

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Analysis of wildlife movements in relation to Denali Park Road traffic
Type of Project: Research
Discipline: Natural Resource
Funding Agency: National Park Service
Other Partners/Cooperators: University of Montana
Effective Dates: January 1, 2007 - June 30, 2012
Funding Amount: \$97,325 [added \$32,324 in FY09]
Investigators and Agency Representative:
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Researcher: Dr. Richard Mace

Project Abstract: The conservation of wildlife, including Dall sheep and grizzly bears, and the protection of opportunities to view wildlife, were primary reasons for the creation of Mount McKinley National Park in 1916, and for its expansion into Denali National Park and Preserve in 1980. Most of Denali's 350,000 annual visitors expect to view wildlife along the Denali park road. However, park managers do not know how traffic along this road affects wildlife populations and opportunities for park visitors to view them.

Denali National Park will be conducting a series of scientific studies between 2007 and 2009, in order to understand the patterns of traffic on the Denali Park Road and the impacts of traffic on the physical, biological and social environment of the park. In order to maximize the possibilities for visitor enjoyment of the park, it is necessary to understand the limits that should be placed on park road traffic, and the effects of traffic changes on resources and on the visitor experience. Following the initial studies, and the preparation of an Environmental Impact Statement, experimental changes in the volume and timing of park road traffic will be undertaken.

During this three-year study Dr. Richard Mace will collaborate with other scientists on the data analysis. Wildlife movement data will be used to quantify patterns of habitat use within and outside the Denali park road corridor. These data will be compared with daily patterns of road traffic over the sampling period (to be measured in a separate, GPS-based study), so that interactions between wildlife movements and road traffic can be analyzed. Together with the results of social studies, logistical considerations and other "rules of the road," these data will be used to devise a model of traffic on the Denali park road, to better understand the constraints on road traffic.

Outcomes with Completion Dates:

1. Annual report of significant findings (31 December 2007, 31 December 2008)
2. Final Report of findings submitted to National Park Service (June 30, 2010)
3. Publication of findings, along with co-authors, in appropriate peer-reviewed journal (due by June 30, 2010)
4. Assist in the integration of biological findings with other aspects of road capacity model (ongoing, 2007-2010)
5. Assist in the coordination of needs (bear and sheep) required for "Before-After-Control-Impact studies" (ongoing, 2008-2010)
6. Presentation of findings at appropriate National Park Service Symposia (September 2008)
7. Presentation of findings at International Bear Association Conference (November 2007)
8. Archive of all telemetry files (ongoing 2007-2010)
9. Archive of all final Geographic Information System Maps (ongoing 2007-2010)
10. Archive of all statistical procedures (ongoing 2007-2010)

11. GIS map of habitat effectiveness and habitat value (probability of bear use)
(September 2008)
12. All products due to RM-CESU in electronic form by June 30, 2010

Keywords: Denali National Park, University of Montana, wildlife, road studies, data analysis