

### October Events



**Oct 5th- Dr. Arthur Middleton** presents, "An inflection point in the conservation of wide-ranging wildlife across the Greater Yellowstone Ecosystem. This weeks seminar will be fully virtual.

**Oct 12th- Kathryn Kelley**, Regional Manager with the Montana Land Reliance presents, "Forever Benefit-Land Trust work in the GYE". Please join us in Byker Auditorium in the Chemistry and Biochemistry Building for Kathryn's Rough Cut.

**October 19th-** The MT IoE IDEA Exchange. Please join us at 10am for coffee and treats in LJH 617. This is meant to be a low-key discussion where we share research interests and ideas and get to know each other better. The goal is to stimulate new ideas and research teams and secure research funding and science products.

**Oct 26th- Todd Wilkinson**, Founder of Mountain Journal presents, "Large landscape conservation, communication, and policy". Please join us in Byker Auditorium for Todd's Seminar!

For more information on the Rough Cut Seminar Series please visit [www.montanaioe.org/roughcut](http://www.montanaioe.org/roughcut).

### Research and Publications

#### The Potential of Bison Rewilding on the Northern Great Plains as an Ecological Approach to Future Food Sovereignty



Congratulations to Bruce Maxwell and his team for publishing their research on "The Potential of Bison Rewilding on the

Northern Great Plains as an Ecological Approach to Future Food Sovereignty in the journal *Frontiers in Ecology and Evolution*. This paper discusses the potential contributions of bison to food sovereignty, sustainable economies, and conservation of a working landscape for Native American communities on the Northern great plains. The authors of the paper argue that rewilding bison can restore grassland socio-ecological systems by improving economic development and contribute to food sovereignty in tribal communities. To read the entire paper visit the *Frontiers in Ecology Evolution Journal*.

#### LRES 593: Challenges in Ecology and Environmental Science, Fall



**2022** hosted 8 PhD students and 15 faculty presenters across its 3-day

immersion in late September, providing common starting point and cohort-building experience for students in the Ecology & Environmental Sciences cross-college PhD program. In a welcoming and convivial learning environment, students worked to develop the vocabulary,



peer group, and core professional skills necessary to support an interdisciplinary approach to grand challenges in ecology and environmental sciences. Many of

the issues that we confront in today's society related to ecology and environmental issues are multifaceted, with scientific, social, political, and economic ramifications. To further explore these issues the course focused on the following topics: climate change, water quantity and quality issues, managing landscapes for multiple objectives, and systems thinking tradeoffs and optimization.



Students attended local excursions to meet with researchers, land managers, non-governmental organization representatives, and land owners who have been tackling "grand challenges" within this ecosystem and to witness many of the core geological and ecological attributes of the Greater Yellowstone region.

#### Instructors:

T. Sterling, LRES; Director LRES online Professional MS

D. Debinski, Professor & Department Head Ecology

A. Hansen, Professor, Ecology; Director of IoE

## Yellowstone Field Station Survey

There has long been interest on campus to have a Montana State University field station near Yellowstone National Park, one that would support field research, teaching, and workshops. To gauge faculty interest, the IoE administered a short questionnaire about interest in a Yellowstone Field Facility. 23 faculty members completed the survey. The desired use of the field station was evenly distributed amongst teaching, research and workshops. Faculty had interest in using the field station year-round for teaching, workshops and research, with the majority of use being in the months of May, June, August and September. The desired duration of stay at the field station ranged from 1-10 days with the majority needing 1-3 days. Based on faculty responses, it appears the field station will need the following to accommodate teaching and workshop needs: a lecture room that seats 30 people, a projection screen, a computer, and a group team work space with tables. Researchers plan to use the field station anywhere from 2 days to 6 weeks and would come with a range of 1-12 people. There was a large variety of research topics of interest some of which were plant ecology, climate change, cold water fish, and hot springs microbes. Researchers' infrastructure needs were different than that of teachers. They need more lab equipment including microscopes, a sink, and lab tables. They would also be more reliant on a kitchen and beds. Thank you to everyone who took the time to complete the survey. This is the first step in helping MSU to better understand the specific type of needs for securing a field station near Yellowstone National Park.



## Dr. Andrew Felton



### How did you end up at MSU?

Well, I initially applied to my current position back in late 2019. Then the world changed. MSU reached back out in January of 2022. I had been hoping to make it back out west (I did my PhD in Colorado and a post-doc in Utah), but I never expected to hear back about this position. It just goes to show that you never know!

### What are your current research topics of interest?

At a basic level, I am interested in understanding how the functioning of water-limited ecosystems responds to changes in water availability. These changes in water availability occur across space, such as moving from a wetter to a drier ecosystem, but also through time within an ecosystem, if you think about how erratic rainfall patterns can be. I am interested, right now, in the intersection of these spatial and temporal components of water availability, specifically in terms of how they impact ecosystems. For example, how does the impact of drought on plant growth vary across arid, to semi-arid, to wetter ecosystems across the western US? These sorts of questions feed into one goal I have right now, which is to produce regional scale understanding of the vulnerability of western US ecosystems to climate change. This is important because climate change is increasing the frequency and extent of drought across the western US; look no further than the current US drought monitor.

### What led you to study plant and ecosystems ecology?

I think there are a few drivers. As an undergrad I gained research experiences mostly working in plant ecology and had a positive experience in a writing-intensive plant biology course. Plants, I found, are much more amenable to studying than animals. Couple that with the supreme importance of plants in ecosystems and society, then it isn't hard to rationalize focusing on them. Ecosystems ecology provides a larger-scale perspective on things, and I think that emphasis on the 'big picture' of how ecosystems function is something I have naturally gravitated to over time.

### What do you do in your free time?

I enjoy being active as much as I enjoy being lazy. I enjoy running, biking, rock climbing, and anything that gets me moving; I hope to become a better skier living out in Bozeman. But I also equally enjoy indulging in a great TV show, reading, and anything coffee related. Music was my first love, so anything music related; I have been playing guitar since I was 13.