



Department of
Land Resources & Environmental Science

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LAND RESOURCES & ENVIRONMENTAL SCIENCES 2025-2026 NEWSLETTER



View from Fairy Lake, Photo by C.Howard

Congratulations Graduates

Our yearly newsletter is dedicated to celebrating our outstanding students, staff, and faculty. Please enjoy reading about our department's many education, research, and outreach accomplishments. We recognize those graduating this academic year, which includes **50** undergraduate students, **6** Thesis M.S., **24** Professional M.S. Students, and **6** Ph.D. recipients.

Students, you have each earned a truly impressive degree and with so much important work to be done. It's a remarkable time to be an environmental scientist. We are proud and excited for you to apply the knowledge and critical thinking skills you've mastered to be the leaders who will improve our understanding and management of our natural and agricultural resources, benefiting both people and environments.

We'd Love to Hear From You

To share your research and/or professional accomplishments in an upcoming newsletter, please contact: Christy Howard, Administrative Associate, lresfrontdesk@montana.edu

Read more about what is currently happening in LRES at landresources.montana.edu

LRES BY THE NUMBERS:

Total Graduates: 86

Total Students: 369

Ph.D's Awarded: 6

New Office Mascots: 2

**Grants Awarded
Last Year:
37**





MSU launches Profitability in Montana Agriculture podcast series

Montana State University Extension has launched a podcast series, Profitability in Montana Agriculture, that aims to provide information to help farmers and ranchers increase profits and reduce losses. Each episode features different MSU Extension faculty members discussing topics related to their subject matter expertise, such as integrated weed management, soil science, agricultural economics and livestock production. The episodes are available on Spotify and Apple Podcasts. The first two feature LRES faculty.

Invasive Pests, Cropping Systems and their Impacts on Producer's Bottom Line

Featuring: Jane Mangold, rangeland weed specialist, and Tim Seipel, cropland weed specialist

Effects of Fertilizer Management on Agricultural Profitability

Featuring: Clain Jones, soil fertility specialist

To read more about/listen to the podcast:
<https://tinyurl.com/CoAextpodcast>

Dear LRES,

This academic year is my last as your Department Head. LRES will have a new Department Head starting July 1, 2026, and I will return to research and teaching as an LRES faculty member.

It has been an honor for the past four years to help LRES evolve and grow to meet the challenges that lie ahead. I have been especially privileged to learn so much about not only the diverse expertise in LRES, but also about the deep level of passion people in LRES have for education, research, and outreach. A highlight of my term as Department Head has been welcoming thirteen new tenure-track faculty to LRES and embracing precision agriculture and agricultural & biosystems engineering as important aspects of LRES's future.

LRES is a strong department, and it will be in great hands with our new Department Head in July.

Thank you,

Bob Peterson



Happy Work Anniversary!

Stephanie Ewing, Professor, 15 years
Megan Hofland, Res Assoc - BS, 20 years
Clain Jones, Professor - 25 years
Marni Rolston, Research Assoc - 30 years
Catherine Zabinski, Professor - 25 years

We are thrilled to welcome our new LRES Faculty and Staff

Dr. Shivali Banerjee

Assistant Professor

Agricultural Bioprocessing and Circular Bioeconomy

Shivali comes to LRES with a wide variety of research interests that include: Biorefinery Designs; Resource-efficient Bioprocessing; Closed-loop Biomass Utilization; Waste-to-Wealth Technologies; Farmer-centric Value Addition, and more.



Dr. Sophie von Fromm

Assistant Professor

Soil and Environmental Chemistry

Sophie's work primarily investigates the vulnerability and persistence of soil organic carbon from the local to the global scale using a wide range of methods including field measurements, statistical tools, and lab techniques. In her free time, she likes to be outdoors hiking, kayaking, snowshoeing, and photography.

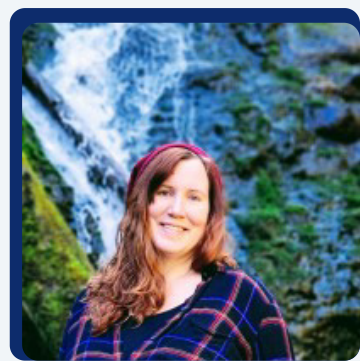


Christy Howard

Administrative Associate

Front Office

When Christy is not running our department reception and creating our communications, you can find her teaching others how to keep a field journal/nature journal. She will also talk your ear off about lichens and all things understory.



Dr. Shilan Felehgari

Assistant Research Professor

Soil Science and Remote Sensing

Shilan completed her post-doc appointment in the College of Agriculture before becoming an Assistant Research Professor where her research integrates remote sensing, soil science, and environmental applications.



STAFF AND FACULTY AWARDS

Dr. Dorie Seymour

- Everyday Heroes in Research 2025-2026

Dr. Lisa Rew

- Western Society of Weed Science Outstanding Weed Scientist - Public Sector

Dr. Jane Mangold

- 2025 Lifetime Achievement Award by the MSU Pesticide Education Program

Dr. William Wetzel

- James and Mary Ross Provost's Award for Excellence

Dr. Tony Hartshorn

- MSU Excellence in Open Education Award

Dr. Mari Eggers

- MSU DEAL (Developing Excellence in Academic Leadership) Program for 2025-2026

Dr. Bob Peterson

- Entomological Society of America Fellow

Dr. Adam Sigler

- Innovative Engagement Award from MSU Extension

Dr. Frank Dougher

- College of Agriculture's Transformative Teaching Award

Dr. Andrew Felton

- MSU Faculty Excellence Grant



Congratulations on your retirement



Rosie Wallander
Research Associate

Rosie started working for LRES in the late 1990s. She is unique in that she is very skilled at both lab work & field work, though what sets her apart and why she will be so missed, is her willingness to help students with any challenge they have, combined with her positive and friendly attitude.



Dr. David Weaver
Professor

David studied integrated pest management strategies to protect crops, especially wheat stem sawfly, the most important insect pest in the region. His work has supported sustainable agriculture and healthy ecosystems. Enjoy your retirement.



Dr. Geoff Poole
Professor

Geoff studied river systems, including how water flow and chemistry affect aquatic life and landscapes. He combined fieldwork and modeling to guide river restoration and management. Enjoy your retirement.



Dr. Tim McDermott
Professor

Tim did research with thermophiles including developing a program that seeks to examine, characterize, and understand microbial populations inhabiting geothermally heated soil environments. We hope you are enjoying your retirement.

Expanding Montana's Precision Agriculture

Emerging opportunities in the realm of precision agriculture are countless, examining earth, sky and everything in between. At Montana State University, faculty are delving into many of them with the goal of improving resources for the state's agricultural producers. Anish Sapkota is one of those faculty members, an assistant professor of precision agriculture in the College of Agriculture's Department of LRES. Precision agriculture involves the incorporation of the latest data and technology into agricultural production, and Sapkota's breadth of research exploring precision management of water and fertilizer earned him the Western Society of Crop Science's 2025 Emerging Scientist Award in June.

Sapkota's research focuses on abiotic stressors, which are those that don't come from living things such as pests or disease. Drought, heat and soil nutrients can present abiotic stress, he said, and precision agriculture presents a wealth of potential remedies. His work exploring stress in crops including wheat and alfalfa earned him this WSCS Emerging Scientist Award, presented to a young researcher who has made significant contributions to the scientific profession with particular impact in agricultural industries.

The more data researchers can collect from a field, the more precise management can become, Sapkota said, and with the amount of freely available data from satellites, drones and sensors, agricultural fields can be analyzed for everything from water to nutrient stress in different parts of the field. Then, producers can apply only what is needed at the right place and right time, whether that be water or fertilizer, exactly where it will have the most benefit. **To read more about Dr. Sapkota and his research:**

<https://www.montana.edu/news/24700>



Undergrad Poster Presentation Winners

1. **Leif Brandsness, Ecology:** *The distribution of bison wallows in the mixed grass prairie of north-central Montana*
2. **Sawyer Crandall, LRES:** *A Remote Sensing-Based Analysis of Cumulative Wetland Loss in Bozeman, MT AND TIED WITH Kelsen Ritter, LRES:* *Evaluating the Combined Effects of Drought and Simulated Alfalfa Weevil Herbivory on Alfalfa Growth*

Grad Poster Presentation Winners:

1. **Raeya Gordon, LRES:** *Characterizing Groundwater Recharge Potential through Inefficient Irrigation*
2. **Jessica Harris, Ecology:** *Comparing early seedling traits in *Pinus albicaulis* and *Pinus flexilis* across climates and rust resistance levels*
3. **Carson Williams, LRES:** *Evaluation of variability in satellite detection of soil moisture across depths in Montana*

Oral Presentation Winners:

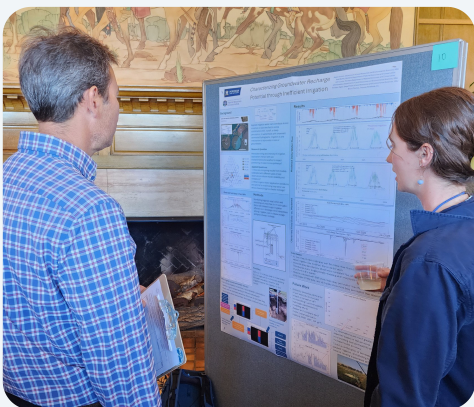
1. **Abigail Noel, PSPP:** *Tri-trophic consequences: the cascading effects of water stress in parasitoid-aphid relationships*
2. **Natalie Brennan, PSPP:** *The distribution of disease-vectoring aphids in Montana seed potato*
3. **Nick Hudson, PSPP:** *Linking Habitat to Population Resilience in Montana's World-Renowned Trout Fisheries*

LEPS 2026: GROW AS WE GO

The LRES Graduate School, along with Ecology and Plant Sciences hosted the 16th annual research symposium in April. This year's theme, "Grow as We Go" reflects both how the symposium came together and what they hope it offered to everyone who participated. The motto began within their working group as a reminder that science does not require perfection or seniority. It happens through showing up, sharing ideas, and learning by doing. Engaging with science at any stage matters, from undergraduates presenting for the first time to graduate students nearing their PhD defense. "No matter where we are in our academic journeys, we are all still growing as we go."



The Keynote speaker, Dr. Katherine Zeller from The Wilderness Society opened the symposium followed by poster presentations and three rounds of oral presentations. 'Thank you to all who participated and attended!' <https://leps2026.weebly.com/>





Fall 2025 Capstone

Our graduating seniors take a capstone course in their final semester. The capstone is designed to help students make the transition from the classroom to being practicing environmental scientists. This past fall, our 17 graduating seniors developed projects related to the management issues at the urban-wildland interface. They came up with the theme organically, with each student selecting a topic that they were especially interested in. Then through a series of discussions, they formed groups with similar interests. That ended up being wildfire, water issues, wildlife, and agriculture.



In addition to increased wildfire pressure, students researched the effects of flame retardants on soil and water quality. Corridors for wildlife and impacts of habitat losses for birds and migrating mammals were included in their topics, as was changing water use patterns in Gallatin County as human populations have expanded. Water quality as affected by geology across the state, pesticide runoff and mining was also part of their work. Students interested in agriculture researched cover cropping, composting, integrated pest management to reduce pesticide use, and the challenges of unpredictable weather patterns for farmers wanting to adopt sustainable practices. - Dr Cathy Zabinski

Spring 2026 Capstone

This Spring, our 33 graduating seniors tackled recreation and management in Bozeman's backyard in the Hyalite-Porcupine-Buffalo Horn Wilderness Study Area. The students worked in collaboration with The Wilderness Society, the Greater Yellowstone Coalition, and The Gallatin Forest Partnership. These groups have long worked with the US Forest Service to develop a permanent management plan for these beloved public lands, but they have been an official management limbo for decades. The students and their nonprofit partners identified key scientific knowledge gaps related to recreation and management of the wilderness study area and surrounding lands, and the students dove into the research needed to fill these gaps. Student projects included determining the impacts of different types of recreation on erosion using geospatial analysis, finding areas of conflict between recreation and wildlife migration, exploring the spread of invasive plants, and determining the impacts of management on snow cover retention. The students presented their results to their conservation partners and to the public at the Bozeman Public Library. - Dr Will Wetzel

The range of interest and students' capacity to write and speak about these topics reflects on what they have learned in their time in LRES. We look forward to hearing more about their work as they develop their careers as environmental scientists.



Putting the Heat on Charismatic Microfauna

Yellowstone's tiger beetle is teaching entomologists how its body can thrive in super-heated pools, and how their makeup can inform human technology from spaceships to ski jackets featuring Dr. Bob Peterson.

Read more at:
<https://tinyurl.com/tigerbeetleGYE>

Scott Powell Featured on "Spatial Signals" Podcast

Dr. Scott Powell talks about Landsat imagery and forest inventory & analysis, geologic carbon sequestration, using aerial hyperspectral sensors for detecting leaking carbon emissions, and more.

Listen to the podcast at:
<https://tinyurl.com/podcastLRES>

MSU Researchers Create Tool For Testing Private Well Water

A first-of-its-kind Montana State University study found the private well water many Montanans rely on might be more unhealthy than owners think. The study found 75% of the 51 watersheds researchers analyzed were contaminated with human carcinogens such as arsenic and uranium, which were frequently detected above federal lifetime health risks.

Read more at:
<https://tinyurl.com/wellwaterLRES>

Exploring the impacts of elevation-dependent warming on mountain ecosystems

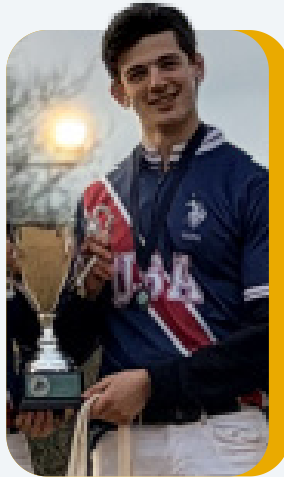
In new research published, work by a Montana State University scientist aims to explore the gradations in elevation-dependent changes in climate, including in mountainous ecosystems like those in Montana and the Rockies.



John Knowles, an assistant professor in MSU's Department of Land Resources and Environmental Sciences in the College of Agriculture, is one of nearly two dozen authors from around the world on the new paper, titled "Elevation-dependent climate change in mountain environments." The work was published Nov. 25 in the journal Nature Reviews Earth & Environment. Because they are difficult places to collect consistent data, mountain ecosystems around the world have been understudied in terms of changes in climate or long-term weather trends, Knowles said. That idea led to the research collaboration, which was led by British scientist Nick Pepin. The new paper is a follow-up to a 2015 publication, also led by Pepin, that identified the concept of elevation-dependent warming, or EDW: the observation that changes in temperature happen fastest at higher elevations. **To read more:** www.montana.edu/news/24950

LRES junior, Luke Howe takes collegiate polo to the international stage

Just after the first day of classes on Jan. 13, Luke Howe was on a plane to England to represent MSU in the Intercollegiate Challenge Cup, an international competition organized by the U.S. Polo Association. Howe, an athlete on MSU's club polo team, was one of four U.S. college students selected to play in the match against a similarly chosen group of British athletes. He represented the U.S. along with students from California Polytechnic State University, Texas A&M and the University of Virginia.



"I was very fortunate to get picked," said Howe, who is originally from Connecticut and is pursuing a degree in environmental science. "It was a great experience to be a part of."

To read more about Luke's experience: <https://tinyurl.com/lrespolo>

STUDENT AWARDS

Samuel Koeshall

- The Graduate School's Ph.D. Dissertation Completion Award for Spring 2026

Alyssa Harmel

- Fall 2025 LRES Outstanding Graduating Senior
- Cameron Presidential Scholarship

Emma Kubinski

- Everyday Heroes in Research 2025-2026
- Graduate Excellence Award

Erin Teichroew

- College of Agriculture Student Travel Award
- Graduate Excellence Award

Noah Barbery

- Spring 2026 LRES Outstanding Graduating Senior

Safal Adhikari

- First Position in ASA Poster Competition
- Gerold O Mott Meritorious Graduate Student Award in Crop Science

Grace Lerner

- Spring 2026 LRES Outstanding Graduating Senior

Hayley Oakland

- College of Agriculture Student Scholar Travel Award from the Spragg Foundation Fund.

Devanshi Het Desai

- College of Agriculture 3-Minute Thesis Competition People's Choice Winner

Pushpa Pandey

- College of Agriculture 3-Minute Thesis Competition Runner Up

Hezekiah Afolabi

- NACTA Graduate Student Teaching Award of Merit





Montana State graduate students earn scholarships to research wildlife habitat

Montana State University has awarded 57 graduate students the inaugural Crawford Wildlife Habitat Scholarships, a new program supporting research that advances the understanding and conservation of wildlife habitats. Funded by a \$30 million endowment from Kathy and the late Tim Crawford—the largest scholarship gift in MSU’s history—the awards provide \$5,000 per semester and may be renewed for up to three years for master’s students and five years for doctoral students. The program is intentionally interdisciplinary, reflecting the Crawfords’ belief that effective wildlife conservation requires expertise from across academic fields. Recipients represent nearly every college at MSU, with projects ranging from grizzly bear population monitoring and bison ecology to wildfire detection using machine learning, pollinator habitat modeling, conservation genomics, Indigenous-led curriculum development, and wildlife-focused storytelling and design. **To read more about the scholarships:**

www.montana.edu/news/24612/montana-state-graduate-students-earn-scholarships-to-research-wildlife-habitat

LRES Winners for last year include:

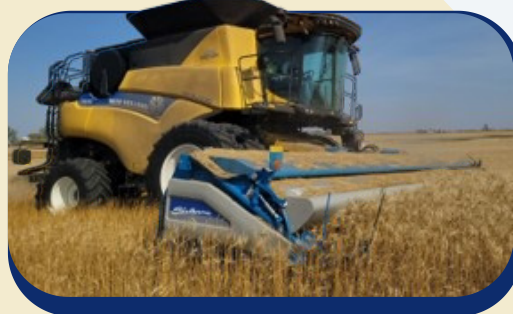
- **Mary Farina, Doctorate in Ecology and Environmental Science.** “Assessment of spatiotemporal variability in Arctic-boreal carbon budgets.”
- **Raqib Valli, Doctorate in Ecology and Environmental Science.** “Grazing gradients and grassland chemistry: linking herbivore impacts to forage quality in Kenyan Conservancies.”
- **Rennie Winkelman, Doctorate in Ecology and Environmental Science.** “The role of large herbivores in soil carbon cycling in grasslands.”

GROW Scholars Program is now live

GROW - Growth through Research Opportunities and Work - connects students to paid agricultural research, scholarship support, and a community that lasts all four years of college.

The purpose is to recruit students before they graduate high school, connect them to paid research placements at MSU’s Agricultural Experiment Centers, and build a cohort that supports them all the way through graduation. Learn more:

agriculture.montana.edu/grow/



MSU Extension soil and farm specialists suggest ways to manage rising fertilizer costs

Rising fertilizer prices are a concern for agricultural producers, according to Andrew Swanson, Montana State University Extension farm management specialist in the Department of Agricultural Economics and Economics,

who, along with MSU Extension soil fertility specialist Clain Jones, have provided some insight for managing fertilizer costs. “Even though the U.S. produces the majority of its own nitrogen fertilizer, fertilizer prices are susceptible to global shocks, just like Montana wheat prices can be affected by supply conditions in Australia or Canada,” Swanson said.

Clain Jones, MSU Extension soil fertility specialist and professor in the Department of Land Resources and Environmental Sciences, recommends several strategies to optimize dollars spent on fertilizer. **To read about the strategies:** **<https://tinyurl.com/extfertilizer>**

LRES Degrees Awarded 2025-2026

Bachelor of Science

Jack Ahrens	Helena Mazzarella
Celia Almodobar	William McCrea
Benjamin Aupperle	Talulah McGinn
Noah Barbery	Rowyn Morehouse
Beowulf Boswell	Elias Neitlich
Anja Bower	Oriana Ognar
Sarah Broussard	Isaac Olson
Mackenzie Carlisle	Maxwell Opton
Cole Edwards	Braden Osborn
Sarah Elgin	Mallory Roath
Heath Finnegan	Walter Scheldorf
Samuel Gabrielson	Macy Schmidt
Kendra Gilbertson	Owen Shear
Taylor Hardegger	Zofia Skiba
Alyssa Harmel	Rosalie Sowers
Colin Harper	Brooks Taylor
Noah Heck	Emma Taylor
Eve Heeley-Ray	Anneka Thompson
Faith Hermann	Alexander Von Barloewen
Sierra Kellom	Joel Wise
Andrew Kostick	Angela Wright
Grace Lerner	Eleanor Yowell
Patrick Lingle	
Broderick Maidasil	
Nia Mantle	
Lucas Marlatt	
Madeleine Martinelli	
Brenna Matthews-Jackson	

Master of Science

Kenna Amongero	Robert Mccullough
Megan Blauwkamp	Emelia Morgan
Madisan Chavez	Vanessa Morgan
William Cochran	Amanda Oanes
Rachel Crownhart	Jeff Pokorney
Riley Dennis	Jack Poole
Mitchell Efaw	Meghan Robinson
Eliza Gillilan	Grace Roeder
Travis Griffiths	Ashley Skartved
Caroline Groustra	Amelia Smith
Katherine Jenó	Sam Sterling
Haven Kindle	Shannon Thompson
Carl Krause	Sheamus Vaughan
Ethan Lalumia	Rachel Winkler
Cinnamon Levi-Flinn	

Doctor of Philosophy

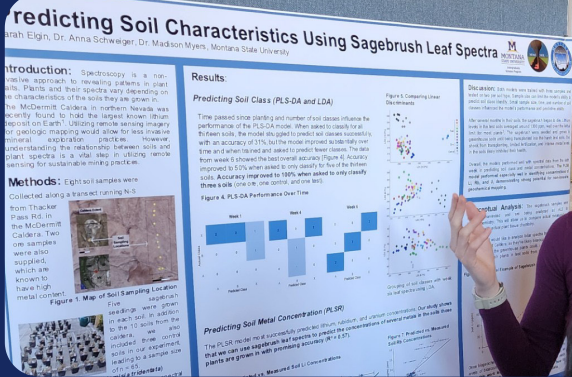
Byron Amerson	Emma Kubinski
Het Desai	Erin Teicheroew
Samuel Koeshall	Madelyne Willis



**Congratulations to
all of our graduates**



Visit us at landresources.montana.edu/



Opportunities to Support LRES

A gift to the department is a great way to support student and faculty endeavors. Donations can be earmarked for student scholarships/ internships, graduate fellowships, undergraduate and graduate student programs, endowed professionals, and more.



For information about making a donation to the Department, please contact the **MSU Alumni Foundations, College of Agriculture**, at 406-994-4508