshow to help spark excitement in the next generation of scientists.



Dr. Jamie Crait

Photos courtesy of Dr. Brent Ewers, & Ali Grossman



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DEPARTMENT EVENTS & RECOGNITION

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The department held its annual fall picnic on September 25th. We had a wonderful turnout of Graduate students, Faculty, Staff, Postdocs, and family members. We enjoyed good food, a department wide cornhole tournament, and the annual hat ceremony. The hat ceremony recognizes all new members of the department and gifts them a department branded hat. We had several new students this semester who were recognized. Overall the picnic was a success and so much fun!



Pictured top right: Sara Legler, David Williams, and Steve Miller

Pictured bottom right: New student Beatriz Prado receiving her Botany hat

Pictured middle left: Various dept. members playing cornhole

Photos courtesy of Andie Stigers and Rachel Dobjeleski



Faculty Highlight #2:

Katie Wagner is an Associate Professor in the Department of Botany and has been a member of the University of Wyoming faculty since 2015. Katie's research and teaching focus on evolutionary biology, with a strong emphasis on understanding how genomic data provides information about the history and processes generating and maintaining biodiversity.

Katie's research program focuses on evolutionary genomics in natural systems, with particular attention to freshwater fishes in the aquatic ecosystems of the Rocky Mountain West and East Africa. Her work integrates genomic data with ecological and evolutionary theory to understand adaptation, diversification, and the consequences of biodiversity for ecosystems. A substantial portion of her research since joining UW has centered on Wyoming native fishes, using modern genomic tools to inform conservation and management. Her lab has also led a range-wide genetic diversity assessment for Yellowstone cutthroat trout, involving collaborations across many agencies and NGOs.

In the classroom, Katie teaches courses in evolutionary biology at both the undergraduate and graduate levels. She is deeply committed to mentoring students and providing them hands-on experience with genomic data, evolutionary analysis, and scientific communication, preparing them for careers in research, conservation, and data-intensive biology. She was a School of Computing Faculty Fellow in 2024-2025 to develop new computational modules in the undergraduate Evolutionary Biology course, and a new upper-level course focused on the analysis of population genomic data.

Katie is highly active in service to UW and beyond. Katie is working on interdisciplinary initiatives to expand and connect genomics research across campus, and currently serves as the Faculty Director for the Genome Technologies Lab. She is this year completing a 3-year term as an elected council member for the Society for the Study of Evolution and serves as an Associate Editor for the journal Evolution Letters. Recent work from the Wagner Lab uses trout introduced to alpine lakes of the Wind River Range as a model, showing evidence for rapid evolution in trout populations. Collaborative work with other UW faculty members expands on this system to study alpine lake community dynamics through space and time. This work underscores the idea that evolution is not just a historical process, but one that continues to shape ecological systems today. Ongoing work on the genetic diversity and divergence of Yellowstone cutthroat trout across their range, and on historical population dynamics of endemic fish species from Lake Tanganyika, are connected by these themes as well.

Katie leads a diverse research group of graduate students and has mentored multiple PhD and MS students. Her former PhD student Jessi Rick is now an Assistant Professor at the University of Arizona, and her former PhD student Jimena Golcher Benavides is now an Assistant Professor at Hope College in Michigan. She is exceptionally proud of her students' successes!

Katie's lab currently has 3 PhD students and 2 MS students, with students hailing from the US, Uganda, and Colombia. Outside of work, she spends time chasing her 5-year-old daughter who has already been on three fieldwork expeditions to the Wind River Range. Katie emphasizes that becoming a first-time parent in the summer of 2020 has been a particularly wild ride.

Katie's work attracts national and international attention through collaborative grants, publications, and student successes. We are excited to see how her research, teaching, and mentorship continue to enrich the Department of Botany and the broader UW community.



Dr. Catherine Wagner & her daughter



NEW STUDENTS, AWARDS, & RESEARCH UPDATES

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Our very own Dr. Sara Germain was recently awarded the NSF EPSCoR Research Fellows grant to study biodiversity-productivity relationships across forests of North America. For this work, she will be collaborating with the Smithsonian Forest Global Earth Observatory (ForestGEO) to combine tree-ring datasets with high-accuracy maps of forests. They will investigate to what extent forest biodiversity can relieve the effects of drought and heatwaves on carbon storage in different forest types. Congrats Sara!



Dr. Sara Germain
during fieldwork
research

Herbarium Updates by Sienna Wessel:

Sara Legler has been working as the NSF Project Coordinator for the Rocky Mountain Herbarium for the last three years. She is a 2011 alumnus of the Tinker Lab, formerly part of the University of Wyoming Botany Department, and returned to her alma mater in 2023 to work under the leadership of director Dave Tank on an herbarium renovation project with much needed funding from the National Science Foundation (NSF).

Since then, her efforts have transformed the Rocky Mountain Herbarium from a one-floor operation, where exposed boxes of backlogged plant specimens were stacked atop nearly every cabinet, into a two-floor vault of properly organized, filed, and fully imaged specimens. One floor now houses the dicots and fungi, the other the monocots, gymnosperms, and ferns. Can you imagine sorting and organizing a collection of over a million specimens? Thanks to Sara's aptitude for such a feat, thousands of mostly-inaccessible, at-risk specimens are now properly filed and accessible to researchers. Key milestones of this project include the ingestion of 40,000 specimens from Central Wyoming College, reorganizing the vascular plant collection from an alphabetical to a modern phylogenetic sequence, and imaging nearly all mounted specimens. This intensive effort has employed 37 students and community members and provided 8 students with internships focused on learning the ropes of herbarium curation and field botany. Under Sara's wing, this tenacious collective has helped preserve irreplaceable data and institutional knowledge, ensuring that it remains accessible to all.

Today, the Rocky Mountain Herbarium is the 11th largest in the country and hosts over a million plant specimens, which are loaned to researchers nationwide. As Sara wraps up the NSF project over the next year, she continues to imagine new ways to improve day-to-day operations and champion the value of herbaria in a time when even long-standing institutions like the Duke Herbarium have been disbanded, leaving records of natural history scattered to the winds. Her future aspirations include employing AI models generated by collaborators at the University of Michigan to translate handwritten labels into digital records and expanding public engagement through outreach events such as identification workshops and volunteer nights. She especially enjoys the story-telling aspect of her work which positions her to gain and share deep insights into the journeys of each plant specimen and the trailblazers that collected them.

Join me in congratulating this true "Herbarium Superhero" and the Rocky Mountain Herbarium on their revitalization. We also honor Ernie Nelson, whose 52 years of dedicated curation and stewardship led the herbarium to great successes when there were often even fewer helping hands. Many colleagues gathered together to celebrate the herbarium staff and successes of the Rocky Mountain Herbarium at the open house on Dec. 3rd.

New graduate
student Russell
Wong



Please welcome to the department our newest graduate student Russell Wong, who is a member of the Germain lab. Russell will be combining field ecology, tree-ring measurements, and remote sensing to characterize large scale changes in the forest ecosystems of Wyoming and beyond, including changes in carbon cycling and storage. Welcome Russell, we are so excited to be part of your academic and research journey here at UW!



Sara Legler, project
coordinator for the
Rocky Mountain
Herbarium

Photos on this
page courtesy of
Dr. Sara Germain,
Dr. Tucker
Furniss, and
Sienna Wessel