



Rocky Mountains

Cooperative Ecosystem Studies Unit

Research, Education & Technical Assistance

NEWSLETTER

May-June 2017

RM-CESU NEWS & EVENTS

RM-CESU Announces the Annual Competition for Student Award: The Rocky Mountains CESU annually recognizes "above and beyond" accomplishments by student(s) involved in Rocky Mountains Cooperative Ecosystem Studies Unit (RM-CESU) projects. Nominations may be submitted by any representative of the federal agency that sponsored the RM-CESU project, or by the student's RM-CESU university.

Nominations for Student Award are due August 16, 2017. The Award winner(s) will receive a citation and give a presentation on their project results at annual RM-CESU Fall Meeting in September at Western Colorado State University. For nomination instructions, go to the RM-CESU web site at [Student Award](#).

Boyd Evison Graduate Research Fellowship Awarded for 2017 to University of Montana Graduate Student at the Avian Science Center The Grand Teton Association, in cooperation with Grand Teton National Park, offers a fellowship of up to \$10,000 for graduate studies in the Greater Yellowstone Ecosystem, including Grand Teton and Yellowstone National Parks, the John D. Rockefeller, Jr., Memorial Parkway, and surrounding lands. Emphasis areas are lesser-known ecosystem elements such as air and water; geologic or other processes; plants, insects, reptiles, amphibians, fungi; natural soundscapes; and social science related to public understanding of natural resources use or management. This fellowship has been funded since 2005.

The fellowship is supported by private donations and honors Boyd Evison, one of the National Park Service's leaders and supporters of expanding scientific knowledge to help shape informed management decisions and maintain natural and cultural resources. After his exemplary NPS career, Mr. Evison directed the Grand Teton Association prior to his death in 2002. Information on previous fellowship awardees can be found at <http://home.nps.gov/grte/learn/nature/research.htm>



The 2017 winner of the fellowship is **Danielle Fagre**, an M.S. student in the Wildlife Biology Program, University of Montana. She received her B.A. degree in Biology from Lewis and Clark College, Oregon. Previously she worked as a Biological Technician in the Greater Yellowstone Area, working on wolverine issues with the Round River Conservation Studies program and on bird and mammal research at Grand Teton National Park.

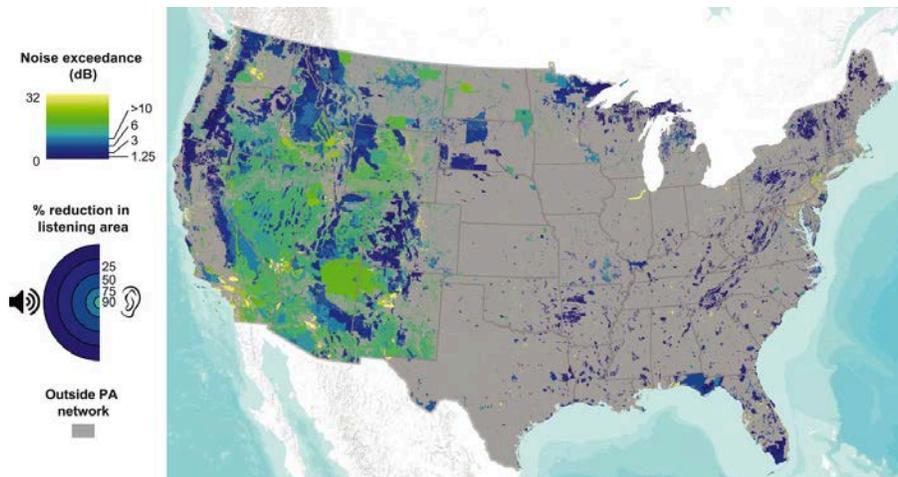
Her research project proposal is titled, "The Importance of contemporary bison grazing for sustaining grassland avifauna". She plans to conduct field experiments in Yellowstone National Park to look at the effects of bison grazing on grassland songbird populations. Declining populations of grassland bird species of conservation concern in the Greater Yellowstone Ecosystem include Brewer's Sparrow and the Sage Thrasher. She will use comparative plot studies to quantify bird species abundance related to different levels of bison grazing intensity. This will

benefit resource managers who are involved in bison management. Danielle has already worked on a similar problem at the National Bison Range in Montana.

Noise pollution is pervasive in U.S. protected areas, an article published in the May 5, 2017 edition of **Science**, represents work done by RM-CESU partners, the National Park Service and Colorado State University. In natural environments noise pollution from humans has doubled sound levels in more than half of all protected areas in the United States—from local nature reserves to national parks—and it has made some places 10 times louder, according to a new study published in **Science**, and reported in the online version of Science News, http://www.sciencemag.org/news/2017/05/noise-pollution-invading-even-most-protected-natural-areas?utm_campaign=news_daily_2017-05-05&et rid=49288577&et_cid=1311697 **Noise pollution is pervasive in U.S. protected areas**, is the title of a research report published in **Science** journal Volume 356, pp 531-533, on May 5, 2017. Authors of this report include five investigators from Colorado State University and two from the National Park Service, Natural Sounds and Night Skies Division, Fort Collins, CO. The authors include: Rachel Buxton, Megan McKenna, Daniel Mennitt, Kurt Fristrup, Kevin Crooks, Lisa Angeloni, and George Wittemyer. Funding for this study came from the National Park Service through the Rocky Mountains CESU.

Using continental-scale sound models, the researchers found that anthropogenic noise doubled background sound levels in 63% of U.S. protected area units and caused a 10-fold or greater increase in 21%, surpassing levels known to interfere with human visitor experience and disrupt wildlife behavior, fitness, and community composition. This cacophony isn't just bad for animals using natural sounds to hunt and forage—it could also be detrimental to human health.

Fig. 1 Median noise exceedance (the amount that anthropogenic noise increases sound levels above the natural level) in protected area units across the contiguous United States.



Rachel T. Buxton et al. *Science* 2017;356:531-533



The analysis of data collected at 492 sites throughout the United States indicates that noise pollution in protected areas is closely linked with transportation, development, and extractive land use. Many protected areas already use noise-reducing strategies, like operating shuttles to reduce traffic or concentrating highways and flight paths into "noise corridors." The authors have produced a geographic map of noise that can help land managers make decisions about where to implement mitigation measures to protect both wildlife and human health and well-being.

RM-CESU "SPOTLIGHT"

Exploring the science and culture of ranching with the National Park Service



My name is Carmen Thissen, and I am a Biology and Climate Change Studies student at the University of Montana. This semester, I have had the incredible opportunity to intern with the National Park Service at Grant-Kohrs Ranch, a park unit dedicated to preserving historic cattle ranching practices. My internship has been a great introduction to the science and culture of ranching, and has helped develop my interest in sustainable agriculture and food production.

A little bit about Grant-Kohrs Ranch (GRKO): GRKO is a National Historic Site located in Deer Lodge, Montana. The Park is situated on what was once the headquarters of

Conrad Kohrs' ten million acre cattle empire, and is unique for its mission of preserving the culture of the open-range cattle industry. Conrad Kohrs, "Montana's Cattle King," once owned over 50,000 cattle, but the ranch now operates with around 100 cattle and 6 draft horses. The Park also seeks to protect the natural environment, as Deer Lodge is home to numerous wildlife species including whitetail and mule deer, coyotes, beavers, and moose. The Clark Fork River flows through the area, providing fish and wildlife habitat and depositing soils that support ranching practices.



The Clark Fork River flows through Grant-Kohrs Ranch. (NPS photo from GRKO website)

My internship: My internship is considered a "pilot" position for what will hopefully become a widespread program in the future, and will include student interns in numerous National Parks. Over the course of the semester, I have been working with park staff and my supervisors to draft a "Superintendent's Climate Change Checklist" that will deliver a comprehensive assessment of the impacts of climate change on park resources. The aim of the

project is to provide relevant information in a format that park employees can use to make meaningful management decisions regarding climate change.

When I visited Grant-Kohrs back in February, I had the opportunity to tour the ranch and present my initial draft of the "Superintendent's Checklist" to the park staff (including the superintendent). They gave great feedback, and we decided that my time would be best spent focusing on a single resource rather than briefly examining the vulnerability of each cultural/natural resource. We collectively decided that "soil health" would be the focus of the last few months of my internship, for the following reasons:

1. Good soil health is crucial to protecting other park resources such as livestock health, plant diversity and wildlife habitat, and in controlling the threat of noxious weeds and erosion.
2. Soil health is a resource that can be improved by active management decisions, primarily regarding cattle grazing.
3. Soil plays a key role in the mitigation of climate change on a global level due to its capacity to sequester carbon.



Steers eating hay at Grant-Kohrs Ranch. The Park owns a mix of Longhorns, Herefords, and Shorthorns. (NPS photo by Jessica Haerr)

Having never taken a soil health class (let alone grown up on a farm!), narrowing the project's focus has been a welcomed challenge for me. The more I learn about the importance of soil health in the efficiency of food production, the more interested I become in a career focused around sustainable agriculture. By the end of the semester, I hope to have produced a document that articulates not only the impacts of climate change on soil health, but lays out potential management strategies aimed at improving soils. All in all, I am excited to provide information to

Grant-Kohrs Ranch that will be helpful in making climate-smart decisions, and I look forward to seeing this meaningful internship program grow!

PARTNER NEWS & EVENTS:

University of Wyoming and USGS: Migrating Mule Deer Track 'Green Waves' of Spring Forage Migratory mule deer in Wyoming closely time their movements to track the spring green-up, providing evidence of an underappreciated foraging benefit of migration, according to a new study from a team of researchers led by University of Wyoming and U.S. Geological Survey (USGS) scientists at the Wyoming Cooperative Fish and Wildlife Research Unit.

Biologists have long understood that migration corridors are important for enabling animals to move between winter and summer ranges, but corridors themselves were not actually understood as habitat. However, this new research has documented that these economically and ecologically important game animals are not just moving from low-

elevation winter range to high-elevation summer range. Rather, the daily movements of migratory mule deer are closely timed to track spring green-up, known as "surfing the green wave."

The new results indicate deer's surfing includes stopping over at various points along the way, prolonging the animals' exposure to high-quality forage along the entire migration route. The findings are reported in a paper released to the public. The paper will be published in the June issue of the scientific journal *Ecology Letters*. Read more: [Green Waves](#)

[University of Colorado Boulder](#): **Beyond Boulder: Undergraduate's independent film merges hip hop and the wilderness** This summer, Ani Yahzid is embarking on an independent film project with a goal of encouraging young people to get outdoors. Assisting the CU Boulder undergraduate with his project is hip hop musician Namaste.

The Exposure Film Project: When Hip Hop Meets the Outdoors will be filmed in the wilderness of Olympic National Park. With little wilderness experience, Namaste will be exposed to the grandeur of the Pacific Northwest. The three short films comprising the project will feature alpine, rainforest and coastal environments and Namaste's authentic reaction to each.

"We live in time when more and more children are disconnected from nature," Yahzid said. "I want to use hip hop as a way to connect them with the outdoors. This film project brings together my love of hip hop and my love of the outdoors, which have not always gone together, but which I have been finding ways to combine that are fun and empowering." Read more: [When Hip Hop Meets the Outdoors](#)

[University of Montana](#): **Anthropologist Reveals Native Lifestyles in New Book** A University of Montana anthropology professor's research is helping to fill holes in the history of indigenous peoples living in the Pacific Northwest during the Fur Trade period.

Through excavations of a semi-subterranean dwelling in southern interior British Columbia, Anna Prentiss reveals ancestors of today's St'át'imc people were actively engaged in maintaining traditional lifestyles while making the best of new opportunities for trade and intergroup interaction. Her research is outlined in the newly released book "The Last House at Bridge River."



Anthropologists working at the site in 2016

"This is the first complete excavation and study of an aboriginal household from the early- to mid-19th century in the interior Plateau region," Prentiss said. "The deeper floors span circa 1,000 to 1,500 years ago and are providing unprecedented insight into the unfolding of household and village history." Read More: [Indigenous Lifestyles of Fur Trade](#)

Calendar of Events:

September 11-14, 2017: 14th Biennial Conference of Science & Management on the Colorado Plateau & Southwest Region, Flagstaff, AZ. This year's conference will continue to be a forum that brings together resource managers and research scientists to discuss the new findings, information needs, and possible solutions to the challenges confronting the lands, resources, and cultures of the Southwest. Global change, energy development,

and human population growth in the Southwest affect water availability, natural systems, and the social character of the region. [Conference Website](#)

September 17-20, 2017: Pathways 2017, Rocky Mountain National Park, CO. **Pathways** is a conference and training program designed to address the myriad of issues that arise as people and wildlife struggle to coexist in a sustainable and healthy manner. We invite you to join us in this critical wildlife conservation effort. Our mission is to increase professionalism and effectiveness in the human dimensions of fisheries and wildlife management field. Conference is hosted by Colorado State University, in partnership with the US Fish and Wildlife Service in Rocky Mountain National Park, Colorado. [Conference Website](#)

October 3-5, 2017: National Wilderness Workshop, in the beautiful gateway to the Ozark and Ouachita Mountains, Russellville Arkansas. This is the premier gathering of wilderness stewardship organizations, federal agencies, and wilderness academics to learn and discuss current wilderness issues, network among like-minded professionals, and seek solutions to pressing wilderness problems. [Conference Website](#)

January 8-11, 2018: Pathways Africa, Windhoek, Namibia, Colorado State University and The Cheetah Conservation Fund are co-hosting the 2018 Pathways Africa Conference and Training (Namibia) in partnership with the Large Carnivore Management Association of Namibia and the Namibia Nature Foundation. [Conference Website](#)

JOB OPPORTUNITIES

For details, visit [Job Opportunities](#)

Assistant Professor of Quantitative Spatial Ecology, Utah State University, Logan, UT (review date 9/11/2017)

Assistant Professor of Movement Ecology, Utah State University, Logan, UT (review date 9/11/2017)

Assistant Professor of Animal Population Ecology, Utah State University, Logan, UT (review date 9/11/2017)

Researcher II - Environmental Monitoring, Department of Plants, Soils, and Climate, Utah State University, Logan, UT (review date 6/24/2017)

Botanical Field Crew Leader, Center for Environmental Management of Military Lands (CEMML), Pohakuloa Training Area, Hawaii (closes 6/15/2017)

Genetic Conservation and Outplanting Section Leader, Center for Environmental Management of Military Lands (CEMML), Pohakuloa Training Area, Hawaii (closes 6/15/2017)

Postdoctoral position (A Ph.D. in atmospheric sciences, chemistry, physics, environmental engineering, or a related discipline is required), Institute of Arctic & Alpine Research, University of Colorado-Boulder, Boulder, CO (review of applications begins 6/10/2017)

Cultural Resources Management Specialist, Center for Environmental Management of Military Lands (CEMML), Scott Air Force Base in Southern Illinois, 25-miles East of St. Louis (closes 6/4/2017)

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.