Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Potential Effects of Coal Bed Methane Development on Demography of Great Sage Grouse

Type of Project): Research

Project Discipline: Natural

Funding Agency: BLM

Other Partners/Cooperators: WY Game and Fish, Montana Fish, Wildlife and Parks, Montana Cooperative Fish and Wildlife Research Unit

Effective Dates: March 1, 2003 – August 20, 2007

Funding Amount: $951,152: 114,354 (2007) 337,580 (2006); 93,386 (2005); 133,386 (2004); 314,800 (2003)

Investigators and Agency Representative:

Dave Naugle, Wildlife Biology Program, University of Montana, Missoula, MT 59812
dnaugle@forestry.umt.edu; 406 243-5364

Tom Rinks, WY Sage Grouse Coordinator, tom_rinks@blm.gov; 307 332-8404

Project Abstract:

Growing Concern about the decline in sage grouse numbers have led to petitioning of the US FWS to protect sage grouse population under the Endangered Species Act. Important mineral resources are located under sage grouse habitats across the western U.S. Sagebrush steppe habitats of the Powder River Basin in southeast Montana and northeast Wyoming exemplify important sage grouse habitats that overlay extensive coal-bed resources targeted for coal-bed methane (CBM) development. The CBM development planned for 16 counties in Montana is projected to influence wildlife populations over an area between .9 and 4.7 million acres in size. The CBM extraction produces methane by bringing it up to the surface via drilled well holes where it is processed and transported through pipelines to market. Although understudies and poorly understood, effects of CBM development on sage grouse could be significant. For birds, the major concern is not the methane itself, but in the extensive infrastructure of roads, power lines, buildings, generators, and water outflows associated with the CBM. Direct effects may include habitat loss in and around CBM infrastructure, disruption of normal mating and breeding behaviors due to disturbance and direct mortality of chicks and adults due to collision with vehicles or flying into power poles and lines. Indirect effects may also occur, and generally involve changes in habitat stability related to altered vegetation structure and composition, food and water resources, and predator communities. To date, it is unclear which, if any, of these factors influence sage grouse behavior, survival, or reproductive success and whether the cumulative effects of multiple factors influence sage grouse. The goal of this project is to investigate potential effects of CBM development on the sage grouse demographics. Specifically, we will estimate survival of radio-marked, adult female sage grouse on CBM sites and those without CBM (i.e. controlled sites). Second, we will estimate nest success of radio-marked female sage grouse on CBM and control sites. Thirdly, we will estimate chick survival of radio-marked grouse on CBM and control sites. We will develop findings of the study into management recommendations that benefit federal and state game agencies faced with CBM development on a large-scale. If differences attributable to CBM development are found, this information can be use to work proactively with industry to locate CBM activities in areas to minimize the effects of development on sage grouse populations. In the big picture, this research also represents a tremendous opportunity to provide information on sage grouse natural history at the core of its range in areas that have not been intensively studied.

Outcomes with completion dates (reports, publications, workshops, videos, etc.):

Keywords: Coal bed methane, Montana, Powder River Basin, sage brush, sage grouse, Wyoming