

Project Completion Report

Rocky Mountains Cooperative Ecosystem Studies Unit (RM-CESU)

Project Title: Workplace Implementation of Innovation/Adoption Strategies to Improve the Use of Science in Management Decisions

Project Code: J1526085487; USURM-57

Type of Project: Technical Assistance

Funding Agency: National Park Service

Partner University: Utah State University

NPS Agreements Technical Representative: Judy Visty, Research Coordinator, Rocky Mountain National Park 1000 Highway 36 Estes Park, CO 80517, ph. 970 586-1302, judy_visty@nps.gov

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Start Date of Project: Sept. 1, 2008

End Date of Project: June 1, 2013

Funding Amount: \$19,151

Project Summary, including descriptions of project deliverables, work accomplished and/or major results.

The Division of Resource Stewardship at Rocky Mountain National Park (ROMO) includes nearly 100 permanent, term, and seasonal employees who are challenged to implement a complex and dynamic program to preserve Park resources for future generations. Nearly as many researchers conduct studies in the park each year to discover new knowledge. Resource Stewardship staff are challenged not just to integrate this new knowledge into their understanding of the park, but also to apply that knowledge in spending millions of dollars annually toward the Park's and Division's missions. This agreement has been intended to further the already-successful efforts of Division staff by enhancing (1) their understanding of the uses, limitations, and implications of science-based management of Park resources; and (2) opportunities to facilitate the more rapid adoption of new ideas and innovation with the Division.

To achieve this, the university partner, Dr. Mark Brunson, with assistance from a graduate student colleague, Rebecca Morgan, conducted interviews and surveyed Division

employees, gathered resources useful for an educational program, identified key topics to be addressed in an educational program, and outlined a process to deliver such a program. They desired final outcome for the Park is that employees will be skilled as consumers and purchasers of science, able to identify questions and research approaches that are most likely to be able to address the goals of both managers and scientists, and to implement agreements and contracts that account for the procedural needs of scientists while protecting park resources and other management objectives.

When this cooperative agreement was created the cooperators anticipated that we would be able to assess learning needs in a scoping visit completed early in the project, then develop a curriculum within months. However, the results of discussions during a February 2009 scoping visit led us to realize that the schedule had been overly ambitious and we could not deliver a credible educational program without more detailed information regarding beliefs about science among ROMO staff, especially as regards the processes by which science is conducted and potential limitations of scientific inquiry in the park. Accordingly we developed a survey of Resource Stewardship employees that was administered that summer, eventually resulting in responses from 68 permanent, term, and seasonal Division employees representing a full range of duties, education levels, and experiential backgrounds. Results of the survey were analyzed and presented to the NPS key official, Ben Bobowski, in July 2012.

In addition, as educational themes emerged, we recognized that instructional materials would need to draw upon literature covering at least three different themes: the history of science and the science-policy interface in the National Park Service; contemporary views about how science can inform policy and management in parks and protected areas; and treatments of how science is conducted, and what strengths and weaknesses arise from those processes. Accordingly a literature search was conducted that resulted in development of an annotated bibliography of key resources (Appendix A to this report).

A third product is a description of potential training modules covering key topics identified through the survey and interview processes as areas where ROMO staff might benefit from further knowledge development. Five competencies have been identified: Definitions and Processes; The Science-Policy Interface; The Science-Management Interface; Fostering Innovation; and Assessing the Use of Science.

Number of Students Participating: 1 graduate student

Lessons Learned: Over the course of this project we have seen renewed interest within federal agencies as well as the research community in understanding and improving the use, understanding and application of science. Our findings support the need for this heightened interest – especially with respect to the use of science in adaptive management. The Resource Stewardship Division is an organization of scientifically trained individuals, and their understanding of science is high. Yet we found disagreement about how research is conducted and scientific understanding is built, as well as skepticism about the utility of science for management. Addressing any misgivings will be an important training goal as the park faces new challenges and uncertainties in the years to come.