

Greater Yellowstone Coordinating Committee

Project Completion Report FY 2008

Unit: Bridger-Teton National Forest, Jackson Ranger District
Project Name: ESTIMATING SAGE GROUSE POPULATION DEMOGRAPHICS, PREDATION, AND CRITICAL HABITAT FOR RECOVERY IN JACKSON HOLE AND NORTHWEST WYOMING
Project Description: An on-going four year field-based investigation initiated by Craighead Beringia South in the spring of 2007 on the Jackson and Gros Ventre sage grouse populations and their seasonal habitats. The study is examining the distribution, movements, habitat use, productivity and survival of the grouse in the valley, with an initial focus on grouse nest success and brood survival. The overall objectives of this project are to characterize the demographics of the sage grouse populations in Jackson Hole and describe their seasonal use of habitat. Sage grouse will be marked and tracked for a three-year period, 2007 through 2009 to accomplish the demographic and habitat objectives of the study. Telemetry locations of grouse will identify habitats used by sage grouse in Jackson Hole and delineate these habitats for nesting, brood rearing, and winter survival. Finally, genetic isolation of these mountain populations and the connectivity between sub-populations of sage grouse in northwest Wyoming and eastern Idaho will be assessed for the divergence of microsatellites between populations. Sage grouse were captured and female grouse were leg banded and given a necklace mount VHF transmitter or a figure-8 mounted GPS transmitter; males were leg banded and released, or leg banded and given a VHF or GPS transmitter. All birds marked with VHF telemetry were located a minimum of three times per week. Females that exhibited localized movements during the nesting season (May-June) we assumed to be attending nests. When they exited the localized area, the area was searched for evidence of a nest, and eggs were counted; if predation was detected, exhaustive efforts were made to determine the predator species. Transmitters also incorporated a mortality monitor that indicated if a study animal had been immobile for a long period of time. These signals, when detected, were immediately investigated for bird mortalities; all mortalities were thoroughly investigated. Mapping was undertaken to document the distribution of sage habitats and to describe the use of these habitats by sage grouse.
GYCC Funding Received: \$9000.00 Partner Funding/In-Kind Received: Teton Science School (\$5000.), Grand Teton National Park (\$15,000.in-kind), National Elk Refuge, Wyoming Game and Fish Department – Wildlife Heritage Trust (\$20,000.), Jackson Hole Airport Board (\$30,000.), Wyoming Sage-Grouse Conservation Fund (\$62,000.), Private individual donors/foundations (\$25,000.), Craighead Beringia South (\$266,950. in-kind contributions), Bridger-Teton National Forest (\$12,000. and \$3000.in-kind).
Status of the Project: Project is on-going through December 2010. Field work should be completed by the end of 2009. In 2009, pending funding and sample collections, we hope to initiate a genetic study of the grouse populations in NW Wyoming and eastern Idaho. This study

Note: You may expand and reduce size of blocks.

will assess the potential genetic isolation of the Jackson Hole and Gros Ventre populations and will be able to determine the extent to which individuals migrate in and out of these populations. Further, we will be able to document the direction of dispersal and determine source and sink populations. We will be working in collaboration with Dr. Jeff Johnson at the University of North Texas, who has been a pioneer in Prairie Chicken and Sage Grouse genetic research.

Jackson Hole Population - After the 2008/09 winter field season, we plan to scale back the habitat use component of the Jackson Hole population study. We will continue to monitor the VHF transmitter birds, but not get 3 quadrangulations/week, as we have been doing, in the southern half of the valley. Our efforts will be focused mainly on the northern half of the valley around the three newest leks (Timbered Island, RKO, and Spread Creek). We will continue to monitor nesting demographics of all marked individuals. We will continue to monitor leks for inter-lek movement of color marked males. We also hope to initiate more a more detailed nesting fate study using infra-red cameras and document post-hatching mortality rates and causes using small VHF transmitters on chicks.

Gros Ventre Population - We will continue monitoring efforts and increase sample size of marked birds in the Gros Ventre drainage. We also hope to survey for new leks in that region this spring.

Products that can be shared across the GYA: (GIS data layers, maps, new protocols and methods) Professional technical peer reviewed papers of study results will be available for dissemination across the GYA upon completion of the project.

Generally, little is known about the wintering habits of sage-grouse. Our project will directly benefit sage grouse in Wyoming by providing vital information about winter habitat needs, movement ecology, time budgets, energy expenditures, and survival that can be used in recovery plans and recommendations. The population in which we are gathering data resides in one the most harsh winter environments within Wyoming. Thus, recommendations derived for our population can be used as conservative guidelines for all sage-grouse in Wyoming. Further, because our population of grouse resides in a relatively undisturbed, protected habitat, any baseline data that we collect can be used by other populations to reference as a potential control for investigating realized and/or potential habitat disturbances elsewhere.

Most sage-obligate species will benefit from the identification of critical winter sagebrush habitat. Further, fire managers from Grand Teton National Park, The National Elk Refuge and Bridger-Teton National Forest will benefit from the increased knowledge of critical winter habitat. The Jackson Airport will also benefit from movement information, as an active lek is located on the runway and the grouse readily use the areas where grouse-airplane collisions may occur.

Project results: (Information worth sharing on methods, results, partnerships, etc) Field investigation is on-going. All results are still preliminary. A total of 98 individuals have been tagged since 2007, including outfitting 63 individual grouse with VHF transmitters and 18 with GPS units. Over 1,500 ground VHF locations and 18,000 GPS locations have been obtained to help delineate seasonal habitat use and needs and document productivity and mortality. To help describe critical winter habitat, detailed vegetation data from winter GPS grouse locations have

been collected and the same sites have been re-surveyed in the summer to compare studies that gather winter habitat data during the summer months. Nesting data from a total of 47 nests over two years has been gathered and compared to average success and productivity from other studies. The majority of predated nests were determined to have been predated by mammalian predators as evidenced by hair remains found in the nest site. The majority of adult predations were also determined to be mammalian, but to a less extent than nest predations. The preliminary mortality rate is 51%: 74% being caused by predation, 13% of unknown cause, and 13% other. Of the mortality caused by predation, 79% was mammalian and 21% avian predation. Winter census counts to determine overall population size for small, isolated populations of grouse (e.g., the Jackson Hole population) are being conducted.

STUDY AREAS

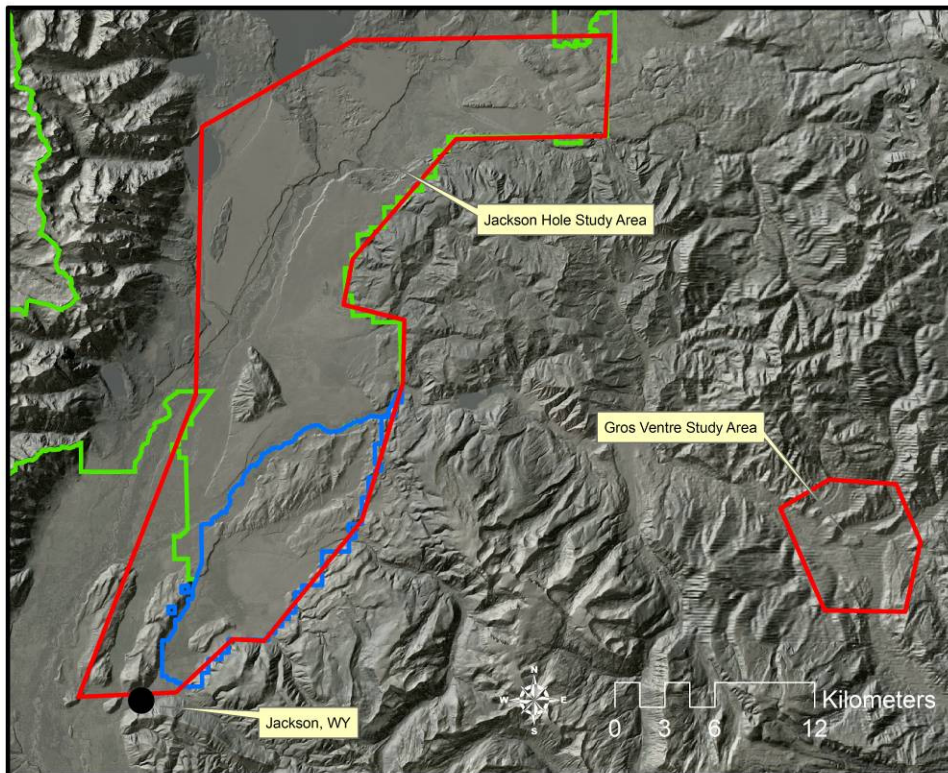


Figure 1. Upper Snake River Basin sage grouse study areas

Project contact: (include phone number, email)

Terry Hershey – 307-739-5411

thershey@fs.fed.us

Report Date: January 21, 2009

Submit to Virginia Kelly: vkelly@fs.fed.us 406-587-6704. Contact Virginia with questions.