Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Advanced analysis toward metrics of human responses to natural sound environments

Discipline: Social
Type of Project: Research
Funding Agency: National Park Service
Other Partners/Cooperators: Colorado State University
Effective Dates: 8/1/2009 - 7/30/2011
Funding Amount: $82,500 [FY10: $23,500; FY09: $59,000]

Investigators and Agency Representative:
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Project Abstract: The overall goal of this project is to further development of new scientific guidance for managing acoustical environments in local, state, federal, and international designated protected areas. The benefits of natural, noise-free environments for human health, performance, and enjoyment need to be quantified in a manner that can support recreational planning for park units.

Acoustical metrics will be developed to summarize salient aspects of acoustic playback sequences used in the experiments, deduced from previous studies of community noise response and visitor experience surveys in National Parks and wilderness settings. This project will determine how generalizable these acoustic metrics are. S

The ordered sequence of tasks is:

1. Continued work with NPS to devise required criteria for playback sequences, and synthesize natural sound playbacks.
2. Conduct new single-subject trials as required. Investigate the impact of iPod use in park settings, as well the effect of adding further layers of visual information to the auditory information. This may involve identifying appropriate cognitive tasks, performance tasks, and physiological responses.
3. Investigate changes in response with multiple subjects in the room. Sounds coming from your group tend to be much less disturbing than sounds coming from other groups (i.e., in-group vs. out-group effects).
4. Conduct interim analysis.
5. Assess individual differences via Need for Sensory Experience scale and Noise Annoyance Scale.
6. Conduct final analysis.
7. Devise approaches for applying obtained metrics to studies with NPS visitors.
8. Devise approaches for studies in NPS environments.
9. Generate papers and a report

FY10 modification includes an additional $20,000 in direct costs to cover the following tasks:

- Analysis of an unexpectedly large volume of data with significant findings as described below:
- Investigate sound impacts on scenic preference ratings and memory for interpretative material, as well as the interactions between sound levels, percent time audible for aircraft sounds, and the individual difference measure of Motivation for Sensory Pleasure.
- Generalize findings to typical visitor settings such as scenic viewpoints, memorials, historical/cultural sites, and a wildlife museum (comparable to a park visitor center).

Outcomes with Completion Dates: Final Report and/or Other Products: 30 June 2011

Keywords: natural sounds, behavior, NPS-Natural Sounds Program, Colorado State University