



R O C K Y M O U N T A I N S
C E S U
COOPERATIVE ECOSYSTEM STUDIES UNIT

FY2012 Annual Report

Cooperative Ecosystem Studies Units (CESU) are multi-agency partnerships with the Nation’s universities and other institutions, organized around biogeographic areas. The CESUs were established to provide research, technical assistance, and education to resource and environmental managers. The **Rocky Mountains Cooperative Ecosystem Studies Unit (RM-CESU)** is one of 17 units in the CESU National Network.

The **Rocky Mountains Cooperative Ecosystem Studies Unit** has been operating for eleven years. In 1999, the RM-CESU was one of four pilot CESUs established through a competitive process. It was then a partnership of four Federal agencies and 6 universities. The partnership has grown today to 9 Agencies and 14 universities. Members of the RM-CESU are the following:

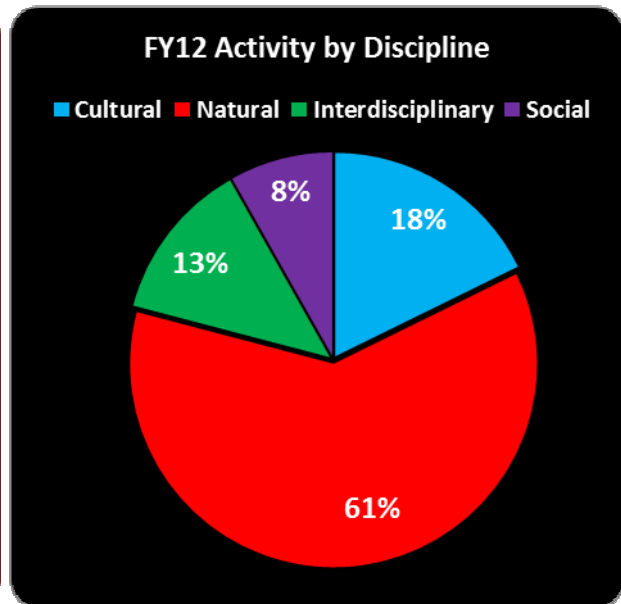
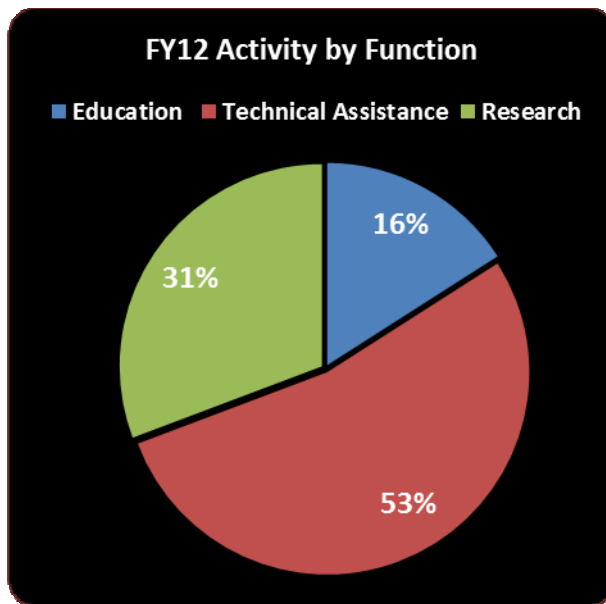
<ul style="list-style-type: none"> ❖ University of Montana-host 1999 ❖ University of Idaho 1999 ❖ Montana State University 1999 ❖ Salish Kootenai College 1999 ❖ Utah State University 1999 ❖ Washington State University 1999 ❖ University of Wyoming 2002 ❖ Colorado State University 2004 ❖ University of Colorado Boulder 2002 ❖ University of Colorado Denver 2002 ❖ University of Northern Colorado 2006 ❖ University of Calgary 2007 ❖ Metropolitan State University of Denver 2011 ❖ Little Big Horn College 2012 	<p>USDI</p> <ul style="list-style-type: none"> ❖ Bureau of Land Management 1999 ❖ Bureau of Reclamation 2004 ❖ Fish and Wildlife Service 2009 ❖ Geological Survey 1999 ❖ National Park Service 1999 <p>USDA</p> <ul style="list-style-type: none"> ❖ Forest Service 1999 ❖ Natural Resources Conservation Service 2004 <p>DOD</p> <ul style="list-style-type: none"> ❖ US Army Corps of Engineer- Civil Works 2008 ❖ Office of Deputy Under Secretary of Defense (Installations and Environment) 2009
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Mission

The mission of the Rocky Mountains Cooperative Ecosystem Studies Unit is to improve and disseminate the knowledge base for managing natural and cultural resources in the rapidly changing social, cultural, and environmental landscape of the Rocky Mountain Region, and to extend its expertise to national issues where appropriate.

RM-CESU PROJECTS ACTIVITY FOR FY2012

This year, the RM-CESU facilitated **214 task agreements (TAs) obligating \$21,299,002 to new projects (\$6,374,437/102 TAs) and adding funds to existing projects (\$14,924,565/112 TAs)**. A complete listing of projects may be found on the RM-CESU Project List for FY12 on the web site at <http://www.cfc.umt.edu/cesu/Projects/default.php> (look under **Annual Reports**). 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 fields.



Project Spotlight: Decision Identification for Fish and Wildlife Management

Function: **Technical Assistance**

Agency: **US Geological Survey**

PI: **Elizabeth Shanahan, Political Science, Montana State University**

Discipline: **Natural**

Funding: **\$ 8,070**

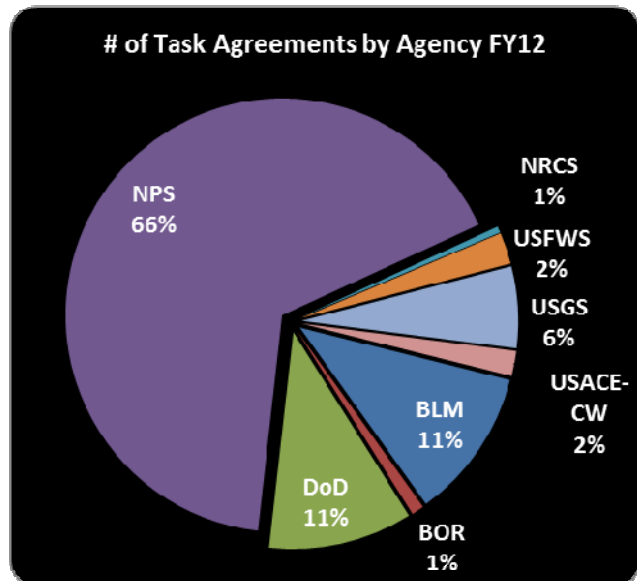
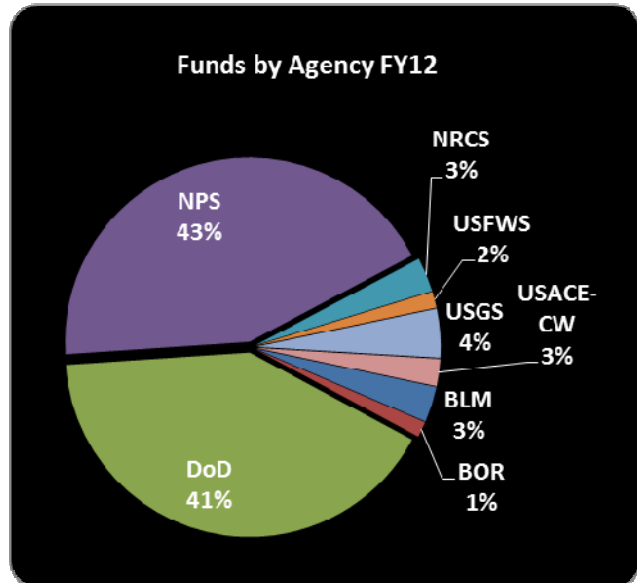
This project seeks to explore the ability to identify decisions of fish and wildlife field managers that have a nexus and need for climate information.

There is also a need to examine how those decisions are made. The results of this work will be used to provide input into a companion effort, to define, develop, and implement computational methods for scenario analysis that will aid fish and wildlife managers to integrate climate information into their decision making activities.

The research objective of this project is to work with the region’s land managers to identify (1) types of decisions with which they are faced, (2) processes utilized in making decisions, and (3) climate and other science information needed. The purpose is to build a bridge between climate science research and land manager needs.

RM-CESU Activity by Agency Partners for FY2012

	<u># of Task Agreements</u>	<u>Total Funding</u>
RM-CESU	214	\$21,299,002
BLM	24	\$663,044
BOR	2	\$293,176
DOD	23	\$8,756,093
NPS	142	\$9,226,053
NRCS	1	\$640,577
USFWS	5	\$303,698
USGS	14	\$909,534
USACE-CW	4	\$506,827

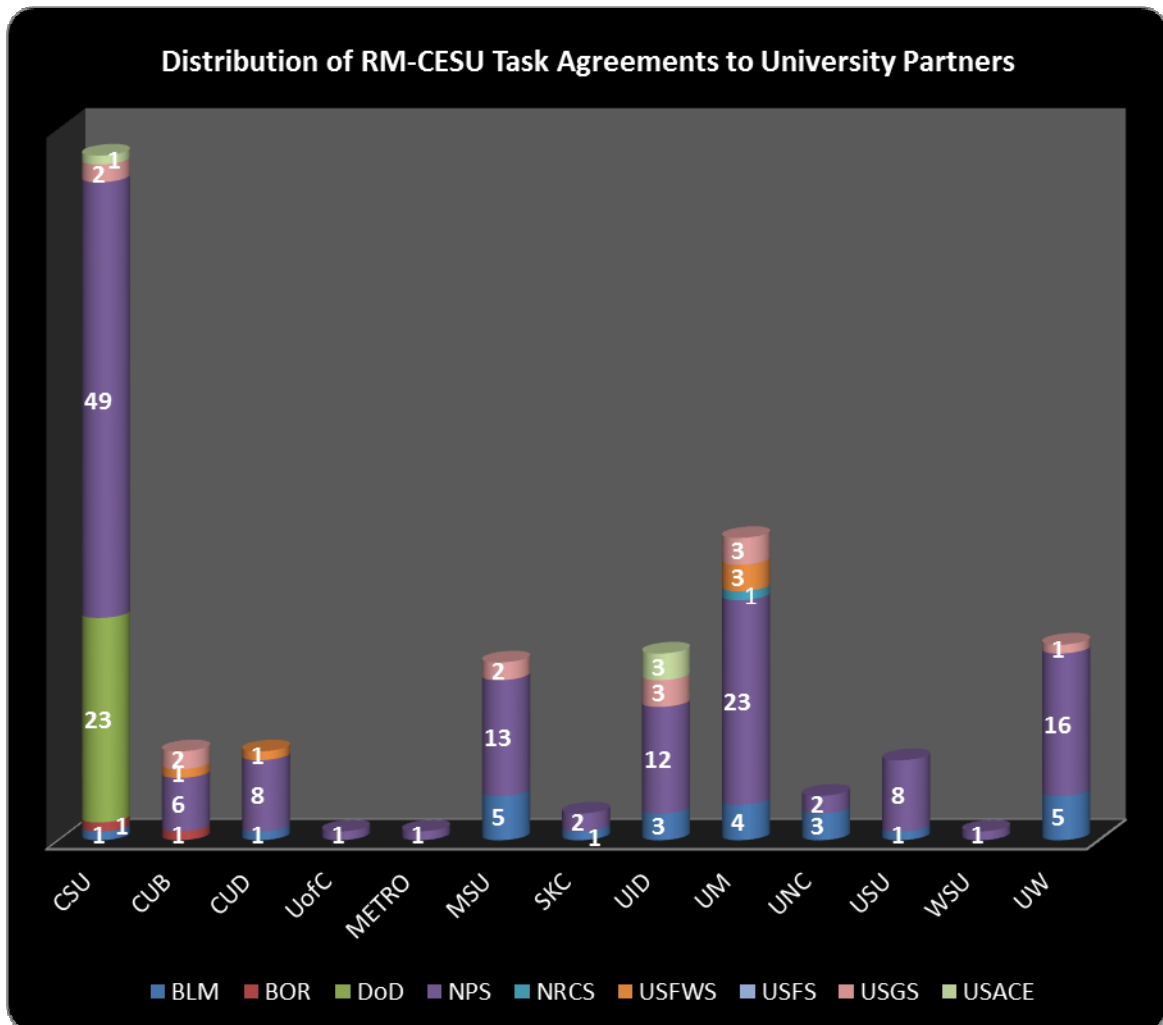


Trends and Observations:

- Eight of the nine Agencies facilitated task agreements through the CESU this fiscal year.
- Project funding and total number of projects that went through the cooperative agreement declined slightly from FY11, partly due to Agency early agreements deadlines.
- RM-CESU facilitated just over \$5 million in cultural, social and interdisciplinary projects in FY12.
- Continued emphasis on climate change related research, technical assistance, and education. The RM-CESU agreement was used for a number of projects associated with the NPS Climate Change Response Program and the Great Northern LCC. Nearly \$1 million directly supported climate change projects.

RM-CESU Activity by University Partners for FY2012

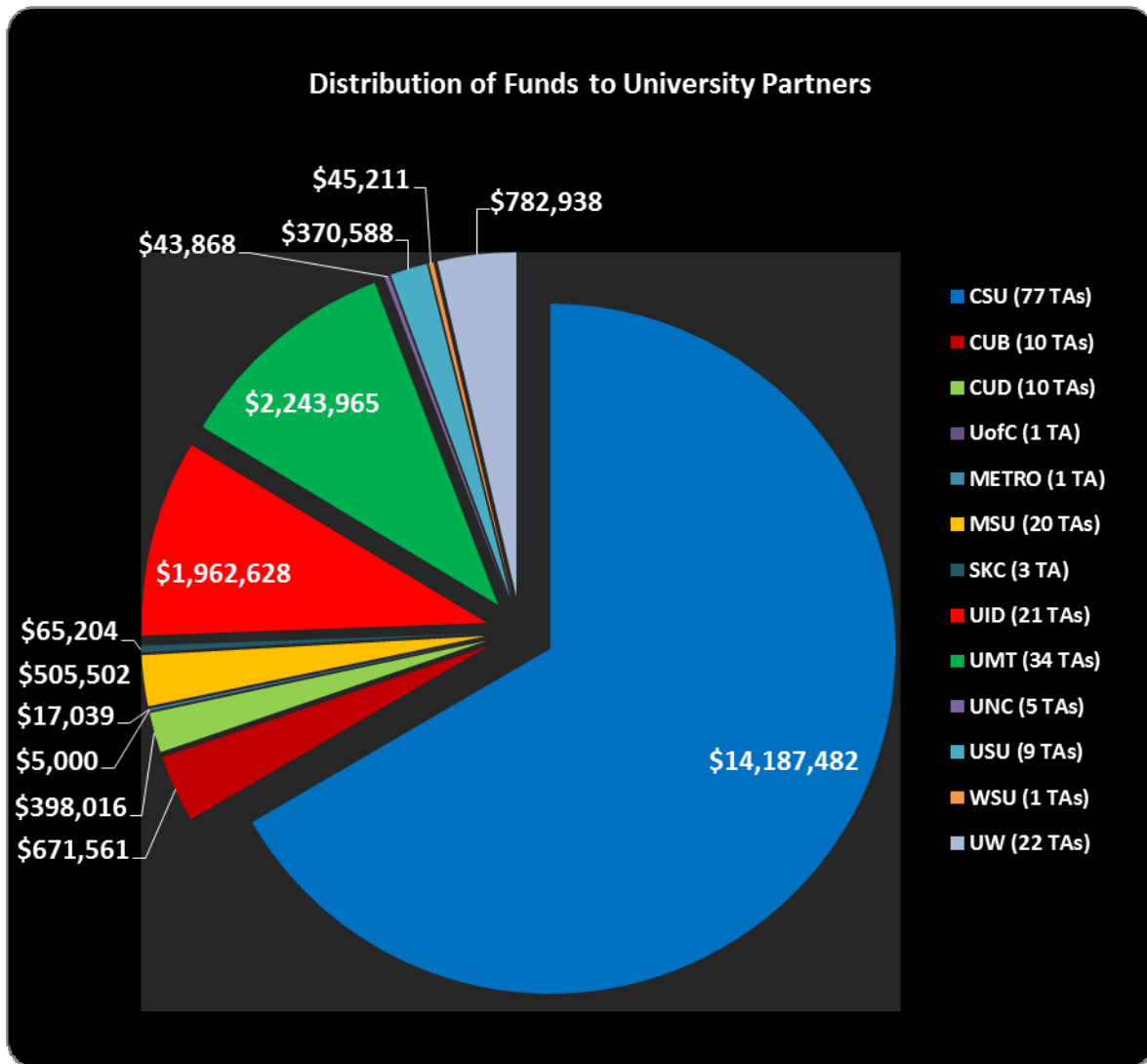
Thirteen university partners received at least one task agreement in FY12.



The National Park Service is the only agency that facilitated task agreements with all of the university partners. The universities receiving one task agreement are the University of Calgary (\$5,000 - Crown of the Continent Ecological Indicators-Trend Analysis), Metropolitan State University of Denver (\$17,894 - phosphorus levels in alpine soils at Rocky Mountain National Park), and Washington State University (\$45,211- addressing the park central files of Nez Perce National Historic Park and evaluating them for inclusion in the park archives).

Colorado State University (CSU) received 14.2 million dollars in 77 task agreements for projects with the Bureau of Land Management, Bureau of Reclamation, Office of Deputy Under Secretary of Defense (Installations and Environment), National Park Service, Geological Survey, and Army Corps of Engineers. CSU's Center for Environmental

Management of Military Lands (CEMML) alone was the recipient of \$8.8 million in 23 task agreements from the DoD. CEMML provides research and sustainable management of natural and cultural resources on federal lands.



One tribal partner, Salish Kootenai College (SKC), received 3 task agreements this year – two with the NPS and one with the BLM (Please see **Project Spotlight: BLM/SKC Student Internship Program** on page 8) . Jeff Bendremer, professor of history at SKC, will partner with Glacier National Park to work on the cultural history and archeology of transboundary Kootenai Indian trails and forestry professor, Adrian Leighton, will work collaboratively with the Northern Rockies Fire Science Network to facilitate fire science communication.

Smallest Task Agreement: \$1,821 NPS/University of Wyoming; PI: Larry Schmidt; Digital Imaging of Plant Specimens for Fort Laramie National Historic Site

Largest Task Agreement: \$4,155,500 DoD/CESU; PI: Robert Brozka; Natural Resources Ecosystem Management Activities at Pohakuloa Training Area and Keamoku Land Parcel Management Area Activities for the U. S. Army Garrison, Hawaii, Island of Hawaii

Mean: **\$99,528** (FY11: \$102,858)

Median: **\$30,000** (FY11: \$34,023)

To learn more about **all** the projects receiving funding in FY12, view the Project Summary Sheets at http://www.cfc.umt.edu/cesu/Projects/Agency_reports.php; click on “Agency” and then “Year”

Thirty-four principal investigators receiving project funds in FY12 were using the RM-CESU agreement for the first time and contributed \$3,040,445 to RM-CESU totals.

Colorado State University (8): Calvin Bagley (Center for Environment Management of Military Lands), Larissa Bailey (Fish, Wildlife and Conservation Biology), Ron Bend (Communication and Creative Services), Mevin Hooten (Colorado Cooperative Fish and Wildlife Research Unit), Bernadette Kuhn (Colorado Natural Heritage Program), Liba Pejchar (Fish, Wildlife and Conservation Biology), Matthew Wallenstein (Natural Resource Ecology Laboratory), Andrew Warnock (Education & Outreach Center)

University of Colorado Boulder (2): Pieter Johnson (Ecology and Evolutionary Biology), Ralph Mann (History)

University of Colorado Denver (2): Christopher Beekman (Anthropology), Jeremy Nemeth (Architecture and Planning)

Metropolitan State University of Denver (1): Andrew Evans (Environmental Science)

Montana State University (6): Graham C. Austin (Business), Rachel Endecott (Animal and Range Sciences), David McWethy (Earth Science), Elizabeth Shanahan (Political Science), John Sheppard (Computer Science), Natalie Villwock-Witte (Western Transportation Institute)

University of Idaho (4): Stacey Camp (Anthropology), Courtney Conway (Fish & Wildlife Sciences), Lena Le (Park Studies Unit), Frank Wilhelm (Fish and Wildlife Resources)

University of Montana (6): Martha Apple (MT Tech), Kevin Brockbank (College of Technology), Libby Covelli Metcalf (Parks Tourism & Recreation Management), Paul Lukacs (Quantitative Wildlife Ecology), Jim Riddering (National Center for Landscape Fire Analysis), Steven Sheriff (Geology)

Utah State University (1): Scott Hill (Energy Dynamics Laboratory), Bradley Kropp (Biology)

University of Wyoming (3): Brian Mealor (Plant Sciences), Seth Newsome (Zoology & Physiology), Peter Stahl (Ecosystem Science & Management)

Student Participation: 71% of RM-CESU National Park Service projects, and over 50% of all federal 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.

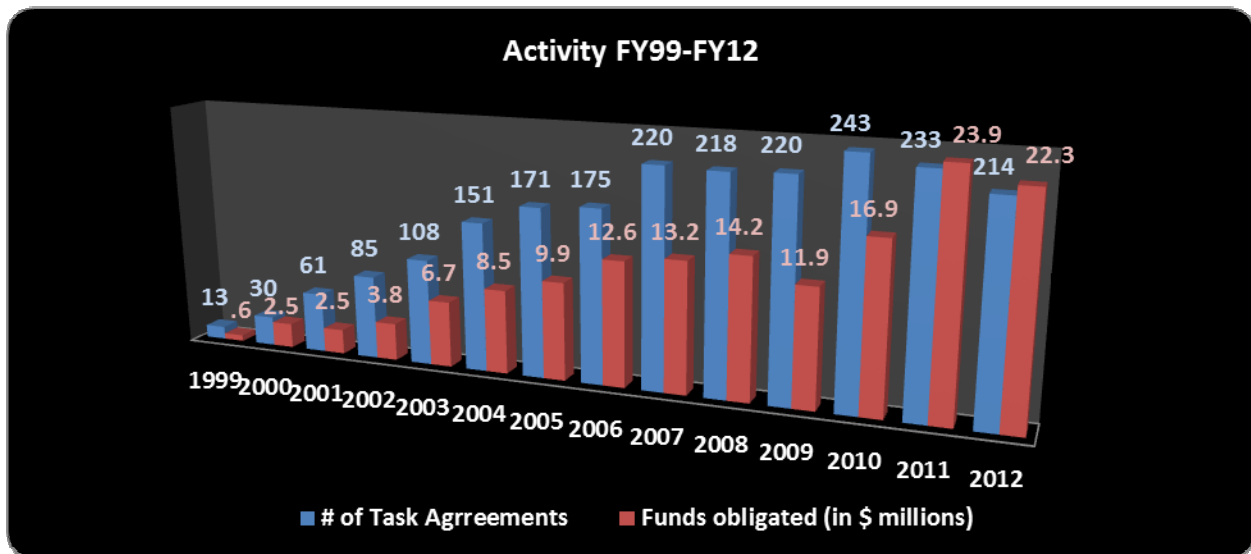
Project Spotlight: BLM/SKC Student Internship Program

Function: Education and Technical Assistance Agency: Bureau of Land Management PI: William Swaney, Salish Kootenai College	Discipline: Interdisciplinary Funding: \$27,000
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The Bureau of Land Management’s Missoula Field Office (BLM) and the Natural Resource Department of Salish Kootenai College (SKC) have a mutual interest in providing relevant, local work experience to tribal college students attending SKC. For the next five years, SKC will recommend a student who is available and interested in pursuing a summer internship experience with the BLM’s Missoula Field Office, and forward that recommendation to BLM. Upon BLM’s approval the student will be placed in the Missoula Field Office for a 12-week internship. BLM will place the student in any of several disciplines available, including but not limited to wildlife, fisheries, cultural resource protection, or forestry.

RM-CESU ACTIVITY FY99-FY12

In thirteen years of operation, the RM-CESU has facilitated **over 2000 Task Agreements obligating 150 million dollars** to the university partners for project work. There are currently 433 active projects between RM-CESU agency and university partners.



RM-CESU HIGHLIGHTS & ACCOMPLISHMENTS

❖ Addition of new member:

- Little Big Horn College, Crow Agency, Montana, a two-year tribal school (effective Date: 8/28/2012). Little Big Horn College is now the 14th academic partner in the RM-CESU. David Small, Dean of Administration, will be LBHC's technical representative. LBHC students have already participated in the Bighorn Canyon NRA Archeological Field School, which is facilitated through the RM-CESU. To learn more about Little Big Horn College, visit <http://www.lbhc.edu/>.

❖ Wilderness News:

- **RM-CESU (NPS and UM) sponsors "Wilderness Stewardship in the Rockies 2012."** The workshop was held over three days at University of Montana's Lubrecht Experimental Forest and Conference Center February 27-29. The workshop was attended by wilderness professionals from USDA-Forest Service, the University of Montana, University of Idaho, and park staff from Craters of the Moon, Glacier, Grand Teton, Yellowstone, and Olympic park units. The meeting covered topics from "ecosystems services research in wilderness" to "integrating wilderness character into planning, management, and monitoring" to "social science studies in wilderness" and focused on the exchange of information. Suzy Stutzman, NPS Intermountain Region Wilderness Coordinator, acknowledged Kyle Johnson, Glacier NP Wilderness Specialist, and Kathy Tonnessen, RM-



Troy Hall, Univeristy of Idaho - Wilderness Stewardship Workshop 2012, Lubrect Forest, MT



Alan Watson, Aldo Leopold Wilderness Research Institute
Photos Courtesy of Steve McCool

CESU Research Coordinator, with their 2011 Wilderness Stewardship Awards.

- **Kathy Tonnessen Received the NPS-Intermountain Region’s “Leadership in Wilderness Stewardship” Award.** Kathy does an outstanding job promoting wilderness. She spreads the wilderness word to her parks on programs such as the Aldo Leopold Wilderness Research Institute, the Arthur Carhart National Wilderness Training Center, the University of Idaho Wilderness Research Center, The University of Montana Wilderness Management Distance Education Program, and the University of Montana Wilderness Institute. Since 2002, Kathy has worked with the Rocky Mountains CESU partners to convene the biennial Wilderness Stewardship in the Rockies workshop, bringing U.S. and Canadian wilderness managers together from throughout the Northern Rockies.

- ❖ **Three RM-CESU Students Awarded Jerry O’Neal Fellowship for Research in Glacier National Park and Grant-Kohrs Ranch National Historic Site** The Jerry O’Neal fellowships, funded through the Crown of the Continent Research Learning Center at Glacier National Park, were announced for student work in summer 2012. This student award supports research in Glacier National Park, Grant-Kohrs Ranch National Historic Site, and Little Bighorn Battlefield National Monument. The competition was facilitated through the Rocky Mountains CESU and is open to students at all the RM-CESU partner universities. **This year’s Fellowship awardees are:**

- **Dulce Kersting, M.A. Candidate – History at Washington State University: “The Interpretive Powers of Grant-Kohrs Ranch NHS in Determining the Roles of Race, Class, and Gender Among Cowboys on the Northern Plains During the Open Range Era”** Dulce will investigate the diverse experiences of cowboys from different ethnic backgrounds on America’s Northern Plains during the open range era of cattle production, approximately 1860 through the 1890s. Grant-Kohrs Ranch National Historic Site will serve as a focal point of the study, and information gathered about the men who worked for the Kohrs and Bielenberg family cattle operations will serve to juxtapose the experiences of cowboys on similar ranching operations in Montana and the upper Plains.



- **Warren Hansen, M.Sc. Candidate**
– **Wildlife Biology at the University of Montana:**
“Integration of habitat modeling, stress physiology and stream flow to explain breeding success in the harlequin duck (*Histrionicus histrionicus*)”

Warren will study life strategies of Harlequin Ducks in Glacier National Park by examining a

range of possible factors influencing survival and recruitment. Though the use of radio-telemetry, he will examine where Harlequins nest, the factors affecting their nest success, and the factors affecting chick survival.



- **Cameron Naficy, Ph.D. Candidate**
– **Geography at the University of Colorado Boulder:** **“Cross-scale assessment of spatiotemporal patterns and drivers of fire effects in mixed-severity fire regime forests of *Larix occidentalis*, Glacier National Park”** Cameron’s study will take a

multi-method approach to assessing historical and

contemporary patterns of fire severity in western larch (*Larix occidentalis*) forests in Glacier National Park. This research is particularly important to managers because fire is the dominant process affecting large-scale vegetation patterns in Glacier.



As a requirement of their Fellowships, Dulce, Warren and Cameron will provide a final project report and copies of any publications as a result of the research. In addition, they will prepare a one-page, illustrated project summary that will be featured in a RM-CESU newsletter.

- ❖ **2012 RM-CESU Student and Project Team Awards** The RM-CESU Student Award program was established in 2007 as a way to recognize outstanding accomplishments by students and project teams (the academic institution and the federal agency) involved in RM-CESU projects.

- **Student Award:** Two Colorado State University graduate students received RM-CESU Research Awards for 2012: **Kristen Kaczynski** for her Ph.D. work at Rocky Mountain National, *Willow Decline in Rocky Mountain National Park: Examining the Interactions of Drought, Ungulate Browsing, Sapsuckers, and Cytospora Fungal Infection*, related to the condition of vegetation on the west side of the park, and **Nichelle Frank** for her Masters work, *Oral History Project for Florissant Fossil Beds National Monument*, which included interviews with people responsible for the founding on FLFO, including Estella Leopold, Dick Lamm and Victor Yannacone.



Kristen Kaczynski



Nichelle Frank

- **Project Team Award: Dr. Robert Brunswig**, University of Northern Colorado in collaboration with **Fred Sellet at the University of Kansas** received the Project Team Award for their BLM project titled, *North Park Cultural Landscape Project*, which included consultation with Ute tribal members to design a culturally appropriate archeology field school in Colorado

❖ **On October 7, 2011, the Rocky Mountains CESU presented a paper and poster session at the Rocky Mountains Anthropological Conference on the University of Montana campus in Missoula.**

Organizers were Robert Brunswig, University of Northern Colorado, and Pei-Lin Yu, RM-CESU. The session, entitled "Federal Lands Heritage and Cultural Resources Research in the Rocky Mountains: A Showcase of Cooperative Ecosystem Studies Unit (CESU) System Projects," presented eight papers and eleven posters covering the past decade of cultural resources related research facilitated by the RM-CESU.



Robert Brunswig, University of Northern Colorado, co-chair of the RM-CESU session at Rocky Mountains Anthropological Conference.

The presentations covered a diverse spectrum of archeology, ethnography, history, and paleoenvironmental research conducted for a variety of agencies by RM-CESU university partners, and were very well-received. The RM-CESU also assisted with funding honoraria for keynote speakers Milo McLeod and Weber Greiser, who spoke about 1960s fieldwork in Arctic ethnoarchaeology and the ways it has informed archaeology research in mountain and high latitude environments today. The RM-CESU was a co-sponsor of the conference.

- ❖ **National Recognition:** The two national awards announced at the CESU Biennial Meeting in June 2012 are both affiliated with Colorado State University and the National Park Service through the Rocky Mountains CESU: one to the Center for Public History, for work with a number of national parks in the Rocky Mountain region, and the other team award went to the NPS Soundscapes program, and their cooperator at CSU, Peter Newman.