# RESEARCH PROJECT SUMMARY

**Project Title:** Population parameters of bighorn sheep inhabiting the Elk Mountain region of South Dakota and Wyoming.

**Need:** Assessing population stability of bighorn sheep (*Ovis canadensis*) herds is critical due to their relatively small herd size, general isolation from other herds, and susceptibility to disease-mediated mortality. As such, periodic evaluation is necessary to determine population parameters (survival, cause specific mortality), which can be used to assess long term viability and the need for population augmentation due to genetic diversity concerns. The Elk Mountain bighorn sheep herd was established in 2001 by South Dakota Game, Fish and Parks with 20 bighorn sheep (3 rams, 11 ewes, & 6 lambs) from the Spring Creek herd. Bighorn sheep were released in Hells Canyon east of Elk Mountain; they subsequently moved to Elk Mountain along the Wyoming/South Dakota boundary and currently utilize this area as their primary range. In 2004, seven ewes from Wheeler Peak, New Mexico were transplanted to Elk Mountain to enhance genetic diversity. Currently this herd is managed jointly by the Wyoming Game and Fish and the South Dakota Game, Fish and Parks departments. The Elk Mountain bighorn sheep herd is currently estimated at 80 – 100 individuals whereas the population objective for this herd is 150 – 200 individuals. Ground and aerial counts are conducted annually on this herd and indicate that the population is stable. However, lamb:ewe:ram ratios collected during ground counts indicate that the population should be increasing. Population demographic parameters, such as survival, cause specific mortality, dispersal, reproduction, and recruitment, are largely unknown. This project will estimate population size, assess movements, survival, and recruitment, and evaluate genetic diversity and disease prevalence of the bighorn sheep herd at Elk Mountain.

**Objectives:**

1. Estimate population size of bighorn sheep inhabiting the Elk Mountain Region of the Black Hills.
2. Determine movements, survival, cause specific mortality, and recruitment of adult and lamb bighorn sheep inhabiting the Elk Mountain Region of the Black Hill.
3. Assess genetic diversity and evaluate disease prevalence of the bighorn sheep population inhabiting the Elk Mountain Region of the Black Hills.

**Study Location:** Elk Mountain, Southern Black Hills of South Dakota and Wyoming.

**Expected Completion:** June 2015

**Principal Investigator:** Dr. Jonathan A. Jenks, Distinguished Professor, South Dakota State University

**Other Personnel:** Brynn Parr, Graduate Research Assistant, South Dakota State University

John Kanta, Regional Wildlife Manager, South Dakota Game, Fish and Parks

Andy Lindbloom, Senior Big Game Biologist, South Dakota Department of Game, Fish and Parks

**Funding:** Federal Aid to Wildlife Restoration, Study No. 7552, administered through South Dakota Department of Game, Fish and Parks.