



Rocky Mountains

Cooperative Ecosystem Studies Unit



Research, Education & Technical Assistance

NEWSLETTER

December 2011 - January 2012

RM-CESU NEWS & EVENTS

The Rocky Mountains Cooperative Ecosystem Studies Unit is a partnership of 9 Federal Agencies and 13 universities. Members of the RM-CESU are the following:

Agencies:

Bureau of Land Management

- 1999

Bureau of Reclamation -

2004

Fish and Wildlife Service -

2009

National Park Service - 1999

Natural Resources

Conservation Service - 2004

US Forest Service - 1999

US Geological Survey - 1999

Army Core of Engineers - Civil

Works- 2008

Office of Deputy Under

Secretary of Defense - 2009

University:

University of Montana-host -

1999

University of Idaho - 1999

Montana State University -

1999

Salish Kootenai College -

1999

Utah State University - 1999

Washington State University

- 1999

University of Wyoming - 2002

Colorado State University -

2004

University of Colorado

Boulder - 2002

University of Colorado Denver

- 2002

University of Northern

Colorado - 2006

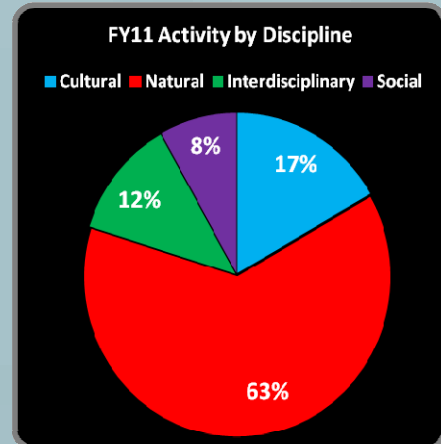
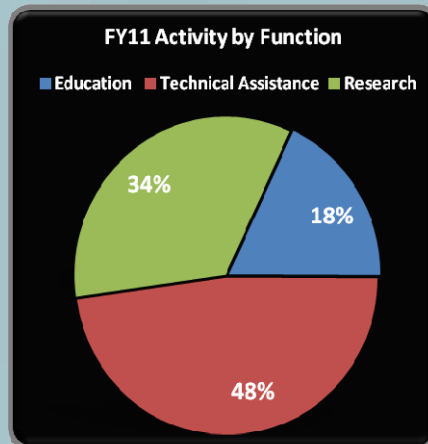
University of Calgary - 2007

Metropolitan State College of

Denver - 2011

A Year in Review: RM-CESU FY2011

This year, the RM-CESU facilitated **234 task agreements obligating \$23,965,949 to new projects or adding funds to existing projects.** RM-CESU projects provide needed research, technical assistance, and/or education to our Federal partners and cover the fields of natural resources, cultural resources, social sciences, and interdisciplinary.



Trends:

- Cultural, social and interdisciplinary projects are the largest growth area for the RM-CESU. RM-CESU facilitated nearly \$6 million in cultural, social and interdisciplinary projects in FY11.
- Growing emphasis on climate change related research, technical assistance, and education. The RM-CESU agreement was used for larger numbers of projects associated with the NPS Climate Change Response Program, the Landscape Conservation Centers (LCCs), and Climate Science Centers (CSCs). Over \$2 million directly supported climate change projects.
- At least 50% (and likely more) of RM-CESU projects receiving funding this year have student participation. Student participation includes research work by graduate and undergraduate students, as well as internships, field schools and class participation in projects.

To read the full FY2011 Annual Report for such details as the distribution of projects amongst the partners, trends over the past eleven years, and highlights of project, go to <http://www.cfc.umt.edu/CESU/NEWCESU/Projects/default.htm> (look under **Annual Reports**- column on the left-hand side of web page).

SAVE THE DATES! 2012 CESU Network National Meeting, 12-14 June, Washington DC

Every two years, the CESU Network National Meeting brings together partners from across the country to share outstanding examples of science, stewardship, and education in the spirit of collaborative conservation. The program includes plenary sessions, discussion sessions, a poster reception, new member orientation, CESU Directors' meeting, federal managers' meeting, and external activities, with opportunities to exchange information with conservation leaders from across government, academia, and the nongovernmental conservation community. Visit cesu.org for more information.



Jerry O'Neal National Park Service Student Fellowship

Applications are now being accepted for the Jerry O'Neal 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, and ethnographic research.
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 postmarked by February 15, 2012. For details on the application process please visit http://www.cfc.umt.edu/CESU/NEWCESU/Assets/Postings/O'Neal_announcement_12.pdf



Glacier National Park



Grant-Kohrs Ranch NHS



Little Bighorn Battlefield

SAVE THE DATES The Rocky Mountains Cooperative Ecosystem Studies Unit (RM-CESU) announces the **"Wilderness Stewardship in the Rockies 2012"** to be held February 27-29, 2012 at The University of Montana's Lubrecht Experimental Forest and Conference Center, MT. Topics for this year's workshop include: Wilderness character monitoring and integration, Wilderness and ecosystem services, backcountry social science surveys, and more. Discussion/problem solving sessions will be based on participants providing best practices/lessons learned from their experiences. There is no registration fee. Information on the workshop schedule and lodging options will be available soon. Inquiries may be directed to Lisa Gerloff, RM-CESU Executive Coordinator, at lisa.gerloff@cfc.umt.edu or (406) 243-5346.

Graduate Student Fellowship for work in the Greater Yellowstone Ecosystem - Boyd Evison Fellowship

The Grand Teton Association and Grand Teton National Park offer 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 plants, fish, insects, amphibians, fungi, snails, bacteria; air and water; geologic or other processes; natural soundscapes; and social science related to public understanding of natural resources and their use or management.

Applications must be postmarked by February 17, 2012. For more information, contact Sue Consolo-Murphy at Grand Teton NP - 307-739-3481. See announcement at:

<http://greateryellowstonescience.org/research/fellowships>. A research needs list for the Grand Teton area may be viewed at

http://www.cfc.umn.edu/CESU/NEWCESU/AgencyNeeds/NPSresearch_needs/GRTE.htm



The fellowship is supported by private donations and honors Boyd Evison, one of the National Park Service's greatest leaders and supporters of expanding scientific knowledge to help shape wise management decisions and maintain uncompromised native resources.



Joyce Lapp, "queen of the native plant nursery," Glacier National Park

The RM-CESU Wishes a Fine Retirement to one of our Agency Partners, Joyce Lapp, National Park Service, Glacier NP

After many years in resources management and restoration work in Glacier NP, Joyce Lapp is heading to retirement. She has been one of the Rocky Mountains CESU favorite Federal partners, having made good use of the RM-CESU agency and academic partners. Joyce has been one of our strongest advocates for working with Salish Kootenai College, and has mentored numerous SKC students, Blackfeet Community College students, and other seasonal and volunteers including senior citizens, the Montana Conservation Corps, and students at Montana State University and University of Montana.

She has been the "queen of the native plant nursery" at Glacier and has had far-ranging influence on the science of restoration, from collection and propagation of plant materials, planting, monitoring, and doing outreach to other NPS resource managers, other agencies, and park visitors on the science and the art of restoration.

Joyce has been responsible for developing successful restoration strategies for a variety of ecological habitat types throughout Glacier for historically disturbed lands and on-going maintenance activities. Joyce took the lead in restoring sites along the reconstructed section of the "Going-to-the-Sun" Road and on disturbed lands along backcountry trails and in campgrounds. And she is justifiably proud of her new "landscape" created around the shuttle terminal at Apgar. Early in her work at Glacier, Joyce "took on" the

issue of restoration along the popular Logan Pass trails, where she had to experiment with soil, vegetation and fungal reintroductions to get the subalpine plants to thrive. She was a strong and early supporter of monitoring and utilized rigorous monitoring data to revise restoration implantation plans and improve survival and restoration success.

Among Joyce's many accomplishments, she and her staff have refined propagation methods for nearly 300 plant species native to Glacier. Under a cooperative agreement with a USFS nursery specialist, Glacier has contributed these propagation protocols to a restoration site on the Internet at nativeplantsnetwork.org. Joyce has been responsible for expanding the park's propagation capabilities both in the park and outside with several creative partnerships. She has developed greenhouses in cooperation with Columbia Falls High School and Middle School on the west side of the park, and the Blackfeet Community College on the Blackfeet Reservation on the east side. The park staff also provides



instruction and propagation activities for students at Browning High School and the Salish Kootenai College greenhouses. Park facilities include a nursery with propagation beds, a greenhouse, and in-field planting beds. Total production has run from 20,000-50,000 plants annually with typical seed collection of 15-20 lbs. each year. These facilities have provided outstanding educational opportunities with yearly participation by over 500 students ranging from 3rd grade students to college seniors. The park facility alone draws over 500 visitors annually. She founded creative projects, such as Women, Water and Wilderness where female Blackfeet and Salish/Kootenai students gained confidence while kayaking to remote backcountry campgrounds to conduct restoration projects. Joyce has also developed cooperative relationships with other native plant producers such as the Natural Resources Conservation Service in Bridger, Montana and commercial growers for additional plant production and seed increase.

Partnerships and volunteers have been the focus of Joyce's long career with the National Park Service. From the RM-CESU perspective, she has been a real "champion" of our annual SKC restoration intern program. A succession of Native American students have been mentored and trained by Joyce in nursery operations, weed control and plant restoration ([Make sure to read the report by Carrie Fahlgren-Prewett, Joyce's 2011 SKC restoration intern on page 6](#)). A number of these students have returned to their reservations to become active in restoration ecology.

Joyce has also assisted the RM-CESU with the Biennial Stewardship in the Rockies workshop, and has been an instructor at these sessions on a regular basis. For her "sensitive" work on restoration in wilderness, she received an IMR Wilderness Stewardship Award. She has been a member of our RM-CESU small project competition for parks in the Rocky Mountains. And she has found like-minded university partners at Montana State to assist with developing new methods for native seed germination and plant propagation, including work on the use of mycorrhizal inoculation during restoration efforts. As part of a large effort by University of Montana, College of Forestry and Conservation, for planning studies along the Going-to-

the-Sun Road, she has introduced UM students to methods for restoring social trails along the road and providing education outreach to visitors to minimize damage to alpine vegetation.



Joyce Lapp and Laurie Yung, University of Montana, discuss engaging the public when addressing planning and climate change at the 2010 Wilderness Stewardship in the Rockies Workshop

Joyce has made education and appreciation of diverse ecosystems an integral part of her program. She has involved an average of 500 students yearly from eight local schools to participate in her Student Stewardship Program. She and her staff provide continuing instruction for students utilizing off-site greenhouses and assist with restoration projects on school and tribal lands. She was instrumental in the completion of a STARS (Students Taking Action for Restoration and Stewardship) workbook developed for teachers with lesson plans that tie stewardship activities with science curriculum. This workbook has been a popular teaching tool and is in demand from outside school districts.

She was very active in outreach to other land managers who were faced with similar plant restoration issues. She has provided restoration planning for numerous western parks through assignments from the Intermountain Regional Office as well the Confederated Salish and Kootenai Indian Tribes. She and her staff have worked cooperatively on plant collection, propagation, planning and fieldwork for the Hungry Horse Ranger District (USFS), the Bob Marshall Wilderness (USFS) and Waterton Lakes National Park (Alberta, Canada). Joyce worked for years as a member of the Western Federal Highways Erosion Control Core Team and developed protocols for erosion prevention on highway projects. Joyce has also been a regular participant on a national Burned Area Emergency Rehabilitation team, assessing natural resource damage following large wildfires and developing plans to mitigate or prevent severe resource damage.

After all this work, we hope that she takes some time off, enjoys more international sea kayaking, and looks back with fondness on her time working with the park staff and our partners.

Congratulations Joyce!



Lake McDonald in winter - Bill Hayden, NPS Photo

Summer 2011 Internship in Glacier National Park's Native Plant Nursery

By: Carrie Fahlgren-Prewett, Salish Kootenai College

The beginning of June 2011, I had the privilege to experience a seasonal internship in Glacier National Park, working in the Native Plant Nursery. While working at Glacier I learned the ins and outs of propagating plants, harvesting seeds from native species, and transplanting them into the wild. I also got to work with the Reveg crew and Monitors, looking at *Pinus albicaulis* (White Bark Pine), and completing some rehabilitation projects on several campsites and trailheads. During this time I got the opportunity to work on my senior thesis project that focuses on the contributing factors towards dispersal and reproduction of the *Vaccinium* species (huckleberries).

My First day in the nursery began with a tour of the green house, nursery, office area, and headquarters from Sue. (Sue was my "go to" lady and taught me a lot. Thank you Sue.) I began learning the process that plants had to go through to adapt to full sunlight, fluctuating air temperature and weather. This is a procedure called "hardening off". "Hardening off" consists of taking plants that have spent a sufficient amount of time growing in the green house outdoors for a couple hours a day, returning them to the green house, and repeating for a few days until the plants have reached a full day outside. The plants are then moved to the shade house, where they stay for a certain time, depending on how long they take to acclimate. From the shade house the plants are put out into the nursery to grow in full contact with the elements. The plants stay in the nursery until they are mature enough to be transplanted into the wild.

During the plant's stay in the nursery they are taken care of by the Nursery crew. Nursery crew duties include, but are not limited to: weeding, fertilizing, trimming (pruning), up-potting, culling, washing dishes, some office work and many other tasks that can be called "busy work". When you weed, depending on container size, you can use your fingers or tweezers. If the plants are in cone containers, you gently tap the top of the container against the palm of your hand until the plant, weeds and soil top horizon come out. You then peel the liverworts, moss, and any *Cardamine hirsuta* that you might find (they're everywhere in the nursery) out, and dispose of them in a bucket for weeds. You don't want to pull this layer of invasive vegetation off and leave the top of the plant exposed, so putting a little top fill of fresh soil and water is necessary. Fertilizing is done every few weeks, and takes an entire day. Trimming of plants and shrubs is done when the fauna is out growing its container or is infested with



SKC intern, Carrie Fahlgren-Prewett, working in Glacier NP's Native Plant Nursery.

aphids or other bugs. Up-potting is the transfer of plants or cuttings to larger pots as they out grow the smaller containers. Culling is taking a plant that is dead (unsuccessful), removing organic matter from the container and recycling the soil to the culled soil bin. Once the container is empty it we call it a dish, because it needs to be washed. Washing dishes is what seemed like a never-ending task in the nursery, but



Carrie collecting seeds in 2011.

with the help of an amazing volunteer named Jo, that sky-high stack of dishes was knocked down to nothing by the end of the season. My big nursery office duty this season was taking and inputting the fall inventory. This was accomplished by going out and counting all of the successful plants for each species from the fall seed collection, sorting out the dead plants from the live plants, recounting, and the numbers into the park's database.

Volunteer day and a tour of the Native Plant Nursery was every Tuesday. Volunteers helped with an incredible amount of up potting,

weeding, and seed collecting. Preparations for Volunteer day entail: premixing soil, and flagging collections for weeding and culling. Keeping the volunteers busy, and prioritizing tasks efficiently and successfully is another job in itself, but with the help and direction from Heidi, our Nursery Volunteer Coordinator it was always a good day to get a lot accomplished, and have fun doing it.

Seed collecting is an important part of nursery production. How would we have plants in the nursery without seeds to grow the plants from? Seed collection work starts in the spring when flora is blooming back from winter dormancy. Collecting seed is done according to elevation and area, and when the seed is sown it's given a location id, and number with three separate number parts telling the year collected, years sown and species number. A collection calendar is made up and helps the lead seed collector have an idea of what seed in certain areas mature sooner. Scissors and scythe are used for cutting. Plastic or paper sacks, depending on size and texture of seed are used as containers. After the seed is collected it is bagged, weighed and sent to Bridger Nursery in Bridger, Montana. Bridger Nursery helps Glacier get a start on large collections over the winter, and then sends the plants back to the nursery in the spring. Thanks to this part of the job and Stacy, by the end of the season, I was able to identify quite a few plant species by their leaves, seeds and flowers out in the field and in the nursery. Some of these species include, but are not limited to: *Actai rubera* (baneberry), *Oplopanax horridus* (devils club), *Maianthemum racemosum* (false salomon's- seal), *Rubus parviflorus* (thimble berry), *Linnaea borealis* (twinline), *Galium boreale* (northern bedstraw), *Fragaria virginiana* (wild strawberry), *Antennaria* sp (pussytoes), *Carex* spp (sedges), *Potentilla* spp (cinquefoils), *Bromus* (brome grass), *Phacelia hastate* (silver-leaved scorpionweed), *Deschampsia cespitosa* (tufted hairgrass), and *Lonicera involucrate* (black twin berry). Thank you William for reminding me that common names are for the weak.

I got the chance to go out with the Reveg and Monitors to Scenic Point, Upper Two Medicine Lake, and Red Eagle Falls. These were all great trips and hikes where I learned how to rehabilitate campsites and trails through transplanting, along with collecting data for the *Pinus alba* restoration project.

I began inquiring early on in the season for resources and advice on how to approach my thesis project. I utilized the knowledge and suggestions of co-workers, books available from the nursery, and the Glacier Park library for dependable resources. After hearing of a rare species of *Vaccinium* called *Vaccinium myrtilloides* or velvetleaf huckleberry that is found only in the West Glacier and Apgar village areas of Glacier national park, I decided to narrow my broad topic of *Vaccinium* to this single species.

With help and direction from Joyce Lapp as to what type of media (soil mixture) and containers to use, and advice to extract some soil from around a Vac myr bush to capture the mycorrhizal fungi necessary for growth success, I was ready to start. After collecting some Vac myr berries, I used a peel and smudge seed extracting technique where you peel some of the skin from the berry, and smudge it across a paper towel for about an inch. Then I let the seeds dry for about seven days. I then took a 1:1 peat and sand mixture along with some of the soil I extracted from an area containing velvetleaf huckleberry, mixed it, put into

a flat, sprinkled the seeds over the top, covered them with a thin layer of soil and watered. I am using a daily log, and plant development record sheet to aid in tracking steps taken along with progress if any.

Another duty not listed above, but that I enjoyed was live trapping *Uroditellus columbianus* (Columbian ground squirrels). We caught and relocated 27 over the summer and noticed less predation on plants throughout the nursery.

What an amazing and unforgettable learning experience my summer of 2011 in Glacier National Park turned out to be. No matter where I was, I always took a minute (sometimes more) to look up at where I was, and be thankful, it made every moment in Glacier worth it. I look forward to returning next season and continuing advancement on my senior thesis and having the opportunity to work around wonderful people in a great place.



Above: *Vaccinium myrtilloides* or velvetleaf huckleberry; Below: *Vaccinium* seeds under microscope

PARTNER NEWS & EVENT

Announcements:

University of Montana

UM Producer Wins National Award For 'Glacier Park's Night Of The Grizzlies' Gus Chambers, a television producer at The University of Montana's Broadcast Media Center and MontanaPBS, received a Programming Excellence Award from American Public Television for his documentary "Glacier Park's Night of the Grizzlies." The film, co-produced with writer Paul Zalis, chronicles the harrowing night in 1967 when two young Glacier Park employees were killed in Grizzly bear attacks while hiking with friends in the park. The film juxtaposes the stories of the two women with the status of the Grizzly as an iconic representation of untamed wilderness. The APT-distributed program was carried by nearly two-thirds of all public television stations. The award recognizes programs and series that have excelled in public television schedules nationwide. The annual award is given to programs and series that provide extraordinary content, above-average ratings and carriage, and demonstrate general production excellence.

<http://www.montanapbs.org/GlacierParksNightoftheGrizzlies/>

UM's Crown OfThe Continent Fall E-Magazine Now Available The 34-page fall 2011 issue of the Crown of the Continent e-magazine has been released and can be found online at <http://issuu.com/crown-of-the-continent/docs/fall2011> . Articles in this issue include "The Beauty of a Burned Forest," "Town of the Crown" and "The Lonesome Life: Kishenehn Ranger Station 1910-1940."

Montana State University

MSU grad student wins award at national conference Brittany Mosher, a master's degree student in Montana State University's ecology department, recently won the Student Presentation Award at the national conference of The Wildlife Society. One of 13 competitors for the award, Mosher presented her research involving the response of a community of birds to a recent pine beetle epidemic in the Helena National Forest. Six years of information gathered before and during a pine beetle infestation showed an increasing number of woodpeckers in the infested area, Mosher said. Many of the woodpeckers ate the pine beetles and nested in the trees that were killed by pine beetles. The finding is relevant for people who are considering logging the dead trees because of fire risk, Mosher said.

Mosher, a native of Red Hook, N.Y., began her research in June 2009 and conducted two summers of field work. She will graduate at the end of this semester. Her co-advisers are ecology professor Jay Rotella and Vicki Saab, a research biologist with the USDA Forest Service/Rocky Mountain Research Station.

USFS- Rocky Mountain Research Station

Review of the Forest Service Response: The Bark Beetle Outbreak in Northern Colorado and Southern Wyoming A mountain pine beetle outbreak in three national forests in the Rocky Mountain Region (Region 2) of the U.S. Forest Service — the Arapaho-Roosevelt, Medicine Bow-Routt and White River — was initially detected in 1996. By 2010 it had spread to about four million acres. This report examines the ecological conditions and historical land use that contributed to the outbreak, management response to the outbreak, suggested new and extended authorities for addressing the outbreak, and what we might expect as we look forward to the "new forest". Read more at <http://www.fs.fed.us/rmrs/docs/home/bark-beetle.pdf>

Calendar of Events:

March 28-29, 2012: Rocky Mountain National Park Biennial Research Conference, Estes Park, CO. Presentations will be solicited in early January for posters and presentations for work in Rocky within the last two years.

March 22-24, 2012: 9th Biennial Conference on University Education in Natural Resources, hosted by the Warner College of Natural Resources at Colorado State University, Fort Collins, CO. The conference is aimed at faculty and administrators interested in national trends in curricular issues and innovative teaching methods in natural resource fields. Graduate and undergraduate students, as well as agency and organizational partners who both receive and help design and conduct educational programs are encouraged to attend. <http://uenr.warnercnr.colostate.edu/>

March 7-9, 2012: The 42nd Annual International Arctic Workshop, Winter Park, CO. The meeting is open to all interested in the Arctic, and will consist of a series of talks and poster sessions covering all aspects of high-latitude environments. Previous Arctic Workshops have included presentations on arctic and antarctic climate, archeology, environmental geochemistry, geomorphology, hydrology, glaciology, soils, ecology, oceanography, Quaternary history, and more. A traditional strength of the Workshop has been Arctic paleoenvironments. Host: Institute of Arctic and Alpine Research, University of Colorado at Boulder. Deadline for Registration, Abstract, and Hotel Reservations: Wednesday, February 15, 2012.
<http://instaar.colorado.edu/meetings/AW2012/about/index.html>

September 24-27, 2012: Pathways to Success Conference & Training: Integrating Human Dimensions into Fish and Wildlife Management, Breckenridge, CO. The intent of this conference is to provide a forum where scientists and practitioners can address a wide variety of topics that are critical to the state of the human dimensions of fish and wildlife profession. Proposal Deadline: May 1, 2012.
<http://www.hdfwconference.org/>

RESEARCH/FUNDING OPPORTUNITIES

Water Resources Grant Opportunity The US Geological Survey and the Montana Water Center announce the 2012 request for proposals for national competitive water resources investigations. Any investigator at a Montana institute of higher education is eligible to apply; awards are made from the USGS through the Water Center. The award limit is \$250,000 and the deadline for submittal of applications to the Water Center is February 23, 2012. The solicitation for proposals can be downloaded at the Montana Water Center website: http://watercenter.montana.edu/funding/usgs_grants.htm

5-Star Wetland and Stream Restoration Grant RFP The 5 Star Wetland and Stream Restoration Grants request for proposals is now open. The Five Star Restoration Program seeks to develop community capacity to sustain local natural resources for future generations by providing modest financial assistance to diverse local partnerships for wetland, riparian, and coastal habitat restoration. The National Association of Counties, the National Fish and Wildlife Foundation (NFWF), the Wildlife Habitat Council (WHC), in cooperation with the U.S. Environmental Protection Agency (EPA), Southern Company, and FedEx, are pleased to solicit applications for Five Star. Applications must be submitted online by midnight EST, Wednesday, Feb. 15. More information is available at: <http://www.nfwf.org/fivestar/> or <http://www.epa.gov/owow/wetlands/restore/5star/>

Museum Grants for African American History and Culture Offered by the Institute of Museum and Library Services, this grant is intended to enhance institutional capacity and sustainability through professional training, technical assistance, internships, outside expertise, and other tools. Application Deadline: January 17, 2012. <http://www.imls.gov/applicants/detail.aspx?GrantId=12>

STUDENT OPPORTUNITIES

Graduate Opportunities - Utah State University - Dept. of Wildland Resources We seek a PhD and a MS student to join a NIFA-funded research team at Utah State University. The project is aimed at using sustainable methods to restore rangelands and providing landowners with new knowledge about medusahead and its control through grazing. The research team will investigate a supplementation and fertilization program, along with experience early in life with mother, to provide a positive nutritional environment to enhance grazing of medusahead by sheep. The students will be trained in the graduate program at the Department of Wildland Resources under the supervision of Dr. Juan Villalba starting in summer 2012. Strong verbal, written, analytical, and collaborative skills are essential. Candidates should also have experience with livestock handling and husbandry practices. For the PhD position, a student with a master's degree in biology, animal or range science is preferred. Inquiries about this position can be made to Dr. Juan Villalba juan.villalba@usu.edu. If interested, please send an application letter describing research and career interests, a CV, and contact information for two references.

Park Break is an all-expenses-paid, park-based field seminar for graduate students contemplating a career in park and land-use management or related research and education fields. Park Break puts you in a national park unit for a week's worth of field and classroom activities in close collaboration with scientists and scholars, managers and administrators, and partner organizations. The next Park Break session will be held March 19-23, 2012, at Delaware Water Gap National Recreation Area.

The primary goal of Park Break is to let promising graduate students experience the challenges of managing a protected area. Through instruction from and dialogue with resource managers, researchers, administrators, interpreters, and other professionals, Park Break participants will begin to understand the complexity of protected area research and management. This unique program is not offered anywhere else, as it focuses on scientific and intellectual inquiry at the graduate level specifically related to parks, other protected natural areas, and cultural sites.

As a member of small team of grad students, you will work on a specific topic or project of relevance to the park. The 2012 Park Break project will be the creation of a curriculum on sustainable living, aimed at 8th-grade students, to be used at the Pocono Environmental Education Center. The Park Break team will draw on the context of several energy projects that are affecting or could affect the park, such as natural gas drilling in the Marcellus Shale formation north of the park, to the proposal for a powerline that would cross the park.

Applications for the 2012 Park Break program are being accepted through January 20. For more information, go to <http://www.georgewright.org/parkbreak>

New Masters Program at CSU - Conservation Leadership Program (Conservation Leadership Through Learning) Society is faced with some of the greatest challenges in history, from climate change to biodiversity loss to energy security and beyond. We need leaders who think differently, embrace complexity, and see the human and environmental condition as one intricate system. The Conservation Leadership Program is a new 24-month Master of Science degree that will prepare students to be a part of the next generation of conservation leaders who will tackle these dynamic challenges. In August 2012, approximately 20 students will begin an intensive educational journey in the United States and Mexico.

Also referred to as Conservation Leadership Through Learning (CLTL), this program merges transdisciplinary university education with real-world action to train leaders who can deliver on-the-ground benefits for conservation and communities. By reaching far beyond the classroom walls, students will develop the knowledge and real-world skills to become effective conservation leaders making a difference for the environment and people's lives.

CLTL is a partnership between Colorado State University's Warner College of Natural Resources and El Colegio de la Frontera Sur in Mexico. For more information, please visit our website (<http://leadershipthroughlearning.org/>) or contact us at leadership@warnercnr.colostate.edu. Applications are now being accepted through January 9th, 2012 for the cohort starting in August 2012.

West Slope Chapter of Trout Unlimited Student Research Fellowship Grant The chapter is currently providing a \$2,000 Research Fellowship Grant for a student who is working towards the management, conservation, protection, or restoration of trout in western Montana. All graduate or undergraduate students working on a project in western Montana that supports the mission of WSCTU are eligible for this Grant. Special consideration will be given to students that are enrolled at a Montana university and working in the Clark Fork River drainage. Applications are due January 25, 2012.

http://www.cfc.umt.edu/CESU/NEWCESU/Assets/Postings/2012_WSCTU_Fellowship_Grant_FINAL_2_.pdf

REU Program Offers Undergrad Research The National Science Foundation recently announced its 2012 Research Experiences for Undergraduates (REU) program in warm-water aquatic ecology. Participating students will receive a stipend (\$4,500/10 weeks), food and lodging, travel funds to and from Auburn, Alabama and research funds. The program will last ten weeks, from May 20 to July 29, 2012. The application deadline is January 15, 2012. For more information, go to the REU program website:

<http://wilsonlab.com/reu/index.html>

Research Fellowship at Rocky Mountain National Park Each year the Rocky Mountain Nature Association and Rocky Mountain National Park co-sponsor a research fellowship opportunity for one graduate level student to spend three to four months conducting research in Rocky Mountain National Park. Housing, \$5,000 stipend and \$3,000 for expenses related to research in the Park. (Annual deadline: February 1)

<http://www.rmna.org//rmna.cfm?Page=docs/FellowshipProgInfo.htm>

TRAINING AND COURSE OPPORTUNITIES

University of Montana offers online wilderness management course - NRSM 404 Wilderness in the American Context (4 credits Undergraduate)/NRSM 560 American Wilderness Philosophy and Policy (4 credits Graduate) will be offered online with a facilitated discussion group led by instructor Kari Gunderson. Invited guest instructors may include Carhart Wilderness Training Center staffs, academics, and working wilderness managers. The online format enables students to work through the course efficiently while benefiting from discussion with other students, agency managers, and academics. In this course you will examine the early history of wilderness preservation that ultimately led to federal protection in the Wilderness Act and subsequent legislation, including how each agency applies these laws. NRSM 404/560 is an excellent course for managers and students interested in obtaining a firm academic foundation in wilderness philosophy and ethics. Dates: January 23 thru May 11, 2012 (The course runs for 16 weeks). Registration deadline: Wednesday, January 18, 2012. The course will be capped at 16 students. For more information (course objectives, costs, books), visit http://wmdep.wilderness.net/404_560.htm

JOB OPPORTUNITIES

Extension Faculty-Department of Forest, Rangeland, and Fire Sciences, University of Idaho, Moscow, ID (screening of applications will begin on 2/27/2012)

Department Head, Forest, Rangeland and Fire Sciences, University of Idaho, Moscow, ID (screening of applications will begin on 2/26/2012)

Assistant Professor of Wildland Fire Sciences, Department of Forest, Rangeland, and Fire Sciences, University of Idaho, Moscow, ID (screening of applications will begin on 1/22/2012)

FTE Weed Supervisor, Powder River County, Broadus, MT (closes 1/19/2012)

Plant Physiological Ecologist, Assistant Professor of Ecology, Montana State University, Bozeman, MT (screening of applications will begin on 1/16/2012)

Assistant Professor of Geography, Department of Earth Sciences, Montana State University, Bozeman, MT (screening of applications will begin on 1/16/2012)

Assistant Professor of Soil Science, Department of Land Resources and Environmental Sciences, Montana State University, Bozeman, MT (screening of applications will begin on 1/10/2012)

Biological Science Technician (Monitoring), Wind Cave National Park, Hot Springs, SD (closes 1/9/2012)

Assistant/Associate Professor of Landscape Design, Department of Plant Sciences and Plant Pathology, Montana State University, Bozeman, MT (screening of applications will begin on 1/9/2012)

Postdoctoral Fellow (modeling and mapping of historical and current fires and the productivity recovery vectors across semi-arid and forested ecosystems), College of Natural Resources, University of Idaho, Moscow, ID (review of application will begin 1/10/2012)

Communications Coordinator, Dean's Office, Warner College of Natural Resources, Colorado State University, Fort Collins, CO (closes 1/4/2012)

Park Guide, Yellowstone National Park, WY (closes 1/4/2012)

Archivist (Processing), Crater Lake National Park, OR (closes 12/28/2011)

Biological Science Technician (Wildlife/General) & Biological Science Technician (Wildlife/Birds) -few vacancies, Grand Teton National Park, WY (closes 12/26/2011)

Park Ranger (Visitor Center Assistant), Alaska Maritime National Wildlife Refuge, Homer, AK (closes 12/26/2011)

Visitor Use Assistant, Yellowstone National Park, WY (closes 12/23/2011)

Park Ranger (Protection - River Patrol), Grand Teton National Park, WY (closes 12/23/2011)

Park Ranger (Protection), Little Bighorn Battlefield National Monument, Crow Agency, MT (closes 12/20/2011)

Research Associate, Soils, Department of Land Resources and Environmental Sciences, Montana State University, Bozeman, MT (screening of applications will begin on 12/20/2011)

Deputy State Forester for Support Services, Colorado State Forest Service (closes 12/16/2011)

Geographic Information Scientist/Cartographer, College of Forestry and Conservation and the College of Arts and Sciences, University of Montana, Missoula, MT (closes 12/15/2011)

Curator of Botany and Assistant Professor in Ecology and Evolutionary Biology, University of Colorado at Boulder, Boulder, CO (Review of applications will begin 12/1/2011)

Assistant Professor, Cartography and Geographic Information Science, Geography, Department of Geography, University of Montana, Missoula, MT (Review of applications will begin 12/1/2011)

For details on all opportunities visit <http://www.cfc.umt.edu/CESU/NEWCESU/Postings/default.htm> and click on "Jobs".

MEETINGS OF INTEREST

April 22-26, 2012: Biodiversity Without Boundaries 2012, Portland, OR. This conference will bring together the best in biodiversity conservation: from scientists, natural resource managers, and environmental consultants to planners, environmental advocates, and corporate and public policy-makers. Accepting proposals for presentations through November 15, 2011.

<http://connect.natureserve.org/BWB2012>

April 30-May 4, 2012: 8th National Water Monitoring Conference, Portland, OR. The conference, sponsored by the National Water Quality Monitoring Council, will provide different facets of water quality and quantity monitoring for improved understanding of natural resources and communities. It includes presentations, panels, poster sessions, exhibits, hands-on interactive workshops and field trips.

<http://acwi.gov/monitoring/conference/2012/index.html>

May 22- 24, 2012: First Conference "Forest for People", Alpbach, Tyrol/Austria. The conference is one important part of the new IUFRO strategy based on six thematic areas. The aim of this conference is to build a systematic body of knowledge about "forest for people" and its various facets, including possible future trends and challenges. This conference and the following up process want to integrate not only the knowledge across all divisions but include the knowledge outside IUFRO. The conference is addressed to forest managers, scientists, science administrators, policy makers and the interested public audience.

http://ffp2012.boku.ac.at/index.php?L1=left_home.php&L2=body_home.php

July 15-18, 2012: North America Congress for Conservation Biology - Bridging the Gap: Connecting People, Nature, & Climate, Oakland, CA. This Congress will feature numerous symposia, concurrent sessions, workshops, short courses and field trips. Symposia topics will include such diverse topics as: protected area planning for climate change resilience; Landscape Conservation Cooperatives; freshwater conservation; bridging the implementation gap; decision support tools for policy evaluation; employing traditional ecological knowledge; and marine protected area planning. The mascot for NACCB is the Stoney the Pika. There will be a symposium titled Pikas in Peril? - Distribution, Population Trends, and Resilience of the American Pika (*Ochotona princeps*). <http://www.scbnacongress.org/>

October 1-4, 2012: MTNCLIM 2012: Mountain Climate Research Conference, Estes Park, CO.

<http://www.fs.fed.us/psw/mtnclim/>.

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.