College of Agriculture, Life Sciences and Natural Resources
Botany

BOTANY DEPT. NEWSLETTER

SEPTEMBER 2025 | ISSUE #2

Department Head Brent Ewers

LETTER FROM THE DEPT. HEAD

Dear Friends and Alumni of the Botany Department,

Welcome to the second issue of the Botany Department Newsletter! We're excited to continue this quarterly connection, celebrating the achievements of our students, faculty, and staff. This issue features Liberty, a recent graduate and Wyoming Research Scholar whose greenhouse work explored drought and competition in plants; the Germain Lab's new ForestGEO site in Grand Teton National Park; Qingyu, honored with ESA's Trailblazer Award; Spencer, recipient of UW's top graduate teaching award; and postdoc John Benning, who moved to a Cornell faculty position. We also celebrate Professor Daniel Laughlin, newly elected as a Fellow of the Ecological Society of America for his globally influential contributions to plant ecology and restoration.

Alumni and friends—we want to hear from you! Please share your updates with Andie Stigers at astigers@uwyo.edu, so we can provide an update on your accomplishments and recent career moves each issue.

Please also mark your calendars for UW Giving Day, October 23–24. This year we are rallying support for the Rocky Mountain Herbarium, the largest collection of preserved plants in the Western U.S. for teaching, research, and biodiversity conservation, and the Conservatory, which houses living plants from around the world to give students vital exposure to global plant diversity. Your gift during Giving Day will directly strengthen these resources and the students who depend on them.

Thank you for your continued support. We are proud of our progress and excited by what lies ahead.

Sincerely,

Brent Ewers
Botany Department Head

Faculty Highlight: Daniel Laughlin

Dr. Daniel Laughlin and his pup Caillie

This month's Faculty Highlight features Daniel Laughlin. When asked about his lab, accomplishments, research and students he shared the following. "I teach BOT 4700/5700 Vegetation Ecology, BOT 5600 Ecological Modeling, and LIFE 3400 General Ecology. I am excited to teach BOT 4730/5730 Plant Physiological Ecology for the first time this fall 2025, with a strong focus on plant water relations given the importance of drought in forests and grasslands in a changing climate.

The biggest discovery last year came out of my sabbatical project with Brian McGill in a paper published in Science (DOI: 10.1126/science.adm8671), where we found that potential niches of trees overlap and extend beyond their realized niches. In other words, even though some cold-tolerant trees are only found in cold environments, and some warm-tolerant trees are only found in warm environments, all trees appear that they can potentially persist at a common mean annual temperature of 12 degrees Celsius. These results challenge our understanding of how trees will track changing climates.

I received funding from the USDA Forest Service Region 2 to establish an herbaceous common garden array to study the climatic tolerance of species for restoration and to further test the results of the Science paper with Wyoming native conifers, grasses, and wildflowers. Caroline Kittle has started her PhD program in Ecology and Evolution under this project.

I also received funding from the USDA Forest Service Rocky Mountain Research Station to study the long-term dynamics of alpine and subalpine meadow vegetation in the Snowy Range. Ryan Strother has started a MS in Botany under this project.

I did receive funding from the National Park Service to continue our work on restoring sagebrush vegetation in Grand Teton National Park, but this funding unfortunately remains frozen by the Trump Administration.

Dave Atkins completed his PhD in Ecology and Evolution in May 2025, and Anne Beeman completed her MS in Botany in May 2025.

Our lab curates an outreach project called the Global Vegetation Project (https://gveg.wygisc.org/), which provides educators and nature lovers' with a resource for teaching and learning about global vegetation ecology online. We recently re-vamped the website with a new look and several new exciting features such as personal accounts, geological information, and easier photo upload and editing." Daniel is an important part of the department and we are excited to continue working with him!

Photos courtesy of Dr. Brent Ewers, & Dr. Daniel Laughlin

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RESEARCH IN THE FIELD AND THE LAB

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Undergraduate student Liberty Cleveland working in the greenhouse

Liberty is an undergraduate student who graduated this past May. Congrats Liberty! She was a Wyoming Research Scholar, working on a greenhouse experiment this past year. Liberty's project explores how drought and competition between species jointly alter the timing of plant phenology and trends in plant growth. Her experiment is wrapping up this summer, but so far her results show that competition between species has a larger effect on plant growth under higher rainfall conditions. While drought reduced plant growth, the effects of competition under drought were more minimal. We can't wait to see what she does in the future!

Left to right: Lila Cohen, Jared Friedman, & Sarah Burbank working in the field

This summer, the Germain lab is finishing installation of a Smithsonian Forest Global Earth Observatory (ForestGEO) permanent study site in Grand Teton National Park. During training week, we had Field Work Olympics involving orienteering and plant identification. Now, we are off to the races to map and measure every tree in this impossibly scenic 25-ha study site!

The team maps trees from the shore of Bradley Lake up to the ridgeline using compasses, a sonar laser system, and high-accuracy GPS. Why map trees? This lets us measure insect and pathogen spread, competition, and how geology and hydrology influence forest health. We will return to each of the ~30,000 mapped trees every year to track their growth, health, and survival over time.

Left to right: Edward Chapman, Gavin Baker, Lila Cohen, Dillyn Wood, Andy Thomas, Lindsey Monteith, Sarah Burbank, Jared Friedman, Sarah Doyle, Britt Hayes, Kelly Goodwin, & Anthon Grigg

Photos courtesy of Dr. Lauren Shoemaker, Dr. Sara Germain, & Dr. Tucker Furniss

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STUDENT SUCCESS IN THE WEISS-LEHMAN LAB

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Spencer Holtz winner of the UW TA of the year award

When Spencer joined the lab as a PhD student in 2020, he knew he wanted to study the evolutionary and genomic consequences of range expansion. However, he didn't realize how much he would enjoy mentoring undergraduates in the lab and working in the classroom as a TA. In fact, Spencer has increasingly gravitated towards teaching as a career goal and his enthusiasm and talents have been recognized by many in the department. When Animal Biology needed a substitute instructor for a semester, Spencer and another student were offered the position and Spencer spent half the semester teaching the class. Later, when the Animal Biology class needed a substitute lab coordinator for the semester, Spencer was again tapped for the position. His accomplishments and passion for teaching were recently officially recognized by the University of Wyoming when it selected him as a winner of the John P. Ellbogen Outstanding Graduate Assistant Teaching Award, UW's highest honor for graduate student teaching! Spencer is planning to defend next spring and is hoping to find a job where he can continue his passion for teaching and mentoring undergraduate students.

Qingyu joined the Weiss-Lehman lab in Fall 2023 and is studying the effects of competition on a species' ability to spread through space (e.g., like an invasive species or a species moving in response to climate change). She is using a combination of laboratory microcosms and simulation modeling. She is also passionate about science communication and helped organize a special section at last year's ESA meeting on using AI translation technology to allow international speakers to present research in their native language. In recognition of her research and her outreach efforts, the Student Section of the Ecological Society of America selected her as a recipient of this year's Trailblazer Award

Qingyu Gan recipient of the Trailblazer Award

John is a postdoc who has been working in the lab since 2021. John got his PhD from the University of Minnesota researching the biological and environmental factors responsible for range limits in a California endemic flower, Clarkia xantiana. At UW, he has continued to research range limits by conducting experiments and theoretical studies comparing the importance of ecological and evolutionary factors in creating the stable range limits that occur ubiquitously in nature. John joined the lab with a postdoctoral fellowship from NSF and then extended his stay after the lab was awarded a large NSF grant (with John as a co-PI) to continue working on range limits in our microcosm system. In recognition of his amazing research accomplishments, John recently accepted a job offer to join the Ecology and Evolutionary Biology Department at Cornell University as an assistant professor! He will be missed in the lab, but we hope to continue collaborating with John in his new capacity at Cornell!

John Benning former Postdoc with the Weiss-Lehman Lab

All photos on this page courtesy of Dr. Christopher Weiss-Lehman