



Rocky Mountains

Cooperative Ecosystem Studies Unit

Research, Education & Technical Assistance

NEWSLETTER

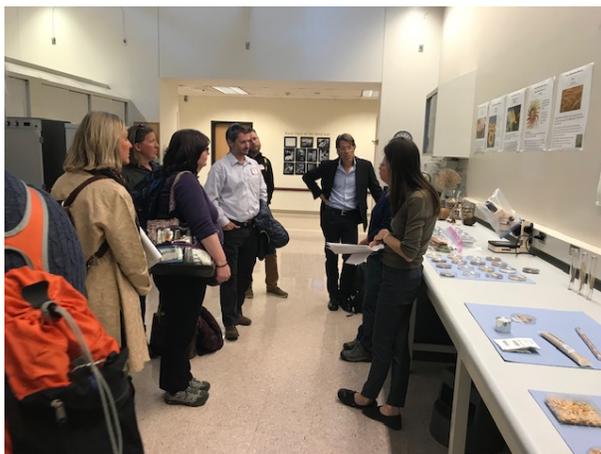
Winter 2019

RM-CESU NEWS & EVENTS

Report from the Annual Meeting of the Rocky Mountains CESU partners November 14-15, 2018, Colorado State University (CSU) and USGS- Fort Collins Science Center hosted Rocky Mountain Cooperative Ecosystem Studies Unit for the annual partners meeting.

RM-CESU Partners held a work session with University Offices of Sponsored Programs on CSU's campus the first day, November 14th. Brendan Moynahan/Kelly Adams, NPS; David Cooper, CSU; and Judy Fredenberg, UM made up the panel that discussed coordinating CESU Activity from the perspective of the Agency, the Principle Investigator, and the university Office of Sponsored Programs. Partners covered OSP's concerns regarding agreements vs. contracts and burdensome reporting requirements on some CESU agreements that do not match the lower IDC. We also discussed

possible ways to support the RM-CESU host university. A highlight of the day was the presentations of our two 2018 Student Award recipients, Jesse Grace, Colorado State University and Greg Chorak, Montana State University (see following article). A second highlight was a tour of the USDA Plant and Animal Genetic Resource Preservation Lab.



RM-CESU tours the USDA Plant and Animal Genetic Resource Preservation Lab on the CSU campus. The mission of the lab is to preserve plant and animal diversity so it is available to meet the challenges modern US agriculture faces.

On November 15th, the RM-CESU technical representatives moved to the USGS Science Center. After a tour of some of the lab facilities and briefing on current research, RM-CESU started our business meeting. Members discussed the requirements of our upcoming 5-year review and renewal as a CESU unit, potential celebrations of our 20th anniversary of the RM-CESU, and ideas for a new RM-CESU logo.

The RM-CESU partners also voted accept the membership application of the Center for Large Landscape Conservation. To learn about our newest partner, please view the CLLC website.

Rocky Mountains CESU announces 2018 Student Award winners

Each year the RM-CESU recognizes the outstanding contribution of student(s) on a RM-CESU project. The recipient of the **2018 Student Award** are **Jesse Grace**, Colorado State University and **Greg Chorak**, Montana State University

Jesse was nominated for this award by Ron Bend, CSU and Sara Melana, NPS for her contributions to the CESU project "**National Park Service Outside Science (inside parks) web video series, June 2017-July 2018.**"

Jesse has been an exceptional producer of the Outside Science (inside parks) video series featuring the experience of young people in science in national parks. Her professionalism working with parks across the country complements her visual story-telling. The results are quality video products that accurately present science conducted in parks and share the enthusiasm and interest of young scientists.



Jesse Grace, Colorado State University

View two of Jesse's favorite Outside Science (inside parks) videos: [Coral Bleaching in Guam](#) and [Hummingbirds—Banding Together in Capulin Volcano National Park](#)

Jeremy was nominated for this award by his advisor Dr. Ryan Thum and Lynde Dodd, US-ACE, for his contributions to the CESU project "**Investigations into Water Chestnut - Genetics and Ecology**"

Greg's dedication and commitment to serving as lead on the manuscript and for taking the lead on the morphological analysis exceeded our expectations for his role in this project. I would gladly work with Greg again.



Greg Chorak, Montana State University

Congratulations Jesse and Greg, this recognition is well deserved!

Climate change meets archaeology in Yellowstone explained in a recent video

A [new video about the ice patch archeology work](#) by Dr. Craig Lee, INSTAAR, University of Colorado Boulder describes an overview of more than a decade's worth of investigation into the archaeology of alpine snow and ice in the Greater Yellowstone and the effects of climate change on archaeological resources. It was made by Montana PBS and the Institute of Arctic and Alpine Research (INSTAAR) with support from the USDA Forest Service's Region 1 Heritage Stewardship Enhancement Program. The Yellowstone Ice patch investigations in the park were also funded by the NPS through the RM-CESU agreement with University of Colorado Boulder.

In describing his more than 12 years of work in the Greater Yellowstone Area, Craig Lee stated: "The (Greater Yellowstone Area) is without question the most active region in North America in terms of ice patch archaeology with the diversity of projects and the number of different teams working on it".

Lee's first major find took place in the Beartooth Mountains northeast of Yellowstone National Park. It was a highly crafted foreshaft (forward portion of the shaft of an arrow) that had ownership marks on it. The beauty of finding things once frozen in ice is that the organic materials that usually deteriorate rapidly are still preserved.

"It's more than 10,000 years old, Lee said. "It was deposited in the ice about 10,300 years ago. Ice that was 10,000 years old had melted away. Finding that foreshaft was a game-changer. In this particular location there were several artifacts that were found which reinforced and reinforced the nature of the resource and the potential for it at this latitude."

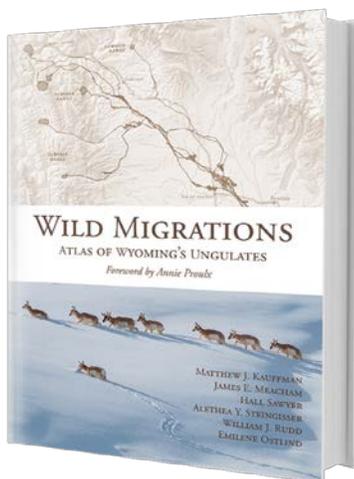
Elizabeth Horton, archaeologist for Yellowstone National Park, speaking in the INSTAAR video said there is an urgency with this type of research because as the ice melts, the resources will also vanish.

"So with the ice patches, we do find that they are retreating," she said. "Not only throughout Yellowstone National Park, but throughout the greater Yellowstone ecosystem, throughout the Rocky Mountains, throughout North America and it's across different places around the globe."

Ice patch discoveries provide an amazing way to capture public interest and to integrate education about archaeology and Native American cultures with ancient and modern climate. This video provides a brief overview of more than a decade's worth of investigation into the archaeology of alpine snow and ice in the Greater Yellowstone and the effects of climate change on archaeological resources

Atlas Chronicles History, Routes and Threats to Western Ungulates Authored by RM-CESU Cooperators at the University of Wyoming and USGS

This atlas was recently published by Oregon State University Press and is a visual way of looking at the extensive research done in Wyoming and the Greater Yellowstone by researchers in Matt Kauffman's group at University of Wyoming.



Credit Oregon State University Press

This full-color atlas of Wyoming's ungulate migrations is titled *Wild Migrations* and uses maps to reveal the complex world that wildlife navigate in order to survive. Part of the atlas is available for viewing [online](#).

University of Wyoming wildlife professor and scientist with the USGS Wildlife Cooperative Research Unit, Matt Kauffman was one of the first scientists to recognize the distances wildlife were traveling in the state. He said he and the other authors of the atlas worked for six years with cartographers to create the maps. For more information on Matt's research, visit his [lab's website](#).

"They tell stories with maps and they are extremely good at, well, what is the story? Well, let's figure out the different layers on the map that we need to show that," explained Kauffman. "Which are the most important layers to bring to the front that you want the readers to see first and help tell that story?"

Writer Annie Proulx penned the book's foreword and says maps can help people overcome the mental barriers we have to imagining the lives of animals.

Co-author Emilene Ostlind, one of the Boyd Evison fellowship winners from University of Wyoming, was quoted as saying that it also helps us see wildlife through the lens of history by showing where migration routes overlap with

archaeological sites. "We ended up dipping into archaeological information; rock art, findings of tools and bones of migrating ungulates that had been harvested by people on the landscape".

Archeology-focused *Yellowstone Science* magazine released, with significant contributions from RM-CESU partners

A new issue of *Yellowstone Science* magazine has just been published on-line, with a series of articles describing the history and achievements of the park's archeology program.

"Ultimately, as much as archeology compels us to rethink how we define this landscape, it certainly makes the story of Yellowstone National Park deeper and richer, helping us understand that this place was important long before early European explorers came here," guest editor and Chief of Cultural Resources at Yellowstone National Park, Tobin Roop writes in the introduction. Over decades there have been much archeology field work and interpretation of Yellowstone archeology contributed by RM-CESU university partners, including University of Montana, University of Wyoming and University of Colorado Boulder (ice patch archeology). Field schools have been organized by a number of these partners to benefit our knowledge of the history and pre-history of Yellowstone, but also to serve as training grounds for students who want to make archeology their life's work.

The *Yellowstone Science* issue includes articles focusing on obsidian, the Nez Perce Trail, and the historical archeology of Yellowstone. Central to the issue is the important work done by Dr. Doug MacDonald, University of Montana Anthropology Professor and his students. Doug MacDonald's surveys of the shores of Yellowstone Lake provide invaluable insights into how this huge body of water served as a hub of activity for thousands of years. His article in *Yellowstone Science* is an outgrowth of his recent book, *Before Yellowstone: Native American Archaeology in the National Park*, published February 2018 by the University of Washington Press.

This new issue, along with an index of past issues of *Yellowstone Science*, is available [online](#).

Download [individual chapters from this archeology issue](#) of *Yellowstone Science* 26-1.

Support for *Yellowstone Science* is provided, in part, by [Yellowstone Forever](#), the official non-profit partner of Yellowstone National Park and Canon, USA.

CALENDAR:

March 4-8, 2019: 84rd North American Wildlife and Natural Resources Conference, Sheraton Denver Downton, Denver, CO. The North American Conference sessions, workshops and more than 150 separate meetings and functions serve as the annual forum to set conservation policy in North America. [84th Conference Website](#)

March 5-6, 2019: Rocky Mountain National Park 2019 Biennial Research Conference: Continual Change, Collaborative Stewardship Estes Park, CO. [2019 Conference Website](#)

May 6-9, 2019, 2019 National Outdoor Recreation Conference - *Storytelling in Outdoor Recreation: People Places, Landscapes, Cultures*, Rapid City, SD. Showcases innovative and creative approaches to outdoor recreation research, planning and management. [2019 National Outdoor Recreation Conference Website](#).

FUNDING OPPORTUNITIES

Rocky Mountain National Park - 2019 Call for Park-Funded Research Proposals The Continental Divide Research Learning Center (CDRLC) is issuing a request for proposals in three categories including research, technical assistance, and education projects. These projects should aim to promote the informed decision making and adaptive management of Rocky Mountain National Park or the education of staff to promote professional development and growth. Due: January 21, 2019

STUDENT OPPORTUNITIES

Glacier National Park Conservancy - Jerry O'Neal Research Fellowship -2019 Call

Applications are now being accepted for the **Glacier National Park Conservancy - Jerry O'Neal Research Fellowship** for work in Glacier National Park, Grant-Kohrs Ranch NHS, and Little Bighorn Battlefield NM. The fellowship aims to provide educational assistance for students seeking to understand natural and cultural resources issues and how these interact with human values. Special consideration will be given to proposals that address the following:

1. natural resource issues such as aquatic ecology, terrestrial ecology, fire ecology, invasive plants, and climate change
2. cultural resource issues, such as history and architectural studies, cultural landscape reports, ethnographic research and archeology
3. social science that informs resource management about a natural or cultural topic and/or that addresses visitor impacts to park resources

Competition is open to graduate students or superior upper division undergraduate students at RM-CESU universities and colleges only. Awards range from \$1000-5000. Applications must be submitted electronically by February 15, 2019. **Application Process**

Boyd Evison Student Fellowship for research in the Greater Yellowstone The Grand Teton Association offers a graduate fellowship of up to \$10,000/project for graduate studies focused on documenting the almost intangible and disappearing aspects of the Greater Yellowstone Ecosystem, including Grand Teton and Yellowstone National Parks, the John D. Rockefeller, Jr., Memorial Parkway, and other public or private lands. Emphasis areas are lesser-known ecosystem elements such as air and water; geologic or other processes; plants, insects, reptiles, or amphibians, fungi; natural soundscapes; and social science related to public understanding of natural resources and their use or management. Graduate students pursuing either a Master's or Doctoral degree are invited to submit proposals on the application form by January 25, 2019. **Evison Fellowship Call and Application Form**

The **Rocky Mountain Conservancy and Rocky Mountain National Park** are requesting proposals for the **Bailey Research Fellowship**. This is an opportunity for one graduate level student to spend three to four months conducting research in Rocky Mountain National Park. **Job Description:** This fellowship opportunity invites a broad range of research proposals to be reviewed and conducted in Rocky Mountain National Park, including wildlife management, vegetation and riparian studies, fire ecology, cultural sciences, archaeology and historic

structures preservation, as well as other topics in botany, zoology, geology, history, ecology and ornithology. The graduate student awarded the Research Fellowship will work with Rocky Mountain National Park staff for a period of three to four months. Applicants must submit a preliminary research proposal and the chosen fellow will be expected to convey research finding to the general public as well as to professional audiences. **Wage/Salary:** Housing plus a \$8,000 honorarium and a \$3,000 support budget for incidentals. **Application Instructions:** Please email a cover letter, resume, transcripts, and research proposal to Rachel Balduzzi at rachel.balduzzi@rmconservancy.org by February 1, 2019 for consideration of this fellowship.

The **Conservation Leadership through Learning (CLTL) Program** at Colorado State University (CSU) is an 18-month innovative Master's degree which prepares leaders to address conservation issues around the globe. The program is built around principles of experiential learning, inter-disciplinary instruction, and applied approaches. Our students work closely with a network of practitioners and organizations throughout the program. CLTL is a great option for individuals seeking to make a difference in the lives and ecosystems of our planet. Application for Fall 2019 open until March 1, 2019.

TRAINING OPPORTUNITIES

Wilderness Management Distance Education Course at the University of Montana - PTRM 407/562, Managing the Wilderness Resource This course examines recreation management in a wilderness setting. Students will examine and discuss wilderness management strategies to address visitor use, visitor experiences, measuring and monitoring biophysical and social impacts, communicating effective wilderness education, interpretation, information, and conceptual approaches to communication, search and rescue protocol, and law enforcement.

Managing Recreation Resources deals with the human dimension of wilderness by focusing on managing wilderness for visitor use and enjoyment, and by representing ways to solve problems associated with visitors' expectations and their impacts. **Registration Deadline: January 23, 2019; Course Dates: January 28, 2019 - May 17, 2019**

JOB OPPORTUNITIES

For details, visit **Job Opportunities**

Assistant Professor/Associate Professor in human-environment systems science. Boise State University, Boise, ID (closes 2/1/2019)

Assistant Professor of Environment & Society, University of Wyoming, Laramie, WY (review of applications will begin 2/1/2019)

Assistant Professor/Associate Professor of Environmental Microbiology, Montana State University, Bozeman, MT (review of applications will begin 2/1/2019)

EPSCoR Project Coordinator, University of Idaho, Moscow, ID (review of applications will begin 1/16/2019)

Assistant Professor of Environment & Sustainability, Western Colorado University, Gunnison, CO (review of applications will begin 1/15/2019)

Assistant Professor of US Environmental Politics and Policy, Colorado State University, Fort Collins, CO (closes 1/7/2019)

Assistant Professor in Ecosystem Ecology - Biogeochemistry, Colorado State University, Fort Collins, CO (closes 1/4/2019)

Assistant Professor - Quantitative Forestry Ecology, Washington State University, Pullman, WA (review of applications will begin 12/21/2018)

If you would like to post an announcement in the next RM-CESU Newsletter or on the website, please contact the RM-CESU Coordinator at rmcesu@cfc.umn.edu.