



Rocky Mountains Cooperative Ecosystem Studies Unit

NEWSLETTER

Spring 2021

RM-CESU NEWS & EVENTS

Glacier National Park Conservancy - Jerry O'Neal Research Fellowships Awarded to Three Graduate Students to Work in Glacier NP this Summer

The Rocky Mountains CESU, Glacier National Park Crown of the Continent Research Learning Center and the Glacier National Park Conservancy announced the selection of three graduate students who received 2021 Glacier National Park Conservancy - Jerry O'Neal Research Fellowships for work in Glacier National Park (GNP) in the areas of ecology and social science during summer 2021.

The three Graduate Students who received awards are:

Forest Hayes, Colorado State University, Ph.D. Candidate, will investigate short- and long-term changes in resource utilization by mountain goat in GNP to determine response of mountain goats to ambient climate and 2) to predict landscape-level habitat and resource use under future climate projections. Understanding the extent to which such responses vary is important at broader scales because the degree of behavioral plasticity will inform the future distribution and persistence of mountain goats.



Nico Matallana-Mejia, Colorado State University, M.S. Candidate Bison are thought to have played a keystone role in GNP's grasslands and are culturally significant to Native American tribes in the region. The goal Nico's research is provide critical baseline knowledge of grassland plant diversity and community change necessary to gain a predictive understanding of grassland response to bison reintroduction.

Jaclyn Rushing, University of Montana, Ph.D. Candidate, will monitor visitor use volume on climbing routes in GNP to gain an understanding of the baseline volume of visitors on alpine climbing routes, to establish and determine a reliable and relatively easy monitoring methodology for alpine routes, and to provide foundational data to inform future research determining if visitor use can serve as a proxy indicator for ecologic and visitor experience impacts of increasing use.



The Crown of the Continent Research Learning Center (CCRLC), in collaboration with the Rocky Mountain CESU and with support from the Glacier National Park Conservancy (GNPC), created the Glacier National Park Conservancy—Jerry O'Neal Research Fellowship to promote research in Glacier National Park, Grant-Kohrs Ranch National Historic Site, and Little Bighorn Battlefield National Monument. The research fellowship is open the students from

academic institutions in the CESU Network. More information about the fellowship can be found at the [CCRLC website](#). For information about research needs promoted by the Conservancy, go to the [GNPC website](#).

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 25, 2021. The Award winner(s) will receive a citation and give a presentation on their project results at annual RM-CESU *Fall Meeting*. [Nomination Instructions](#)

The Rocky Mountains CESU Kicked-off its first Seminar Series this spring with the topic of Justice, Equity, Diversity, and Inclusion (JEDI)

Three seminars covered cooperative eco-cultural restoration of American Bison to Native Americans, career building Native American internships at Yellowstone National Park, and BIPOC (Black, Indigenous, and People of Color) students voicing how they grapple with JEDI issues. Recordings of the seminars are located on the [Seminar Page](#).



RM-CESU Partner Cooperative Research on Whitebark Pine Defense Against Bark Beetles Featured in Webinar: On Tuesday, February 23, 2021 Montana State University graduate student, Nickolas Kickas, delivered on on-line webinar sponsored by the Northern Rockies Fire Science Network: "Whitebark Pine Growth and Defense in Response to Mountain Pine Beetle Outbreaks." A recording of the webinar is now available on the [NRFSN website](#). Nickolas describes his project which took place at study sites located on the Flathead Indian Reservation, with paired sites with healthy Whitebark Pine stands, and dead stands. Cooperators on this project included CSKT, SKC, USGS, FWS, MSU, and UM. This work is part of his dissertation study, which has moved into a phase-two project. He was looking at WBP resin ducts (size and density) as defense against beetles. This study included the collection and analysis of 3776 tree ring chronologies. This resin duct analysis was published in [Forest Ecology and Management in February 2020](#).

Two Montana State University Graduate Students Win Research Competition through the Whitebark Pine Ecosystem Foundation: Each year the Whitebark Pine Ecosystem Foundation awards a \$1000 grant to a graduate student to help with field and lab work on their research project. Graduate students who are working on the ecology of high-elevation, five-needle pines and need a little extra cash to finish their project can apply for funding from the WPEF. In 2021 there was a second award added thanks to the generosity of John Van Gundy. This year there were two winning proposals from MSU graduate students who are working in experimental greenhouse facilities under the guidance of Dr. Danielle Ulrich. The two proposals are: (1) Chloe Wasteney, *Physiological Traits and Stress Resistances of Whitebark Pine*; and Sean Hoy-Skubik, *Patterns of Whitebark Pine Carbon Allocation: Implications for Stress Resistance and Conservation Strategies*. For more information go to the [student grant competition page](#).

University of Colorado Boulder Research Group Publishes Results of Mammal Responses in the Southern Rockies to Climate Change: The largest and tallest mountain range in the contiguous United States, the southern Rocky Mountains, has warmed considerably in the past several decades due to anthropogenic climate change. Christy McCain at CU Boulder led a research group that studied how mammal elevational ranges (27 rodent and 4 shrew species) have changed from their historical distributions (1886-1979) to their contemporary distributions (post-2005) along elevational gradients in the Front Range and San Juan Mountains of Colorado. The researchers looked at more than 4580 geo-referenced museum specimen and publication records, and applied models to estimate changes in mammal distribution. Small mammals are moving to higher elevations in the Colorado Rocky Mountains on average by over 131 m, with slightly larger upward shifts in the northwestern Front Range Mountains (162 m). During the historic study period temperatures have warmed by at least 2° C across Colorado and within each of these mountains ranges. This paper is published online in *Ecology* journal, with the citation: **McCain, C. M., King, S. R. B., and T. Szewczyk. 2021. Unusually large upward shifts in cold-adapted, montane mammals as temperature warms. *Ecology*: February 2021.**

JOB OPPORTUNITIES

Assistant Professor, Terrestrial ecosystem ecology, Utah State University, Logan, UT (Application review begins 9/1/2021)

Postdoctoral Research Associate in aquatic nitrogen cycling and plankton metabolism, Flathead Biological Station, University of Montana, Polson, MT (Application review begins 8/1/2021)

Fire Ecology Information Analyst, Utah Forest Institute, Utah State University, Logan, UT (Application review begins 6/30/2021)

Ecology Program Manager, Wyoming Natural Diversity Database, University of Wyoming, Laramie, WY (Application review begins 5/30/2021)

GIS Specialist, Center for Environmental Management on Military Lands, Schofield Barracks, HI (Closes 5/24/2021)

Natural/Cultural Resources Specialist - Pentagon, Center for Environmental Management on Military Lands, Washington, D.C. (Closes 5/24/2021)

Paleoclimatology Postdoctoral Associate, Cooperative Institute for Research in the Environmental Sciences (CIRES) University of Colorado, Boulder, CO (Posted 5/5/2021; open until filled)

For details on these job opportunities, visit the [Jobs Page](#)

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.