RM-CESU NEWS & EVENTS

RM-CESU Announces the Annual Competition for Student and Project Team Awards: The Rocky Mountains CESU annually recognizes outstanding students and projects through an awards program.

The **RM-CESU Student Award** recognizes "above and beyond" accomplishments by students 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.

The **RM-CESU Project Team Award** was established as a way for a Project Team (the academic institution and the federal agency) involved in Rocky Mountains Cooperative Ecosystem Studies Unit (RM-CESU) projects to be recognized for their outstanding accomplishments.

Nominations for both Student Award and Project Team Award are due August 1, 2013. The Award winners will receive a citation and give a presentation on their project results at annual RM-CESU Fall Meeting in October. For nomination instructions, go to the RM-CESU web site at: [http://www.cfc.umt.edu/cesu/WhatsNew.php](http://www.cfc.umt.edu/cesu/WhatsNew.php). For more information contact Lisa Gerloff, RM-CESU Executive Coordinator, at 406-243-5346, lisa.gerloff@umontana.edu

50th Anniversary "Wilderness Forever" Photography Contest Opens

In honor of the 50th anniversary of the Wilderness Act, the public is asked to participate in a nationwide photography competition that illustrates the sheer majesty, diversity and value of America's wilderness areas. Submissions are open through Sept. 3, 2013, and winning images will be shown in a 2014 exhibit at the Smithsonian Institution's National Museum of Natural History in Washington, D.C.

The professionally juried contest is sponsored by Nature's Best Photography, the Smithsonian and Wilderness50, of which the University of Montana's Wilderness Institute is a leading member. About 50 winning entries will be displayed in the exhibit.

Photos must be taken in a legislatively designated wilderness area. A list of all wilderness areas is available online at [http://www.wilderness.net](http://www.wilderness.net). Photo categories include scenic landscape, wildlife, people in wilderness and most inspirational moment.

Photographers also are encouraged to submit a personal written, audio or video story along with their images. Stories may convey the meaning behind the images, the photographer's memory or personal experiences related to the images, or general feelings about wilderness or nature photography.

A complete list of entry guidelines is available at [http://www.naturesbestphotography.com/wilderness.php](http://www.naturesbestphotography.com/wilderness.php). For more information call Wilderness50 Media/Publicity Chair Lisa Eidson at 406-396-3607 or email lisa@wilderness.net.
CSU, the CESU and the DOD
By Robert Brozka, Associate Director, Center for Environmental Management of Military Lands, Colorado State University

It sounds like more government alphabet soup, but in this case, soup is good food—for the Department of Defense (DoD) and Colorado State University (CSU). The University, through its Center for Environmental Management of Military Lands (CEMML), has been successful in exploiting the advantages of Cooperative Ecosystem Studies Units (CESUs) to assist DoD in its dual missions of training soldiers and airmen and conserving the resources on its lands.

CSU is a member of three of the seventeen units in the CESU network—the Colorado Plateau, Rocky Mountain, and Great Plains units. DoD is also a member of these same three units, which makes it easy to establish individual cooperative agreements for work on any installation across the country.

CEMML currently has more than 30 active CESU projects on Army and Air Force installations stretching from Hawaii to Florida and from California to Virginia. The Center is executing a variety of projects in the broad realm of natural and cultural resource management. The installations benefit by being able to tap the 28 years of experience CEMML has in military land management and CSU’s global reputation as a leader in environmental sciences, at a cost lower than almost any contract alternative. Following are a few examples of ongoing projects:

**Historic Building Inventory and National Register of Historic Properties (NRHP) Evaluation for Joint Base Charleston, South Carolina** – An architectural inventory and National Register significance evaluation of historic buildings and structures. Final products will be a relational database of historic architecture on the base, NRHP significance determinations for these buildings, and a Historic Context document for these architectural resources.

**Management of Sensitive and Endangered Species at Fort Polk, Louisiana** – Four wildlife biologists staffed at Fort Polk assist the installation in the implementation of the endangered species management component of the Integrated Natural Resource Management Plan. Listed species and those of concern include the red-cockaded woodpecker, the Louisiana pine snake, Henslow’s sparrow, and American kestrel.

**Watershed Management at Fort McCoy, Wisconsin** – Fisheries biologists with the Center conduct stream and lake health studies, monitor water quality, and manage the extensive fisheries. **RM-CESU**

**Cultural Resources Program Support to Fort Bragg, North Carolina** – CEMML provides technical support to the Fort Bragg Cultural Resources Management Program in the areas of archaeological site management and evaluation, historic building management and evaluation, Native American consultation, and cultural resources GIS database management and cartographic production. A measure of the Program’s success was the installation winning the 2012 Army Environmental Award for Best Cultural Resources Program-Installation. **RM-CESU**

**Surveys for Prairie Bush-Clover, Blanding’s Turtle, Western Slender Glass Lizard, and Wood Turtle at Volk Field CRTC and Hardwood Range, Wisconsin** – Botanists and wildlife biologists from the center conducted surveys for these rare species and assessed the suitability of habitat for each of them.

Interested in learning more about Center for Environmental Management of Military Lands (CEMML)? Visit [http://www.cemml.colostate.edu/](http://www.cemml.colostate.edu/)
The relationship of large fire occurrence with drought and fire danger indices in Glacier National Park, 1984-2008: the role of temporal scale

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Wildfires play an important role in the Crown of the Continent ecosystem (Figure 1 and 2), providing a number of ecosystem services such as increasing forage for bears. Estimation of fire risk also affects land management planning and budgeting for firefighting. However, it is difficult to predict the timing and location of large fires in the Crown of the Continent ecosystem, since most wildland fires in this area are ignited by lightning during summer convective storms. Understanding how short- and long-term droughts are associated with large fire occurrence can help land managers know when and where fire risk is heightened.

During the period of this study (1984-2008), 17 fires larger than 1000 acres occurred within the boundaries of Glacier National Park (Figure 2). This number is not large enough to conduct statistical analysis of drought and fire occurrence for the Park itself, but by enlarging the analysis area to the surrounding Omernik ecoregions (Northern Rockies, Middle Rockies, Idaho Batholith, and Canadian Rockies), which are relatively similar in terms of vegetation and climate, there is a sufficient number of fires for statistical analysis (n=782, Figure 3).

Figure 2. Fires larger than 1000 acres in Glacier National Park from 1984-2008. Source: Monitoring Trends in Burn Severity (www.mtbs.gov).

Area burned was strongly correlated with several drought indices (Figure 4). Drought indices were calculated based upon 4-8 km gridded daily or monthly weather values (Daly et al. 1994), and were converted to percentiles to indicate local anomalies in weather conditions (percentiles near 50 indicate average conditions, while values near zero indicate dry conditions and values near 100 indicate wet conditions for most indices). Drought indices measuring time periods ranging from as short as one month to as long as one year demonstrated strong correlations with area burned in these forested ecoregions. Methods are described in more detail in Riley et al. (In Press). Correlations between drought indices and area burned were strong for Palmer...
Drought Severity Index (R^2=0.90), monthly precipitation (R^2=0.89), the Energy Release Component for fuel model G in the National Fire Danger Rating System (R^2=0.83), 3-month Standardized Precipitation Index or SPI3 (R^2=0.83), 9-month SPI (R^2=0.82), and 12-month SPI (R^2=0.86). Correlations between fire occurrence and 24-month SPI were of moderate strength (R^2=0.55).

These results suggest a different relationship between fire occurrence and drought than we found in the western USA as a whole, where correlations were strong only between area burned and short-term drought indices, especially monthly precipitation totals and the Energy Release Component. Longer-term indices, including the Palmer Drought Severity Index and 24-month Standardized Precipitation Index, did not have strong correlations with fire occurrence at the scale of the western US.

The four ecoregions in and near Glacier National Park are different from much of the rest of the western US in terms of climate, vegetation, and management, which likely affects dynamics between drought and wildfire. Fires in Glacier National Park and wilderness areas to the south (the Bob Marshall, Scapegoat, Selway-Bitterroot, etc.) are often allowed to burn under mild and moderate weather conditions, whereas wildland fires in much of the western US are actively suppressed. Longer-term drought metrics (3 months and greater) often do not capture weekly or monthly periods of dryness that can contribute to extremely dry fuel moisture values that correspond with periods when fires cannot be suppressed; however, longer-term metrics do capture multi-month dry periods that signify drought stress of the forest canopy, shrubs, and herbaceous vegetation, which may experience increased mortality.

The results of this project suggest that land managers in Glacier National Park may be able to predict active fire seasons further in advance than land managers in the rest of the western US. Because correlations are high for drought metrics that are
calculated based on yearly precipitation values, be identified up to a year in advance (if dry conditions contributing to an active fire season could continue into fire season).

References


Acknowledgements
The Crown of the Continent Research Learning Center in collaboration with the Rocky Mountains Cooperative Ecosystems Studies Units (RM-CESU) and in association with the University of Montana (UM) provided partial support for this project through the Jerry O’Neal NPS Fellowship and Transboundary Research Award.

PARTNER NEWS & EVENTS
Announcements:

**University of Montana:** UM Professor Emeritus Wins Great Plains Book Prize for ‘Blackfoot Redemption’

"Blackfoot Redemption: A Blood Indian’s Story of Murder, Confinement and Imperfect Justice" by William E. Farr is this year’s winner of the Great Plains Distinguished Book Prize from the Center for Great Plains Studies at the University of Nebraska. Farr is a senior fellow and founding director of the O’Connor Center for the Rocky Mountain West and Professor Emeritus of history at the University of Montana. Blackfoot Redemption: A Blood Indian’s Story of Murder, Confinement and Imperfect Justice" by William E. Farr is this year’s winner of the Great Plains Distinguished Book Prize from the Center for Great Plains Studies at the University of Nebraska. Farr is a senior fellow and founding director of the O’Connor Center for the Rocky Mountain West and Professor Emeritus of history at the University of Montana. Blackfoot Redemption: A Blood Indian’s Story of Murder, Confinement and Imperfect Justice" by William E. Farr is this year’s winner of the Great Plains Distinguished Book Prize from the Center for Great Plains Studies at the University of Nebraska. Farr is a senior fellow and founding director of the O’Connor Center for the Rocky Mountain West and Professor Emeritus of history at the University of Montana.

Richard Edwards, director of the Center for Great Plains Studies, made the announcement April 26 at the center’s annual fellows meeting. In "Blackfoot Redemption," Farr reconstructs the events of a Canadian Blackfoot called Spopee who shot and killed a white man in 1879. Through the narrative, he reveals a larger story about race and prejudice as the transition to reservations began. Read more: [http://news.umt.edu/2013/05/050113farr.aspx](http://news.umt.edu/2013/05/050113farr.aspx)

**University of Wyoming:** New UW Research Shows Grizzly Diet Shift Hits Elk Herds

A decline in native Yellowstone cutthroat trout due in part to the introduction of nonnative lake trout has driven a shift in the diets of grizzly bears that helps explain losses in some migratory elk herds in the greater Yellowstone area, according to new research published today.

The article in the Proceedings of the Royal Society B, led by recent University of Wyoming Ph.D. graduate Arthur
Middleton along with numerous collaborators, provides further support for efforts by Yellowstone National Park to suppress the lake trout population in Yellowstone Lake, those researchers say. Read more: http://www.uwyo.edu/uw/news/2013/05/new-uw-research-shows-grizzly-diet-shift-hits-elk-herds.html

USFS-Rocky Mountain Research Station: Science You Can Use Bulletin - May/June 2013
http://campaign.r20.constantcontact.com/render?llr=te6jrrkab&v=001kpRLqdWUZBxz1-fFQ3zPvXPk-DoI_2AndnDOIbT7ApdYTuzuLo4nzZcJkbB2DVcSEhIeB6IRHyZ3-SwEhd4ppaj3- UQiow8Y5XyI0XZeAOo5HfwxXrxcOFzbgmpRIAyNеОqdrkCsr6wATze4H1eLrChoBzhy4Xzrp1wWf0SwJGK7vh48D AqXZ8UrbygZBLwrx3dFIS-13IjTRhplQhUp1hpVjak6Ysqvmn3PTJwgbkCithrVJk1ZzxOKLYZ51Gaa92sm50joiATfncRV6Wgg%3D%3D

Calendar of Events:
June 4–8, 2013: International Symposium on Society & Resource Management, Estes Park, CO. ISSRM is the premier scientific meeting for academic and government researchers, students, agency scientists, land managers, NGO representatives, and other individuals who are broadly interested in the human dimensions of natural resource management issues. Meeting sponsored by Colorado State University. http://www.issrm2013.iasnr.org/

July 7–9, 2013: Council on Forest Engineering Annual Meeting, Missoula MT. Sponsors include University of Montana’s College of Forest and Conservation and Montana State University Extension Forestry. http://www.umt.edu/ce/cps/forestengineering/

July 23–24, 2013: Pollination, Climate Change and Invasive Species in Arctic and Alpine Ecosystems Workshop, Kluane Lake Research Station, Yukon. This is a 2-day workshop for scientists and stakeholders to address this important topic. The workshop will allow participants to assess the current state of knowledge, identify emerging issues, determine research priorities and lay the foundation for new collaborations and partnerships. Leading pollination biologists from Canada and the US working in arctic and alpine ecosystems will share their recent findings, and a major portion of the workshop will be devoted to group discussions and action planning. Workshop is sponsored by Artic Institute of North America at the University of Calgary. http://arctic.ucalgary.ca/files/arctic/CANPOLIN%20Yukon%20workshop%20announcement%20final.pdf

August 15–16, 2013: Clyde Martz Summer Conference - Arizona v. California at 50: The Legacy and Future of Governance, Reserved Rights, and Water Transfers, University of Colorado School of Law, Boulder, CO. The 50th anniversary of the Supreme Court’s historic decision in Arizona v. California arrives next summer. While the case was an important landmark in the still-evolving relationship between these two Lower Basin states, it remains most salient today by the way it codified federal rights and responsibilities, especially in the areas of federal (including tribal) reserved rights, the role of the Interior Secretary in Lower Basin water management, and the ability of Congress to allocate/reallocate water. It also modified the Upper Basin/Lower Basin relationship in important ways, especially regarding the treatment of Lower Basin tributaries. Moving forward, several types of potential management innovations in areas such as governance and water transfers will hinge on the framework outlined, in part, by this decision. http://www.colorado.edu/law/research/gwc/events


October 24–25, 2013: 3rd annual conference of the Sociology of Development section of the American Sociological Association, University of Utah, Salt Lake City, UT. The conference theme will be "The Future of Development," focusing on current research that provides foundation and direction for promising lines of future scientific inquiry on Development, with an emphasis on works that crosscut social, economic, political, and ecological spheres. http://soc.utah.edu/graduate/development-conference.php
TRAINING AND COURSE OPPORTUNITIES

UM Offers Field Courses in Montana, Alaska, Canada

Students have a unique opportunity to earn academic credit through The University of Montana this summer with the Wild Rockies Field Institute. WRFI will offer four courses taught entirely in the field worth three to 15 UM credits. The classes are:

Wild Rockies Summer Semester: In the heart of the bioregion known as the Yellowstone to Yukon, students will backpack in four stunning locations in Montana and the Canadian Rockies. This course will examine conservation at a broad regional scale, from a Native American perspective and at the local landscape level, with the goal of finding a comprehensive understanding of issues. (15 credits in nine weeks, June 14-Aug. 14)

Cycle the Rockies: Energy & Climate Change in Montana: Students will bicycle 700 miles across Montana - including in Glacier National Park - to study the ecological, social and economic issues associated with energy production and use. (six credits in four weeks, June 18-July 14)

Alaskan Rainforest: Ecology & Policy of the Tongass: Students embark on two kayak expeditions in magical and mythical southeast Alaska, where whales and bears abound and glaciers loom. This class will explore the unique temperate rainforest and its intimate connection to the sea. Ecological and political issues will be covered during this true academic adventure. (six credits in five weeks, June 28-July 30)

Environmental Ethics: Global Climate Change & Visions of a Sustainable Future: Students will backpack and visit the Rocky Mountain Front, the Blackfeet Indian Reservation and Glacier National Park. This course engages the discipline of environmental ethics to question what our relationship with the natural world should be. (three credits in three weeks, July 30-Aug. 16)

To read more about these field courses and to enroll, visit http://www.wrfi.net or call the Wild Rockies Field Institute office at 406-549-4336 or email wrfi@wrfi.net.

July 29 - Aug 2, 2013: Sediment Transport in Stream Assessment and Design, Logan, UT. Cost: $1850 ($1600 Early Bird Special if Registered Before June 1st). This course is intended for those who wish to understand and apply the principles of sediment transport to alluvial channel assessment and design. Principles of open channel flow and sediment transport are combined with watershed-scale, hydrologic and sediment source analysis to place channel assessment and design in the appropriate context. Threshold and alluvial channel design methods are presented along with guidelines for assessing and incorporating uncertainty. The course balances advance reading, lecture, field work, and hands-on exercises for estimating sediment supply, calculating sediment transport rates, and forecasting channel response to water and sediment supply. This course is intended for participants who are familiar with basic principles of river geomorphology. https://cnr.usu.edu/streamrestoration/htm/course-information

September 17-19, 2013: Monitoring and Assessment of Wetland and Riparian Restoration Sites, Montana State University, Bozeman, MT. The Montana Water Center and the Montana Department of Environmental Quality have initiated a series of annual training courses to build professional capacity regarding wetland science and regulation in Montana. For more information see the Montana Water Center web site: http://watercenter.montana.edu/training/wetlands/. Inquire at water@montana.edu.
**STUDENT OPPORTUNITIES**

**Call for Proposals for the 2013 Whitebark Pine Student Research Grant** The mission of the Whitebark Pine Ecosystem Foundation (WPEF) is to "promote the conservation of whitebark pine and other high elevation five needle white pine ecosystems through education, restoration, management, and research." In support of this mission, the WPEF will be offering a research grant of $1000 to an undergraduate who is writing an undergraduate thesis or graduate student (MS or PhD) conducting research on whitebark pine. Application materials must be submitted by August 31st, 2013. [http://www.cfc.umt.edu/cesu/files/Announcements/13WPEF_student_research_grant.pdf](http://www.cfc.umt.edu/cesu/files/Announcements/13WPEF_student_research_grant.pdf)

**FUNDING OPPORTUNITIES**

**SRLCC Seeking Applicants for Applied Science Funding Opportunity** The Bureau of Reclamation is funding applied science grants in support of the Southern Rockies Landscape Conservation Cooperative. The funding opportunity is available at [www.grants.gov](http://www.grants.gov) by searching for funding opportunity number R13AS80010. Applications are due by 4 p.m. MDT, June 11, 2013. [http://southernrockieslcc.org/funding_fy2013/](http://southernrockieslcc.org/funding_fy2013/)

**EPA Science for Sustainable and Healthy Tribes – $6 million** EPA, as part of its Science to Achieve Results (STAR) program, is seeking applications proposing research to develop sustainable solutions to environmental problems that affect tribes. The objectives of the awards to be made under this solicitation are to improve understanding of: 1) the health impacts of climate change on tribal populations; and 2) the health impacts of indoor air pollution exposures that derive from or are directly affecting traditional tribal life-ways and cultural practices. In both cases, projects should focus on impacts to vulnerable sub-populations of the Tribal communities. Proposals should also consider sustainable, culturally appropriate and acceptable pollution prevention, and adaptation/mitigation strategies. Eligible Entities: State and local governments, Federally Recognized Indian Tribal Governments, U.S. territories or possessions, public nonprofit institutions/organizations (includes public institutions of higher education and hospitals), and private nonprofit institutions/organizations (includes private institutions of higher education and hospitals) located in the U.S. Application due: June 25, 2013. [http://www.epa.gov/ncer/rfa/2013/2013_star_tribal.html](http://www.epa.gov/ncer/rfa/2013/2013_star_tribal.html)

**DoD Legacy Resource Management Program Request for Pre-Proposals** has been released for FY14. The official Request For Proposals (RFP) memo, Areas of Emphasis, and Final Schedule for Proposal Submission may be found on the Legacy Tracker website at [https://www.dodlegacy.org/Legacy/intro/RFP_Legacy.pdf](https://www.dodlegacy.org/Legacy/intro/RFP_Legacy.pdf).

The primary objective of the DoD Legacy Program is to identify and fund high priority conservation projects that enable mission sustainability goals, while promoting long-term stewardship of our nation's natural and cultural heritage. All projects are aligned to one or more Areas of Emphasis (AOEs), and support the mission-relevant priorities that form the basis of DoD’s Natural Resources Conservation Compliance Program and Cultural Resources Program. For FY 2014, the Legacy Program will emphasize the following priority AOEs, though proposals will be considered against all AOEs:
- Readiness and Range Sustainment (Integrated)
- Species At-Risk, Species of Concern and Declining Species and Habitat (Natural)
- Streamlining the Identification and Management of DoD Cultural Resources (Cultural)

Pre-proposals are due to Legacy Program by July 31, 2013, submitted via [www.dodlegacy.org](http://www.dodlegacy.org).

**JOB OPPORTUNITIES**

**Assistant, Associate, or Full Professor- Natural Resources Recreation and Tourism**, Warnell School of Forestry and Natural Resources - University of Georgia, Athens, GA (closes 7/15/2013)

**Conservation and Research Associate**, Wildlife Conservation Society, U.S. Northern Rockies, based in southwestern, MT (closes 6/18/2013)
Curator/Collections Manager, Center for Environmental Management of Military Lands, Fort Polk, LA (6/16/2013)

Two Environmental Compliance Technician positions, Center for Environmental Management of Military Lands (CEMML), Joint Base Elmendorf-Richardson (JBER), Alaska (closes 6/9/2013)

Natural Resource Program Coordinator, USFS, Missoula, MT (closes 6/4/2013)

Geographic Information Systems Technician, Center for Environmental Management of Military Lands (CEMML), Camp Guernsey, WY (closes 6/2/2013)

For details on job opportunities visit http://www.cfc.umt.edu/cesu/Postings/Jobs.php

MEETINGS OF INTEREST

June 16-20, 2013: 9th North American Forest Ecology Workshop, Bloomington, IN. The conference will allow forest ecologists, silviculturists, wildlife biologists, and other forest researchers and managers from Canada, Mexico, Central America and the United States to gather and exchange current research and management approaches within the backdrop of the US central hardwood forests. http://nafew.org/

July 21-25, 2013: 26th International Congress for Conservation Biology, Baltimore, MD. The biennial International Congress for Conservation Biology is recognized as the most important global meeting for conservation professionals and students. The theme of the 26th ICCB is "Connecting systems, disciplines and stakeholders" and the meeting will be aptly located along the shores of the Chesapeake Bay in Baltimore’s Inner Harbor. Chesapeake Bay is the world’s most productive estuary and the region is rich in cultural and historical heritage and conservation challenges and success stories. http://www.conbio.org/mini-sites/iccb-2013

September 16-19, 2013: 12th Biennial Conference of Research on the Colorado Plateau, Northern Arizona University, Flagstaff, AZ. Resource managers, scientists, citizens, and students are invited to attend and participate in this solution-oriented conference that addresses some of the most pressing natural and cultural resource management issues facing the Southwest and virtually every other region in North America. http://nau.edu/Merriam-Powell/Biennial-Conference/Welcome/


October 6-11, 2013: The SER2013 World Conference on Ecological Restoration: Reflections on the Past, Directions for the Future, Madison, WI. The conference will bring together more than 1,200 delegates from around the world interested in the science and practice of ecological restoration as it relates to natural resource management, climate change responses, biodiversity conservation, local and indigenous communities, environmental policy and sustainable livelihoods. http://www.ser2013.org/


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.umt.edu.