

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Conservation of the Declining Yellowstone Pronghorn Population

Type of Project: Research

Funding Agency: National Park Service

Other Partners/Cooperators: University of Idaho

Effective Dates: 8/15/2004 - 7/1/2009

Funding Amount: \$59,375

Investigators and Agency Representative:

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Project Abstract:

The purpose of this cooperative agreement is to contribute to a (1) tactical biological study of Yellowstone pronghorn designed to determine if there is differential recruitment among fawning areas in relation to wolf and coyote densities and use areas during FY2004-FY2007 and 2) enumerate the precise staging areas, migration routes, and summer use areas of pronghorn to ensure their migratory patterns are not adversely affected by future infrastructure projects. During the pronghorn fawning and neonatal periods, staff from the University of Idaho will attempt to record the location of approximately 25 radio-collared pronghorn every 2-3 days. As necessary, they will also conduct aerial location flights for pronghorn during May and June to increase observations of birthing and neonatal sites during this critical period. In addition, they will conduct classification flights during July through November to index fawn survival in various areas of the summer range. They will also differentially correct data from GPS collars. University of Idaho will conduct genetic analyses using both microsatellite loci and mtDNA to quantify standard metrics of genetic variation (e.g., heterozygosity), the majority of which have never been measured for this population. They will also conduct genetic analyses to evaluate if population substructuring has occurred due to philopatry of individuals to specific migration patterns and summering areas could result in genetic substructuring of the Yellowstone pronghorn population. Identification of unique subgroups within the larger population is essential for monitoring and long-term planning purposes, and may help explain historic range abandonment in certain areas of the park. In summer 2007 researchers from University of Idaho and Washington State University will undertake additional tasks related to analyses of forage quality, diet composition and nutrition in pronghorns that graze the northern range of Yellowstone.

Outcomes with Completion Dates:

List of Products:

- 1) Pronghorn location, mortality/cause of death, and classification data will be delivered at 90-day intervals to the NPS Key Official at Yellowstone National Park. Pronghorn location data will be entered in Microsoft Access format, verified for accuracy, and validated prior to being delivered to the NPS Key Official at Yellowstone National Park.
- 2) Annual Accomplishment Report for FY2005-2007, including copies of digital databases and analyses created during this project, will be delivered to the NPS Key Official at Yellowstone National Park no later than September 30, 2005.
- 3) December 30, 2007 - preliminary report on genetic analyses of blood and fecal samples from Yellowstone pronghorn, including sample results for MtDNA and microsatellites, allele frequencies, panmixia, and pairwise relatedness of individuals. The report will include detailed explanation of methods and supporting information, results, explanations, and interpretations of results and analyses. Digital databases and analyses created during this project will be provided during the report.

- 4) June 1, 2008 - final report on genetic analyses of blood and fecal samples from Yellowstone pronghorn, including sample results for MtDNA and microsatellites, allele frequencies, panmixia, and pairwise relatedness of individuals. The report will include detailed explanation of methods and supporting information, results, explanations, and interpretations of results and analyses. Digital databases and analyses created during this project will be provided during the report.
- 5) June 1, 2008 - final report on the diet composition and nutrition analyses. The report will include detailed explanation of methods and supporting information, results, explanations, and interpretations of results and analyses. Digital databases and analyses created during this project will be provided during the report.
- 6) June 1, 2008 - final report on the forage quality analyses. The report will include detailed explanation of methods and supporting information, results, explanations, and interpretations of results and analyses. Digital databases and analyses created during this project will be provided during the report.

Keywords: Yellowstone pronghorn, fawning areas, DNA analysis, nutritional analyses, forage quality, wolf and coyote predation, Yellowstone National Park, University of Idaho

For Administrative Use Only:

Date Annual Report Received:

Date Final Report Received:

Publications, etc. on file: