

Annual Progress Report

Project Name: Monitoring Gunnison Sage-Grouse Populations and Habit Use Patterns in San Juan County

Utah State University Project Control Numbers: 5-43555 (Utah Division of Wildlife Resources) and 5-33204 (Bureau of Land Management)

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Project Investigators: Terry Messmer, Sarah Swenson, and Sharon Ward

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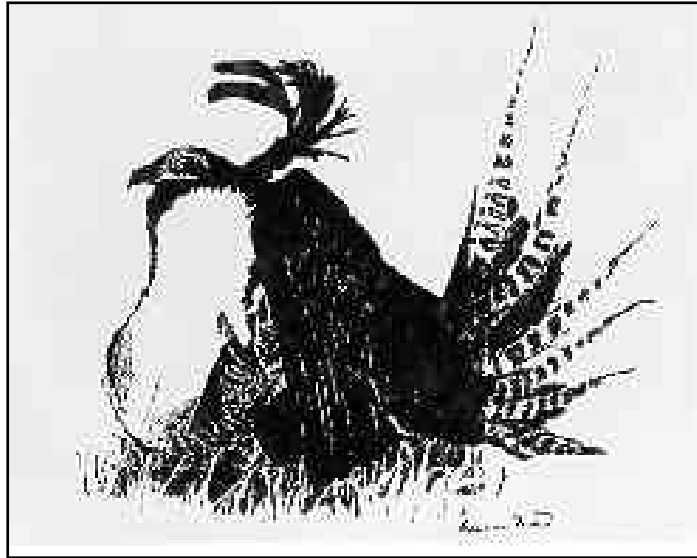
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Gunnison Sage-Grouse San Juan County, Utah



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Introduction

The San Juan County Gunnison Sage-Grouse Working Group (SWOG) was formed in 1996 to identify and implement community-based conservation strategies to reverse the decline of sage-grouse populations in the county. In the fall of 2000, SWOG finalized a Conservation Plan for sage-grouse in San Juan County. The Plan consists of two parts. The first part is a Conservation Assessment describing SWOG's current understanding about the status of sage-grouse distributions, habitat conditions, and factors that may be affecting sage-grouse populations in the area. The second component of the Plan is the Conservation Strategy, which identifies goals, objectives, conservation actions, implementation schedules and responsibilities, evaluation guidelines and monitoring requirements.

Objectives

To fulfill goals for monitoring and evaluation of sage-grouse populations and habitat in the area Utah State University, College of Natural Resources initiated a research program. According to the Plan, Utah State University is responsible for:

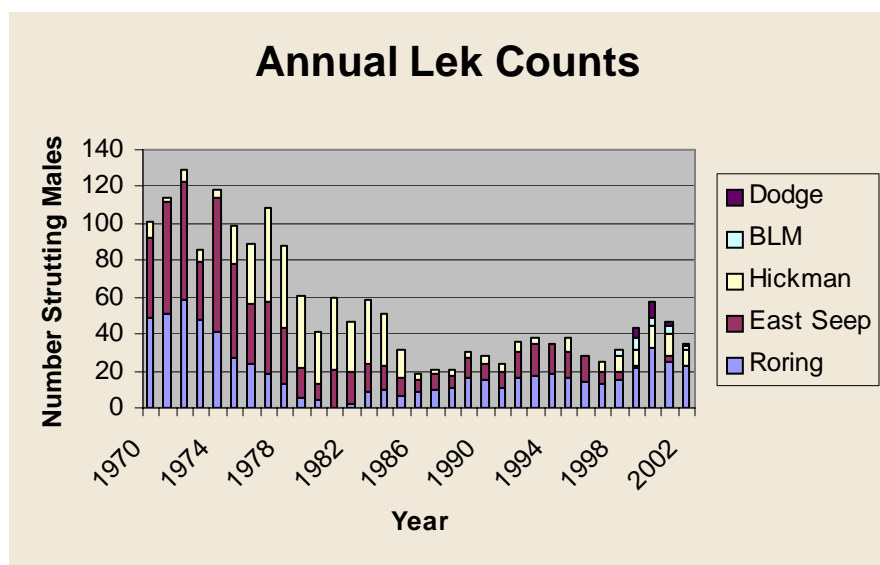
- Monitoring impacts of conservation strategies on sage-grouse habitat and population.
- Monitoring landscape-level habitat conditions, including monitoring of land use and vegetation changes in the Core Conservation Area.
- Evaluate sage-grouse movement patterns, reproductive success, survival, and mortality.
- Identify and evaluate habitat use by males, females, and females with broods.
- Evaluate the use of Conservation Reserve Program (CRP) lands by sage-grouse.
- Provide information to the public, landowners, and others that identify sage-grouse habitat needs, conditions, and sage-grouse population levels.

Strategies

Graduate research assistants were hired by Utah State University, College of Natural Resources to conduct monitoring program that would address the objectives outlined in the Plan research needs section. Sarah Swenson was hired in the fall of 2000 and Sharon Ward in August of 2002. Work began on the project in March of 2001.

Monitoring sage-grouse habitat and population responses

In 2001 and 2002, we conducted counts on known strutting grounds in San Juan County. Counts were conducted at daybreak, 30 minutes before and after sunrise. The maximum number of males present was recorded each day. Number of hens, if observed, was also recorded. We observed a total of 47 strutting males on 5 lek sites in 2001. In 2002, we observed 55 strutting males. Based on these data, the population is estimated to be 168 and 165 individuals for 2001 and 2002, respectively. This data has been compiled with lek counts from previous years.



In 2001, we monitored sage-grouse habitat use by tracking 4 birds (3 adult males and 1 adult female). In 2002, nine additional sage-grouse (4 adult males, 2 adult females, 3 juvenile females) were monitored. Birds were captured in March and April on or near their strutting grounds with handheld nets or handheld rocket-nets by spotlighting from ATV's and trucks. The birds were aged, sexed, outfitted with radio-transmitters, and a feather sample obtained for future genetic analysis. Capture locations were recorded with a handheld GPS unit. Birds were immediately released at the capture location after processing.

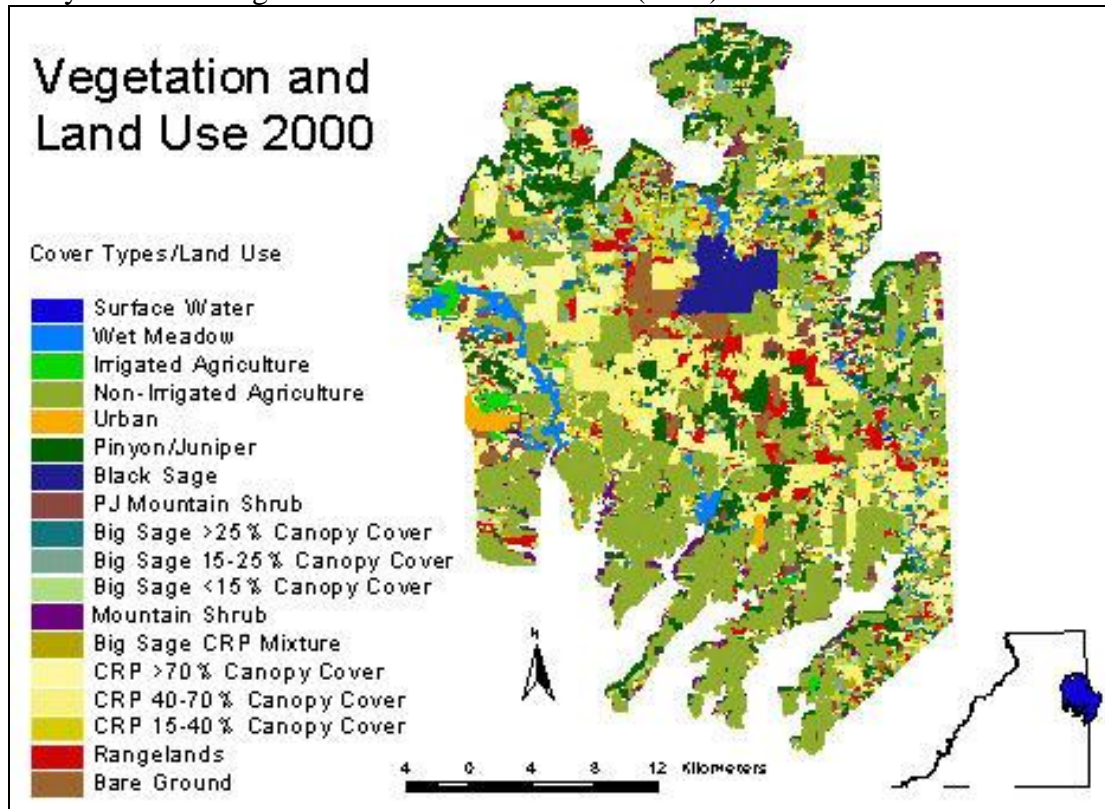
Radio-collared birds were located three times a week between May and August and once a month between September and April. At each location site, the location and time of day was recorded using a handheld GPS unit and the age and sex of additional uncollared birds noted. At a subset of locations obtained between May and August, microhabitat characteristics were sampled. Microhabitat measurements were recorded along two perpendicular 10 meter transects centered at the bird location. Percent canopy cover, species frequency, and species composition was measured for each species present using the Daubenmire method at 2 meter intervals. Plant height was measured using the Robel pole method at 2 meter intervals.

In 2002, San Juan County received emergency drought status and, as a result, all CRP lands were opened to grazing. The response of sage grouse to cattle grazing was monitored using the radio-collared birds. Exclosure cages were also established on grazed fields to enable future monitoring of the vegetation response to the grazing "treatment".

Landscape-level land use and vegetation monitoring

In the Conservation Plan, SWOG references two vegetation/land use maps. One details the landscape composition of 1984 and one of 1993. The Plan calls for the development

of another vegetation/land use map, detailing more recent conditions. To fulfill this objective, a LandsatTM 30m image was obtained from the Remote Sensing Laboratory at Utah State University. An unsupervised classification was run on the image, generating 31 cover classes. To aid in classification of the image, in 2001 a total of 206 training sites were obtained for the 31 cover classes. Training sites are GPS points taken in the approximate center of a 90m² area of contiguous habitat. These points were compared to spectral values of the Landsat image and used to assign an actual habitat type to the spectral value. The habitat type of a training site was assigned to one of 19 existing cover class categories used on the previous maps of the area. At least one training site was obtained for all cover classes (range 1-19). Each training site location was recorded on a handheld GPS unit and the percent cover of all vegetation, soil, litter, and rock was recorded according to guidelines put forth by the Southwest ReGap Project. Grouse scat, if present, was also noted. The final map contains the 19 cover classes used in previous maps of the area. A description of cover classes can be found in the San Juan County Gunnison Sage Grouse Conservation Plan (2000).



The training site data obtained in 2001 was used in the fall of 2001 to run a supervised classification on the 2000 image to create a new vegetation/land use map. This map was used to evaluate changes in land use and vegetation across San Juan County. Additional land use or vegetation changes will be recorded as they are identified as part of an ongoing effort to update existing maps. Maps were used to evaluate changes in land use and vegetation within the Conservation Area over time, monitor landscape level habitat loss, evaluate habitat fragmentation, and identify habitat corridors.

Public Outreach

Informational publications were produced to distribute information about Gunnison sage-grouse and SWOG's activities to the public. Utah State University and USU Extension Services produced a Gunnison Sage-Grouse Incidental Sighting Report booklet and a Gunnison Sage-Grouse in Utah brochure. The booklet provides space to record specific information about birds observed by the public. Booklets were distributed at the 2001 and 2002 San Juan County Fair and to landowners encountered in the field. Booklets were also made available at the USU Extension Services office in Monticello, UT. The Gunnison Sage-Grouse in Utah brochure provides background information on Gunnison sage-grouse in San Juan County and outlines SWOG's activities and objectives. The brochure was also distributed at the 2001 and 2002 San Juan County Fair and made available at the USU Extension Services Office in Monticello, UT. The brochure was also made available to the public at the Utah Division of Wildlife Resources (UDWR) Office in Price, UT and the Interagency Information Center in Monticello, UT.

The Gunnison Sage-Grouse Project distributed information and was on hand to answer questions at the 2001 and 2002 San Juan County Fair held in Monticello, UT. As mentioned above, brochures and booklets were distributed at the booth. An informational video describing the difference between Gunnison and Greater sage-grouse played and the graduate research assistant was present to answer questions.

In March and April of 2001 and 2002, tours were set up through the UDWR for groups of up to 15 individuals to view Gunnison sage-grouse strutting on lek sites. Representatives from the UDWR and Utah State University presented a short informational program to the participants the night prior to the tour and then escorted groups to the viewing site.

In August 2002, a landowner meeting was held to update the community on the ongoing research effort. A slide show presentation was given by the graduate student, summarizing the research effort. Agency representatives were on hand to answer questions about SWOG's conservation efforts.

Winter Ecology

Sharon Ward was hired in August of 2002 to monitor Gunnison Sage Grouse winter habitat use patterns. She will document and describe winter use areas. In addition she will continue to monitor nesting ecology and habitat use in the grazed and ungrazed CRP areas.

SWOG Working Group Meetings

SWOG met in March 2002 and again in August 2002 to discuss the research findings. In August landowners within the core conservation area were invited to a supper. After the supper, the results of the monitoring effort were presented and discussed. Another landowner meeting is being plan for January 2003. Prior to this meeting we are proposing to conduct a survey of San Juan County landowners and residents about the Conservation

Planning effort. This survey will ask landowners if they are interested in possibly pursuing a Conservation Agreement for their property and assess San Juan County resident's knowledge of Gunnison Sage-Grouse conservation issues.

Conservation Plan Update

We are currently reviewing the SWOG Conservation Plan. A draft update of the plan will be distributed to SWOG members in November 2002 for review and comment.

Report Summary

A total of 3 hens in successfully nested in 2002. To our knowledge, no nests were depredated. Hens had an average of 8.3 eggs (range 6-10). In 2001, three of 6 chicks survived to 52 days post hatch. In 2002, 2 of 16 (from two broods) chicks reached 52 days. Based on this data, poor brood survival may be major limiting factor impacting recruitment. However, half of the females captured in 2002 were juvenile birds. This suggests that some recruitment is occurring.

There was only one mortality of an adult bird. In September, 2001 an adult male died of unknown causes. In addition, an adult, un-collared bird was reported as being killed by a vehicle on Highway 666 just inside the Utah-Colorado border.

Evidence from both seasons demonstrates that sage-grouse in San Juan County use CRP fields for roosting and as travel corridors. Grazing did not deter sage grouse from using CRP fields. Birds were found to use fields with cows and also to use fields after grazing had stopped. Some birds did seem to avoid grazed areas; however, further analysis of the data is needed before more definitive conclusions can be reached.

Sage grouse in our study formed both bachelor and mixed flocks of males and non-brooding hens. Hens were also found in groups with other non-brooding hens. Brooding hens remained alone with their chicks until late July when they joined with other hens and, presumably, their chicks. Based on summer movement information, the population exhibits strong site fidelity. Their movements are predictable and confined to small core areas. In essence, it appears to be a closed population. Information regarding winter ecology and populations movements will be needed to validate this hypothesis.

A complete thesis will be available shortly detailing the findings of the research effort to date.

