

02-04 / 03-07

Lay Report  
for  
Western National Parks Association  
Research Grants 02-04 and 03-07  
April 2005

Acquire Gunnison Sage-Grouse Location Data  
For  
Habitat Utilization Modeling



by

National Park Service  
Curecanti National Recreation Area

Myron Chase  
Resource Management Specialist  
Black Canyon of the Gunnison National Park and Curecanti National Recreation Area

and

Ken Stahlnecker  
Chief of Resource Stewardship and Science  
Black Canyon of the Gunnison National Park and Curecanti National Recreation Area

## **Gunnison Sage-Grouse Conservation**

In July 2000 Gunnison Sage-Grouse were recognized as a separate species of sage-grouse. This distinction was based on unique genetic, behavioral, size and plumage differences from other sage-grouse. Gunnison Sage-Grouse populations are currently found in southwestern Colorado and southeastern Utah, with the largest population being found in the Gunnison Basin of Colorado, where Curecanti National Recreation Area is located.

Concerns over Gunnison Sage-Grouse population levels declining from historic levels prompted local, state, and federal agencies and private entities to develop conservation plans for local populations. These plans provide support and guide implementation of conservation actions to help assure the survival of the Gunnison Sage-Grouse. A Rangewide Conservation Plan for Gunnison Sage-Grouse has also been completed to address concerns across the entire range of this species. Concerns over population declines also lead to the U.S. Fish and Wildlife Service designating the Gunnison Sage-Grouse as a Candidate species for threatened and endangered status.

### **Project Purpose**

While it is well known that sagebrush communities are used by sage-grouse, there is little information available about the specific habitat characteristics that Gunnison Sage-Grouse use throughout various times of the year and life stages. The need for this specific knowledge about habitat required to maintain the species during nesting, brood rearing, winter survival, and other grouse activities in the Gunnison Basin defined the purpose for the Gunnison Sage-Grouse studies being conducted by the National Park Service at Curecanti National Recreation Area.

### **Activities and Results**

To gather sage-grouse habitat use information, Gunnison Sage-Grouse were captured and radio telemetry collars were placed on them to allow biologists to locate the collared grouse. The radio-collared grouse were located approximately once per week throughout the year using ground-based observers and fixed wing aircraft flights, and habitat information for each location was collected.

Over 700 locations with associated habitat data have been collected. Habitat information was also collected for 21 nest locations and 36 brood rearing locations, with additional detailed vegetation characteristics measured by vegetation transects at 18 of the nest sites.

The grouse location information has been collected from adult and juvenile males and females throughout the year. At each ground location, habitat information collected included slope, aspect, shrub species, shrub heights and densities, grass species, forb species, vegetation patch characteristics, and snow depths in the winter. Additional

information collected included grouse behavior, flock size and gender, and signs or presence of other wildlife in the area.

### **Implications**

From the habitat information collected at grouse locations, information on the habitat used by Gunnison Sage-Grouse will be combined with vegetation mapping in and around Curecanti National Recreation Area to create habitat use models. The information will enable resource managers to define and evaluate habitat conditions specifically for sage-grouse and specific to various life stages. Examples of habitat models might include a model that describes the habitat preferred by females for nesting and/or brood rearing, a model that describes habitat used by males during the summer, or a model that describes the habitat used by males and females during winter conditions.

Through science-based habitat definitions and evaluation, suitable sage-grouse habitat currently available can be determined. Areas of suitable habitat can be maintained, and areas which may not currently provide suitable habitat may be improved and/or restored so as to increase available sage-grouse habitat. Maintaining, improving, and restoring habitat will allow for population growth and sustainability of Gunnison Sage-Grouse in and around Curecanti National Recreation Area.

### **Acknowledgements**

Curecanti National Recreation Area employees and volunteers were invaluable in capturing, radio-tracking, and data collection. They include JoJo Cowan, Jessica Divens, Mondula Hunter, Terry Edelman, Jarrad Jarrett, Patrick Magee, Brooke Palmer, Tami Root, and Michele Sewolt, among many others. Assistance to this project was also provided by countless others, notably Don Masden and Jeff Oulton with the Colorado Division of Wildlife, Sandy Hayes with the Bureau of Land Management, and Jessica Young with Western State College.