

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Analysis of bison disease, demographic, habitat use, and migration data from Grand Teton National Park

Discipline: Natural
Type of Project: Technical Assistance
Funding Agency: National Park Service
Other Partners/Cooperators: Montana State University
Effective Dates: 9/1/2008-9/3-/2010
Funding Amount: \$10,000 (FY08: \$5,000 and FY09: \$5,000)

Investigators and Agency Representative:

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Investigator: Dr. Megan Higgs, Assistant Professor of Statistics, Montana State University, P.O. Box 172400, Bozeman, MT 59717-2400, (406) 994-5350, higgs@math.montana.edu

Project Abstract:

Objective and Rationale: From 1997 - 2005 Grand Teton National Park and collaborators from academia, US Fish and Wildlife Service, and USGS studied reproductive ecology of a brucellosis-infected, supplementally-fed, free ranging bison herd. Long term data sets on bison birthing, calf molt patterns, aerial survey techniques, survival, causes of mortality, movements, habitat use, and age-dependent and disease status influences on these parameters have been developed and are currently being analyzed. At this phase of the work, the park and its collaborators now need the assistance of and collaboration with a statistician to ensure that appropriate statistical methods are employed and to develop new statistical approaches for data analysis where appropriate. This assistance is imperative to assure timely and quality products are delivered from the important field data gathered to date, particularly since bison and brucellosis continue to be high profile, contentious issue in Grand Teton and surrounding areas of Wyoming, Montana, and Idaho.

Scope of Work: Depending on the level of assistance necessary for each specific data set and analysis need, the scope may range from simple consultation to full collaboration leading to co-authorship on resulting work. If new statistical techniques were developed, the specialist may elect and would be encouraged to publish the technique in collaboration with the park "owner" of the data. Simple consultations would involve a review of the data and questions being asked followed with advice on statistical analysis approach and then review of analyses conducted by the park. In some cases cooperator would review analyses and interpretations already completed at the park for appropriate use of statistical tests, consistency with assumptions, and validity of interpretations. At the other extreme, for some data sets a full collaboration would involve complete analysis of data by the technical expert and following through in collaboration with park scientists to a final manuscript.

Outcomes with Completion Dates:

Due Date for Final Report and/or Other Products: December 31, 2010

Keywords: bison, statistical methods, bison birthing, calf molt patterns, aerial survey techniques, survival, causes of mortality, movements, habitat use, Grand Teton National Park, Montana State University