

## Project Summary

### Rocky Mountains Cooperative Ecosystem Studies Unit

**Project Title:** Resource Management Baseline Information Synthesis: Soil Inventory and Potential Climate Change Effects for Death Valley National Park

**Discipline:** Natural Resources  
**Type of Project:** Technical Assistance  
**Funding Agency:** National Park Service  
**Other Partners/Cooperators:** Montana State University  
**Effective Dates:** September 15, 2010 - March 31, 2011  
**Funding Amount:** \$10,370

**Investigators and Agency Representative:**

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Investigator: Dr. David W. Roberts, Montana State University, Department of Ecology  
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Researcher: Henry Shovic, PhD, Montana State University, Department of Ecology, hshovic@montana.edu;  
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**Project Abstract:**

Climate Change and Effects on Plant and Animal Species

Recent and predicted climate change will probably affect plant and animal species in DEVA, particularly on those near the edges of their habitat ranges. We need to estimate the nature and extent of these changes to plan management activities to adapt to or mitigate those changes, particularly for T and E species. As a first step we need to develop preliminary guidance for assessments of the effects of current and future climate change on important species. Dr. Shovic will develop some preliminary projects that could be most efficiently implemented given the state of our data and that will meet our management objectives. His primary data sources and project designs will be from local NPS technical and management staff. His primary function is to synthesize these concerns and available data into a scientifically-defensible study plan. Deliverables include a report including a study plan, appropriate maps, and spatial data gathered for the project.

Soil and Vegetation - Interim Development of Inventories for Management

There is no ongoing soil survey program for DEVA and the NPS vegetation inventory is just beginning, though there are some data on both resources. For management to be more effective in dealing with current issues, we need interpretations from these existing but scattered data. Our objective is to synthesize existing information into the best possible inventory of soils and vegetation for DEVA.

In cooperation with our specialists Dr. Shovic will research current state of spatial soils and vegetation knowledge, including university research, agency work, NPS internal studies, and existing data in DEVA. Using these data, we will synthesize the best possible inventory subject to scientific and administrative criteria. Management interpretations will be provided subject to limitation of the resulting synthesis.

Both studies are preliminary in nature and are primarily time and materials. Within the funding level, relevant, applicable scientific literature will be reviewed, interviews with NPS specialists and management staff in the applicable fields will be conducted, and available information synthesized in a format usable by management. Data limitations will be described, and appropriate interpretations made. Results will be based on existing data, with limited field review.

This project may be extended depending on changing conditions and adequacy of findings. Not included in this scope of work are additional tasks needed to finalize recommendations, develop field designs, run field tests, or a more general literature search.

**Outcomes with Completion Dates:** December 31, 2010

1. **An annotated bibliography** of relevant literature and identification of knowledge gaps will be assembled related to climate change and relevant species, and soils. Copies of those research papers will be given to the park in hardcopy or electronic format for future reference and to facilitate an understanding of the science.

2. **A written document describing the proposed project plans and Management Interpretations**
3. **Maps** (and spatial data layers if applicable)
4. **A presentation** at the project location

**Keywords:** Soil inventory, climate change effect, plants, animals, Death Valley National Park, Montana State University