



**FY2019 Annual Report**

**Rocky Mountains Cooperative  
Ecosystem Studies Unit**

**Cooperative Ecosystem Studies Units (CESU) Network** is a national consortium of federal agencies, academic institutions, and other partners, organized around biogeographic areas. The CESUs were established to provide research, technical assistance, and education to federal resource and environmental managers. The **Rocky Mountains Cooperative Ecosystem Studies Unit (RM-CESU)** is one of 17 units in the CESU National Network. <http://www.cesu.psu.edu/>

The **Rocky Mountains Cooperative Ecosystem Studies Unit** has been operating since 1999 and was one of four original pilot CESUs established through a competitive process. The partnership has grown steadily and is now comprised of 10 Agencies and 25 Non-Federal partners. Members of the RM-CESU are the following:

❖ University of Montana-host 1999	❖ Boise State University 2015
❖ University of Idaho 1999	❖ Western Colorado University 2015
❖ Montana State University 1999	❖ University of Denver 2017
❖ Salish Kootenai College 1999	❖ Front Range Community College 2017
❖ Utah State University 1999	❖ Western Association of Fish and Wildlife Agencies 2018
❖ Washington State University 1999	<b>USDI</b>
❖ University of Wyoming 2002	❖ Bureau of Land Management 1999
❖ Colorado State University 2004	❖ Bureau of Reclamation 2004
❖ University of Colorado Boulder 2002	❖ Fish and Wildlife Service 2009
❖ University of Colorado Denver 2002	❖ Geological Survey 1999
❖ University of Northern Colorado 2006	❖ National Park Service 1999
❖ University of Calgary 2007	❖ Bureau of Indian Affairs 2017
❖ Metropolitan State University of Denver 2011	<b>USDA</b>
❖ Little Big Horn College 2012	❖ Forest Service 1999
❖ Northwest College 2013	❖ Natural Resources Conservation Service 2004
❖ University of Utah 2013	<b>DOD</b>
❖ Chief Dull Knife College 2014	❖ US Army Corps of Engineer- Civil Works 2008
❖ Blackfeet Community College 2014	❖ Office of Deputy Under Secretary of Defense (Installations and Environment) 2009
❖ University of Waterloo 2014	
❖ Wildlife Conservation Society 2014	

*The mission of the Rocky Mountains CESU 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.*

## **20 YEARS OF THE CESU: 1999-2019**

### **The Cooperative Ecosystems Network Celebrated Its 20<sup>th</sup> Birthday at the 15th Biennial Conference of Science & Management on the Colorado Plateau & Southwest Region, on September 9-12, 2019**



Partners of the Colorado Plateau, Desert Southwest and Rocky Mountains CESUs discuss shared issues at the Joint CESU Meeting in Flagstaff, AZ.

There was much celebrating in Flagstaff, Arizona by the three regional CESU reps at this meeting: Rocky Mountains, Colorado Plateau and Desert Southwest. It started with individual business meetings and then a joint discussion by the three regional CESUs. Both the Colorado Plateau and the Rocky Mountains CESUs were among the inaugural four CESUs started in 1999.

On the first day of the full science conference, the three regional CESUs joined together in the session: **Celebrating the 20<sup>th</sup> Anniversary of the Cooperative Ecosystem Studies Units – successes in long-term science-management partnerships.** This session was introduced by

the National CESU Network Coordinator, Tom Fish. The balance of the session was a discussion of recent events (e.g. the approval of another five year agreement for the Colorado Plateau and the Rocky Mountains CESUs), and highlights of some projects and issues from each of the three CESUs. See [full conference schedule](#) and [abstracts](#).



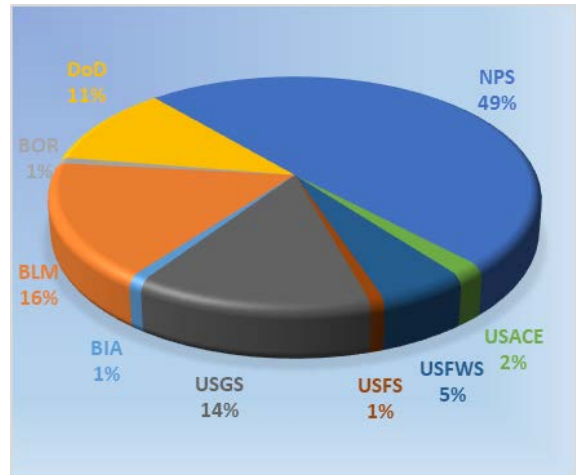
Participants of the Colorado Plateau, Desert Southwest and Rocky Mountains CESUs in Flagstaff.

**RM-CESU PROJECTS ACTIVITY FOR FY2019**

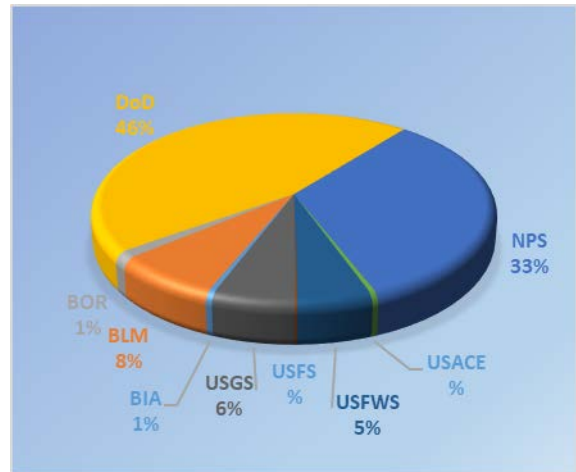
This year, the RM-CESU facilitated **123 task agreements (TAs)/modifications (Mods) obligating \$18,128,357 to new projects (\$14,557,232, 91 TAs) and adding funds to existing projects (\$3,571,125/32 Mods)**. A complete listing of projects may be found on the RM-CESU Project List for FY19 on the web site at <http://www.cfc.umt.edu/cesu/projects/default.php> (look under **Annual Reports**).

**Table 1: RM-CESU Activity by Agency Partners for FY2019**

	<u>FY18 # of TA/Mods</u>	<u>FY18 Total Funding</u>	<u>FY19 # of TA/Mods</u>	<u>FY19 Total Funding</u>
<b>RM-CESU</b>	125	\$15,038,188	<b>123</b>	<b>\$18,128,357</b>
<b>BIA</b>	0	0	<b>1</b>	<b>\$80,858</b>
<b>BLM</b>	7	\$500,744	<b>19</b>	<b>\$1,355,371</b>
<b>BOR</b>	0	\$0	<b>1</b>	<b>\$206,334</b>
<b>DOD</b>	21	\$6,048,66	<b>13</b>	<b>\$7,986,453</b>
<b>NPS</b>	70	\$6,289,277	<b>59</b>	<b>\$5,915,192</b>
<b>NRCS</b>	0	\$0	<b>0</b>	<b>\$0</b>
<b>USFWS</b>	4	\$582,442	<b>9</b>	<b>\$1,350,780</b>
<b>USGS</b>	18	\$1,432,417	<b>18</b>	<b>\$1,138,676</b>
<b>USACE</b>	4	\$159,4921	<b>2</b>	<b>\$73,051</b>
<b>USFS</b>	1	\$25,000	<b>1</b>	<b>\$21,642</b>



**Figure 1. Percentage of TAs/Mods by Agency FY19**



**Figure 2. Percentage of funds by Agency FY19**

**Observations:**

- Nine of the ten agencies had activity this fiscal year. Activity in terms of project dollars is up this year. (see Table 1 and Figures 1 and 2).
- Although the number of TAs executed for the DoD is down by half this year, the dollar amount increased by \$1.4 M.
- NPS continued a downward trend, dropping 15% in number of TAs and 6% in funding. NPS still remains, however the biggest user of the RM-CESU in terms of number of TAs per year.
- After having dropped significantly last year in activity, the BLM numbers were back up by 63% in both number of projects and funding.
- USFWS more than doubled its activity both in number of TAs and funds with projects with Colorado State University, Montana State University, University of Montana, and University of Wyoming.
- For the first time since joining in 2017, the BIA facilitated a project through the RM-CESU. The project with the University of Idaho will support the BIA Tribal Fire Resilience Program.

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.

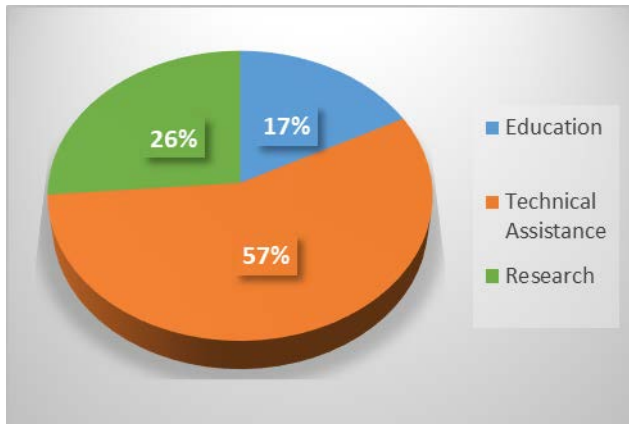


Figure 3. FY2019 Activity by Function

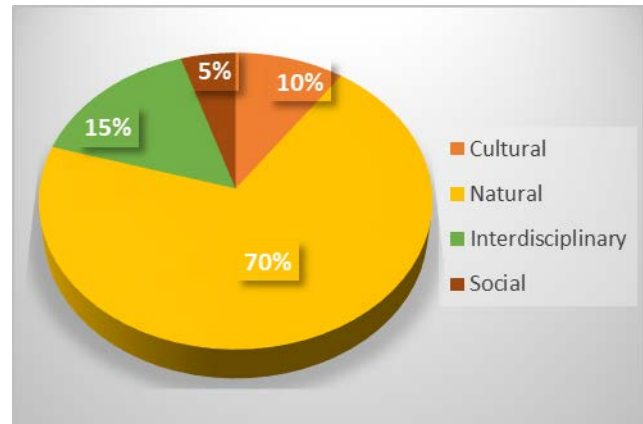


Figure 4. FY2019 Activity by Discipline

- The majority (57 %) RM-CESU projects provide technical assistance to our Federal partners (see Figure 3).
- RM-CESU facilitated \$11,996,218 in natural resource projects, \$4,715,052 in interdisciplinary projects, \$1,029,226 in cultural projects and \$387,861 in social projects (see Figure 4).

**Smallest Task Agreement:** \$4,343 National Park Service/University of Montana PI: Douglas McDonald; Nez Perce National Historic Trail Archaeological Documentation, Yellowstone National Park

**Largest Task Agreement:** \$3,573,154 Department of Defense/Colorado State University; PI: Charles Burns, Center for Environmental Management of Military Lands; Integrated Training Area Management (ITAM) Support at Joint Readiness Training Center, Fort Polk, Louisiana

Mean: **\$146,380** (Five-year Mean: \$117,820)    Median: **\$49,427** (Five-year Median: \$46,261)

Fourteen of the twenty-five RM-CESU non-federal members received at least one project this year (see Figures 5 and 6).

Colorado State University (CSU) remains the largest recipient of CESU awards. CSU received \$12.5 million in 48 task agreements/modifications with the Department of Defense, National Park Service, US Fish and Wildlife Service, and US Geological Survey. Projects range from web-based videos on park science to wetland condition assessments to traits and geographic distribution of invasive grasses.

After a down year last year, project activity is back up for University of Montana (UM)/20 TAs for \$2.1 M, Montana State University (MSU)/15 TAs for \$1.9 M, and University of Wyoming (UWY)/14 TAs for \$0.9 M. This increase in both task agreement/mods and funds is directly related to increased activity with the National Park Service and/or the Bureau of Land Management with those partners.

Tribal partner, Salish Kootenai College, received funding (\$50,000) from the BLM to develop genetically appropriate native plant material for use in habitat restoration and reclamation.

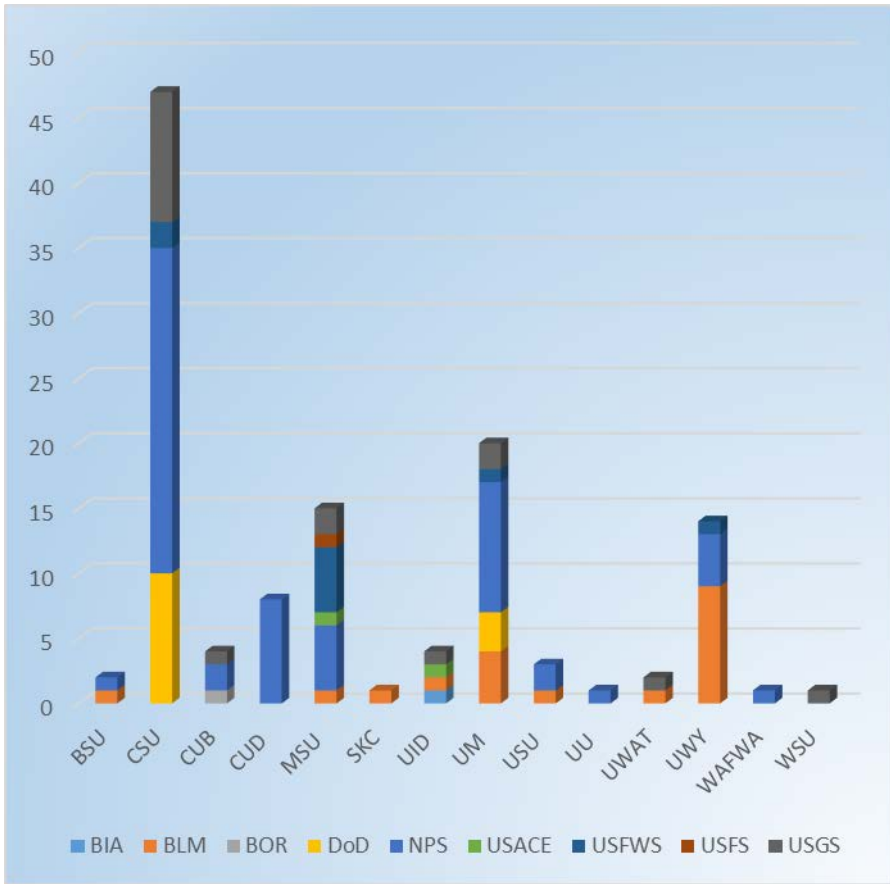


Figure 5. Distribution of TAs/Mods to Non-Federal Partners in FY2019

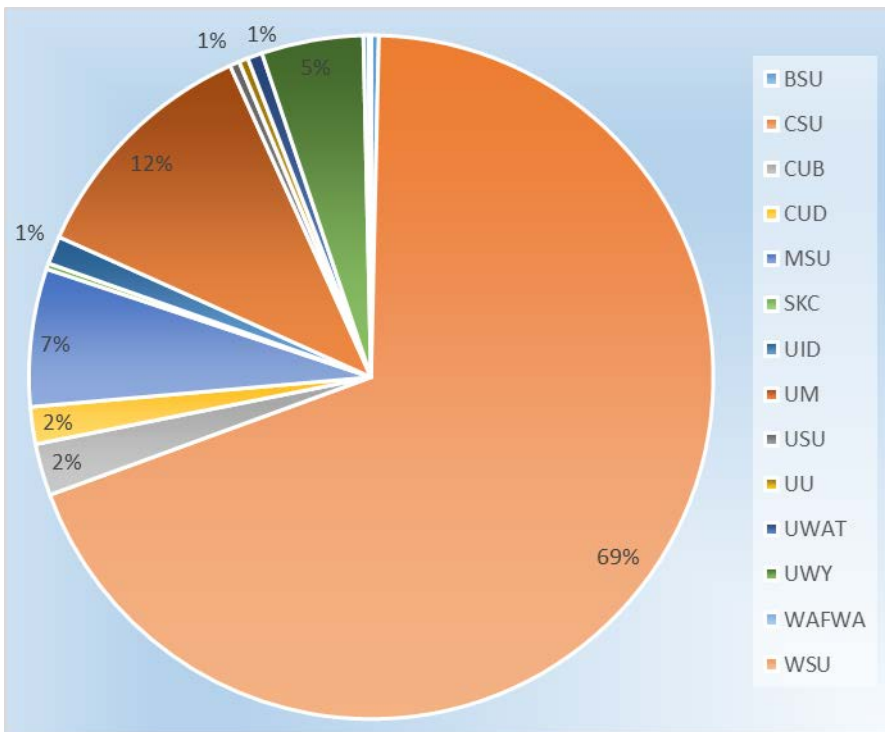


Figure 6. Distribution of funds to Non-Federal Partners in FY2019

Thirteen principal investigators receiving project funds in FY19 were using the RM-CESU agreement for the first time and contributed \$4,096,186 to RM-CESU total.

**Spotlight: Boise State University Partners with the National Park Service, through the Rocky Mountains CESU, to Develop Methods to Assess the Possible Impact of Climate Change on Cultural Resources**

Boise State University, in partnership with the National Park Service, is investigating the vulnerability of cultural and historic resources in National Park units due to climate change. In spring 2019, Associate Professor Pei-Lin Yu from the Boise State Department of Anthropology worked with the National Park Service’s Climate Change Response Program to author a national analysis of cultural heritage vulnerability reports in national parks.



Workshop participants assessing the vulnerability of cultural resources in the field, Bandelier National Monument, 2019. Photo: P. Yu.

To build on the report’s recommendations for best practices and address data gaps, Pei-Lin Yu and anthropology master’s student Jennifer Cuthbertson conducted a workshop for park managers and scientists in Santa Fe and Bandelier National Monument, New Mexico, in June 2019.

The workshop was led by faculty at Boise State, the University of Arizona and the University of Pennsylvania,

and was designed to help park science staff and managers develop methods to conduct vulnerability assessments that are integrated across natural ecosystems and cultural heritage. The immediate objective of the workshop was to build a “community of practice” for parks, regional technical support offices, and research partners in universities and non-governmental organizations. And these methods were tested in the field at Bandelier National Monument in New Mexico, home to an ancient ancestral Puebloan community.

This RM-CESU project will ultimately result in a vulnerability assessment guidebook for park managers and partners. This will allow individual parks to know how to respond to fires, floods, debris flows and other extreme climate events to protect irreplaceable cultural resources.

**Student Participation**

Based on project information available, we estimate approximately 65-70% of RM-CESU projects have student participation. Student participation includes research work by graduate and undergraduate students, as well as internships, field schools and class participation in projects.

2019 RM-CESU Student Award

Each year the RM-CESU recognizes the outstanding contribution of student(s) on a RM-CESU project. The recipient of the **2019 Student Award** is **Kimberly Verhoeven**, University Colorado Denver, for her contributions to the CESU project: ***NPS Historic American Building Survey (HABS) - Documentation of Lowry Pueblo, Cortez, CO, August 2016 – March 2019***. Kimberly’s work used LiDAR imagery and archival drawings to document the remains of the prehistoric pueblo found at the Canyons of the Ancients National Monument.

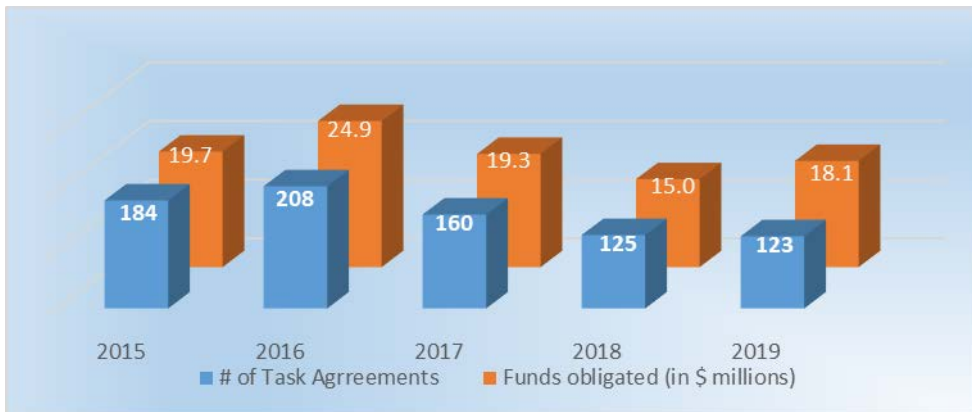
She was nominated for this award by Kat Vlahos, Director, and Michael Nulty, Documentation Coordinator, of the Denver Center for Preservation Research. In their nomination, Nulty and Vlahos noted that “Kimberly played a critical role in delivering the final HABS drawings for the project. The goal to develop a well-crafted and complete set of drawings was achieved by using her background in both architecture and historic preservation, an important combination for this type of project. Her ability to master both the new technology and the craft of drawing was exceptional. The drawings show well-crafted, accurate and beautiful drawings that exceed HABS standards.” Nulty and Vlahos went on to report, “this project also provides an important case study on how to document and stabilize a public use site. Kimberley’s work on the project have allowed the BLM a way to better understand the site and implement the use of new technologies. This approach, in turn, leads directly to exploring new opportunities in resource management.”



Kimberly Verhoeven, the 2019 RM-CESU Student Award recipient

**RM-CESU ACTIVITY FY15-FY19**

In last five years of operation, the RM-CESU has facilitated **800 task agreements/modifications obligating 97 million dollars** to non-federal partners for project work with our Federal partners (see Figure 7).



**Figure 7.** RM-CESU Activity FY2015-FY2019



## UNIVERSITY OF MONTANA – HOST ACTIVITY AND ACCOMPLISHMENTS

- Coordinated the Annual Fall RM-CESU Partner Meeting held September 9-12, 2019 in conjunction with the celebration of the CESU Network at the 15<sup>th</sup> Biennial Conference of Science and Management on the Colorado Plateau & Southwest Region in Flagstaff, AZ.
- Participated in monthly CESU Directors' call with Tom Fish, the National Coordinator.
- Facilitated brain-storming discussions with four most active non-federal partners (Colorado State University, Montana State University, University of Wyoming and University of Montana) and the National CESU Office to identify long-term solutions to support the host university.
- Participated in National CESU planning group for a joint meeting of representatives from the CESU Council, Directors, and University Sponsored Programs to discuss the following topics: unconventional uses of the CESU, Host University support, Council composition, and National Office staffing.
- Maintained RM-CESU web site including posting meetings, project abstracts and reports, and CESU calls for interests.
- Facilitated and completed our 5-year review and renewal.
- Facilitated design of new RM-CESU logo.
- Produced and distributed online RM-CESU Newsletter. The newsletters provide updates on CESU and partner activity, as well as, posts funding, training, and job opportunities. Kathy Tonnessen, NPS-emeritus, is a regular contributor to the newsletter
- Produced RM-CESU Annual Report and project lists.
- Facilitated communication and correspondence among existing and potential partners.
- Fielded partner questions in regards to CESU policy and procedures.
- Coordinated RM-CESU Annual Student Award (see page 7 for 2019 awardees).
- Coordinated NPS Jerry O'Neal Student Research Fellowship. This fellowship provides support for graduate students or superior upper division undergraduate students at RM-CESU universities and colleges conducting research in Glacier National Park, Grant-Kohrs Ranch National Historic Site, and Little Bighorn Battlefield National Monument.