

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Bison Demographic Analysis at Badlands National Park

Discipline: Natural Resources
Type of Project: Technical assistance/education
Funding Agency: National Park Service
Other Partners/Cooperators: Colorado State University
Effective Dates: April 1, 2008 - December 31, 2009
Funding Amount: \$11,500

Investigators and Agency Representative:

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Project Abstract: Bison at Badlands National Park are caught each fall in a round up and marked with ear and transponder tags. Some bison are culled as well. Mark-recapture data exist from 2002-2007, but have not been analyzed. A demographic analysis of these data will be conducted to inform bison management at Badlands National Park. Specifically:

- 1) Demographic parameters, such as survival and recruitment, will be estimated and temporal (yearly) and individual covariate (e.g., age, sex, wet, body condition) effects will be investigated.
- 2) Population models will be constructed to inform optimal culling rates.
- 3) Population models will be constructed to inform re-introduction strategies.
- 4) If available, bison data from Wind Cave National Park will be compared with bison data from Badlands National Park with respect to the above objectives.

The project will be performed by Dr. Paul Doherty at Colorado State University, and other staff and graduate students associated with the NSF-funded training program PRIMES (Program for Interdisciplinary Mathematics, Ecology, and Statistics). This program trains graduate students in the three disciplines to work together in interdisciplinary teams.

Outcomes with Completion Dates: Progress report due by September 30, 2008; Draft Final Report due by December 31, 2008.

Keywords: bison, data analysis, population models, Badlands NP, Colorado State University