**Title:** Rangeland Education Across Institutional Borders

**Duration:** October 1, 2011 to September 30, 2016

**Statement of Issue and Justification:** Rangelands are incredibly dynamic and intriguing places to work. The profession of rangeland management attracts people who want to work in the grasslands, shrublands, woodlands, and deserts we know as rangeland. In a rapidly changing time of demands for rangeland resources and ecosystem services the workforce to manage these lands is shrinking and aging. Data from the Office of Personnel Management reveal that 50 to 75% of the range management professionals currently classified as “Conservation Scientists” will likely retire in the next decade. The U.S. Bureau of Labor Statistics estimates that there were 18,300 Conservation Scientists in the workforce in 2008 with a projected increase to 20,500 in 2018 (BLS 2009). Data from the U.S. Department of Education, National Center for Education Statistics indicate that between 1997 and 2007 about 1,300 students graduated with a B.S. degree in rangeland management (NCES 2007). This average of 130 students per year falls far short of meeting the future yearly demand of nearly 450 new rangeland management specialists for Federal agencies. This number is conservative as it does not include state agencies or private sector employers.

Who will fill their shoes? Universities are facing tremendous budget reductions and the capacity to offer excellent undergraduate rangeland education is declining at many institutions. Rangeland science is unique in the broader scope of the ecological sciences, focusing not only on rangeland ecology but also on integrating ecological knowledge into land management decisions. Traditional uses of rangelands such as livestock grazing and mineral extraction continue while the demands for recreation opportunities and green energy development (geothermal, wind, solar, biomass) are escalating. As educators of rangeland professionals we face the challenge of providing a rangeland science and management curriculum that provides the knowledge and management tools necessary to meet the new demands, new trends, and new tasks required to manage rangelands. Rangeland scientists at multiple universities are concerned that program reductions and a greater emphasis on research rather than teaching have reduced the number of teaching faculty in many university rangeland programs thus inhibiting their ability to deliver future range science graduates with an education that provides them the academic, social, and technological skills required to meet today’s challenges out on the range. Our overall project goal is to revitalize and coordinate rangeland curricula across universities in the western United States and increase the number of students, both degree and non-degree seeking, ultimately increasing the number of well-trained professionals who will manage the rangelands of the world. We propose to do this by coordinating curricula and courses, along with a platform of delivery approaches to attract students with a variety of backgrounds and experiences to gain the knowledge and skills to manage rangelands for positive economic, environmental and social outcomes.

**Objectives:**

1. Identify and coordinate rangeland science expertise within western universities for the purpose of developing regional instructional opportunities to provide increased subject matter curricula to rangeland students and professionals through on-line and alternative format courses such as workshops and field courses.
2. Enhance professional development and instructional delivery to meet the needs of a mobile workforce in order to broaden their exposure to issues and perspectives from other regions.
3. Provide regional funding mechanisms to enhance university rangeland program budgets through increasing enrollment numbers through regional education opportunities for traditional, non-traditional and professional-development students.

**Procedures and Activates:**

1. Develop a regional pool of rangeland scientists/educators and their specific rangeland expertise. Utilize such knowledge to determine specific institution curriculum needs and develop a platform for cross-institution delivery of rangeland course work;
2. Embrace new technology and a variety of instructional formats including internet-enhanced materials for on-campus classes, online courses, workshop and intensive field based courses.
3. Engage existing institutional Information Technology expertise to increase faculty knowledge and use of alternative course delivery technology;
4. Collaborate with the Range Science Education Council in their efforts to facilitate student access to alternative educational opportunities, and reduce barriers to completing 4-year degrees by supporting the development of an internet catalog of online, distance and intensive workshop-style courses;
5. Improve student recruitment by developing a best practices strategy aimed at creating greater awareness of career opportunities among diverse demographic groups including high school and community college students and;
6. Engage institutional administrators on development of a cross-institutional undergraduate range ecology and management degree including a funding platform for distribution of tuition dollars.

**Expected Outcomes and Impacts:**

1. Establish institutional curriculum needs through analysis of current undergraduate range ecology degree requirements in comparison to the Society for Range Management requirements for program accreditation. As a result
2. Develop a strategy for addressing institutional curriculum needs through utilization of alternative course delivery mechanisms.
* Impact: Traditional on-campus students, including those attending universities that cannot offer the suite of rangeland courses necessary to qualify for GS-454 rangeland management positions, off-campus students seeking degrees at 2- or 4-year institutions, and non degree-seeking professionals who endeavor to enhance their career opportunities will have access to a greater set of courses offered in alternative formats.
1. Coordinate with the Range Science Education Council on their efforts to develop a web site linked to the Society for Range Managements and RangelandsWest.org to highlight

 available resources for people seeking rangeland education opportunities.

* Impact:
* Catalog of On-line Courses - Highlight existing on-line courses in rangeland ecology and management.
* Alternative-Format Course Listing - Highlight existing time-intensive, workshop-style, hybrid and field courses that create opportunities for students on and off-campus.
* Clearinghouse of Teaching Resources - Create an internet collection of rangeland curricular resources that cover basic rangeland topics, embrace new internet technologies, and thereby increased the quality of rangeland education. This resource will also benefit teachers and improve the efficiency of course delivery by sharing resources across states and topic areas.
* Student Recruitment and Enrollment - develop recruitment and promotional brochures and a web-based presentation about the art, science, and profession of range management, tailored to high school and community college student audiences.

4. Develop delivery and funding techniques for a cross-institutional undergraduate range ecology and management degree.

* Impact: Increase the quality of range graduates prepared to engage the emerging issues in the management of the world’s rangelands, increase enrollment in range programs throughout the west, increase tuition dollars generated by range programs.

**Collaborators/Participants**

University of Nevada, Reno - confirmed

Idaho State University - confirmed

Montana State University - confirmed

Oregon State University - invited

Utah State University - invited

University of California, Davis - invited

Humboldt State University - confirmed

Colorado State University - invited

New Mexico State University -invited

**Literature Cited**

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