

RM-CESU -Project Report, FY 08

Project Title: Development of a landscape-scale Gunnison Sage-grouse habitat map predicting sagebrush, herbaceous, and bare ground cover.

Park: Curecanti National Recreation Area

Funding Source: Rocky Mountains CESU Research Funding

Contact: Ken Stahlnecker, Chief of Resource Stewardship and Science
Black Canyon of the Gunnison National Park and Curecanti National Recreation Area
102 Elk Creek, Gunnison, CO 81230
(970) 641-2337 ext 225
ken_stahlnecker@nps.gov

University Partner: Colorado State University

Researcher:

Dr. Cameron Aldridge, Research Scientist
Colorado State University - NREL & U.S. Geological Survey
2150 Centre Avenue, Bldg. C, Fort Collins, Colorado 80526-8118
(970) 226-9433
cameron_aldrige@usgs.gov, or: aldrige@nrel.colostate.edu

Project Description: The Gunnison Grouse (*Centrocercus minimus*) is a species of concern for all federal and state natural resource management agencies throughout its range. Over half of the estimated 4,500 remaining Gunnison Grouse exist in the Gunnison Basin in west central Colorado (Young et al. 2000). Lands within Black Canyon of the Gunnison National Park (BLCA) and Curecanti National Recreation Area (CURE) play a significant role in the conservation of the Gunnison Grouse.

BLCA/CURE staff are currently conducting a Gunnison Grouse habitat selection study in order to develop habitat selection models. These models will identify grouse habitat needs, help identify and protect key resources, help identify where management activities could be implemented to improve the overall quality of those resources or provide important links between islands of key habitats.

To be able to understand sage-grouse habitat needs across large landscapes, maps accurately identifying sagebrush habitats and canopy cover and heights of important vegetation components, such as sagebrush by species, forb and grass cover are required. CSU/USGS-BRD research partners are currently working in Wyoming to develop methodologies using high resolution remote sensing satellite imagery to spatially map the cover and height of sagebrush (by species), herbaceous vegetation, and bare ground. A similar product for both BLCA/CURE and the Gunnison Basin will be produced to improve our ability to understand spatially, both the quality and quantity of sagebrush across the landscape. These mapping products will greatly improve the ability of current research projects to directly address sage-grouse habitat needs through the development of landscape-scale habitat selection models, linking both selection and fitness to habitat metrics.

Objectives and Methods: CSU-NREL/USGS-BRD researchers will develop statistically rigorous mapping products to assess sagebrush habitat within the Gunnison Basin. These maps will then be used to develop habitat selection models and spatially explicit Gunnison Sage-grouse survival models, which will be the backbone for future management and planning efforts on NPS, BLM, CDOW and private (NRCS) lands. More specifically, this funding is providing additional funds to support model analysis and assessment.

Project Results: A draft sagebrush map for the Gunnison Basin has been developed using satellite imagery modeled from field vegetation measurements. This product should be completed to the point at which it can be accuracy-assessed the summer of 2009.

The funding provided for this project has been held in an account at CSU. The funds will cover the partial salary of a CSU-contracted researcher who will assess the accuracy of the mapping product and analyze Gunnison Sage-grouse habitat use and movement in relation to habitat structure.

Mapping the sagebrush, herbaceous cover and bare-ground within the Gunnison Basin has proved more difficult than similar projects in the shrub-steppe of Wyoming. The Gunnison Basin landscape consists of a series of mesas and drainages exhibiting a great deal of relief. As a result, shadows in the satellite imagery may impact the accuracy of initial modeling efforts. Additional field sampling and modeling may be necessary to produce an accurate sagebrush map.

Expected Final Report: The final, accuracy-assessed version of the Gunnison Basin sagebrush map will be completed in FY 10 and will be provided to the NPS in both hard-copy and digital form. The CESU funding for this project will be used in FY09 to perform accuracy-assessment of the draft product and conduct initial analyses.