

Executive Summary

The purpose of Sage-Grouse Restoration Project (SGRP) is the identification, integration, evaluation, and documentation of effects of 2002 Farm Bill conservation technologies and strategies on sage-grouse and other sagebrush-steppe obligates. To address this need, the SGRP facilitated a grants-in-aid program in 2006 to provide funds for the design and implementation of research and demonstration projects that will evaluate and communicate the effectiveness of 2002 Farm Bill conservation practices and technology in restoring or enhancing sage-grouse habitat on private lands.

Information gained will be used to assist private landowners and Natural Resources Conservation Service (NRCS), Soil Conservation Districts, and state wildlife agency field staff in the planning and implementation of habitat projects and practices on private lands to benefit sage-grouse and other sagebrush-steppe obligate species. The projects implemented also will contribute to range-wide sage-grouse conservation efforts. SGRP will provide current information on the role of existing conservation practices and technologies relative to conserving sage-grouse and other sagebrush obligate species. The information gained from the multi-state experiments also will assist local sage-grouse working groups in complying with the conservation plan reporting requirements set forth in the U.S. Fish and Wildlife Service (USFWS) Policy for Evaluation of Conservation Efforts (PECE) When Making Listing Decisions.

Other anticipated benefits of the SGRP are a web-based project library that will provide NRCS staff, wildlife biologists and managers, and farmers and ranchers with visual information and data regarding the role of conservation practices in increasing their productivity and natural resource conservation. In addition SGRP will disseminate private lands conservation planning needs to a much wider research audience bringing in the best researchers in the field to address field-level technology needs.

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Summary of 2006 Activities

SGRP Web Site

A web page was developed specifically for SGRP. The web site address is <http://sgrp.usu.edu/>. The web site contains the SGRP Mission Statement, History, Grants-in-Aid, Proposal Submission, Research Priorities, Technical Review Panel, Guidance Committee, Funded Projects, Project Library, Learning Tools, News and Updates, Annual Reports, Publications, Personnel, and Web Links. Using these links, visitors may learn more about the SGRP personnel and research funded through SGRP.

Funded projects - This link has been updated to provide links to the complete proposals from the three projects selected. New proposals will be added through the years as more projects are selected for funding.

Project library - This link has been updated to provide links to the complete proposals from the three projects selected. Additionally, it contains the findings of a project in Utah that was funded by 2002 Farm Bill monies. Soon we will be adding pictures to illustrate the changes that took place during the project in an effort to provide a start-to-finish example of a habitat improvement project.

Within the Project Library, various routes have been set up by which visitors may access projects. These include: by state (Colorado and Utah are currently active), habitat (mountain and Wyoming big sagebrush, and brood-rearing habitat), treatment type (biological/grazing, chemical, and mechanical), and local working group (Parker Mountain Adaptive Resource Management group and Rich County Coordinated Resource Management group).

Learning tools - This web link was added to provide a repository for materials that visitors might find useful and educational for developing research projects. Currently available is a paper entitled "Sagebrush (*Artemisia* spp.) Seed and Plant Transfer Guidelines" written by Mary F. Mahalovich and E. Durant McArthur, and a presentation entitled "Sagebrush treatments and their impacts on sage-grouse" created by SGRP and NRCS personnel.

SGRP Projects Selected for Funding

On July 12, 2006, NRCS distributed the SGRP news release (Appendix 1) announcing the projects SGRP had chosen for funding. SGRP received 7 proposals from California, Colorado, and Utah. Three proposals were selected to share \$200,000 in funding. Two of the research projects are being conducted in Utah; one is in Colorado.

Researchers submitted their progress reports; these will be available soon on the SGRP web site. The reports are included here in Chapters 1-3. Photos from these projects will be placed on the web site's Project Library link as examples of how habitat improvement projects may be conducted.

SGRP Project Progress Reports

Grazing Sagebrush with Sheep to Enhance Greater Sage-grouse Brood-rearing Habitat

Project Summary

The purpose of this study is to evaluate the effects of strategic sheep grazing on vegetative communities believed important to sage-grouse brood. Intensive dormant season sheep grazing should increase the abundance of herbaceous understory plants (i.e. dandelion, cinquefoil, locoweed) by reducing competition by sagebrush as well as through pedoturbation and nutrient recycling (sheep urine and feces).

The experimental design consists of 8 sets of paired plots, 1 grazed plot and 1 control (Figure 1). Four sets of paired plots are located in areas having received a once-over Dixie harrow treatment in 2001. The other 4 sets of paired plots are located in untreated sagebrush stands. Selection of which plots would be grazed and which would serve as a control was random. Each plot is approximately 3.2 ha.

Pre-treatment data collection

Pre-treatment vegetation data was collected during the first 2 weeks of July 2006. Four transects were randomly located within each plot as well as at 10m, 20m, and 30m outside each plot. Vegetation metrics measured included shrub cover and height (line intercept), vertical obstruction (Robel pole), and understory vegetation composition and ground cover (20 x 50 centimeter Daubenmire frame and point intercept).

Immediately after vegetation data collection was completed, arthropods were sampled in and around all plots. Pitfall traps were established near each vegetation transect. Diluted antifreeze was poured into each pitfall trap to euthanize and preserve arthropods falling into the traps. Each pitfall trap was left open for approximately 48 hours.

During late July 2006, pellet counts and bird dog flush counts were conducted in all plots. Sage-grouse pellets were counted and removed from 1-meter radius circular plots located at each end of each vegetation transect in and around each plot. Bird dog flush counts were conducted using dogs experienced at locating sage-grouse on Parker Mountain. Each plot was thoroughly covered by at least 1 dog and 1 handler. All grouse flushed from a plot were counted and their approximate location marked with a GPS.

Just prior to sheep grazing, shrub density was estimated using five 3-m radius circular plots in each control and grazed plot. At the same time, 5 sagebrush plants were randomly chosen and all above ground biomass was harvested (Figure 2). Harvested plants will be dried and weighed as an estimate of sagebrush biomass within each plot. Biomass sampling was repeated immediately after grazing to determine the amount of biomass consumed by sheep.

Sheep Grazing

Beginning in mid-September, 3-strand electric fences were constructed around plots randomly chosen to be grazed. Approximately 1,000 local ewes belonging to Andy Taft were used to graze plots. The sheep were split into 2 herds of approximately 500 head each so that plots could be grazed 2 at a time. The sheep were moved onto the first 2 plots on 17 October. Grazing was conducted at this time to insure that herbaceous plants were dormant and therefore not negatively effected and to allow time for terpene levels in the sagebrush to decline. Grazing typically took between 7 and 10 days per plot, depending on the amount and size of the sagebrush in each plot (Figures 3 and 4). Grazing was completed on 27 November 2006. Assessments of sheep body condition were conducted prior to grazing and again at the end of the treatment by the local Extension Livestock Specialist, Kim Chapman. The average pre-grazing body condition was determined to be 2.5. After over a month of grazing sagebrush, the average body condition was determined to be between 2.5 and 2.75.

Project and Budget Status

All project activities are currently on track. Vegetation and pellet count data has been entered and is ready to be compared to post-treatment data that will be collected in 2007. Arthropod and sagebrush biomass samples have not yet been processed but will hopefully be processed prior to the 2007 field season. Sheep supplement costs did exceed the amount budgeted but some of this cost can be covered with additional funding recently received for the project.

2007 Plan of Work

Vegetation measurements, pellet counts, and bird dog flush count surveys will be conducted during July 2007. Shrub density and biomass sampling will be conducted during early October. Additional monitoring may include songbird point count surveys and small mammal trapping grids.

Amount funded over 3 years: \$141,124

Status: On-going

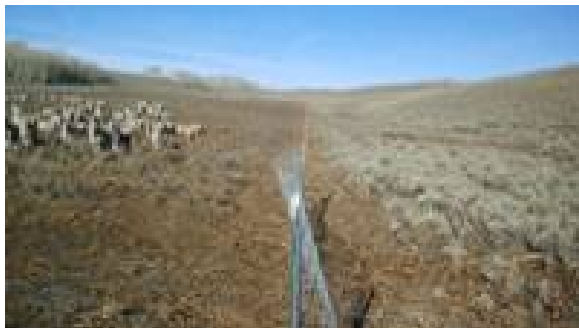


Figure 1. Grazed plot (left) and ungrazed plot (right), Parker Mountain Study Site, 2006.

Figure 2. Heavily grazed sagebrush plant, Parker Mountain Study Site, 2006.



Figure 3. Sagebrush plot (center of photograph) after 3 days of grazing, Parker Mountain Study Site, 2006.



Figure 4. Sagebrush plot (center of photograph) after 7 days of grazing, Parker Mountain Study site, 2006.

Development of a Sagebrush Habitat Improvement Guide for the Gunnison Sage-grouse by Evaluating Recently and Historically Treated Areas within the Gunnison Basin

Project Summary

Funding was obtained from 3 grant sources (Gunnison County Sage-grouse Mitigation Fund, Colorado Division of Wildlife, and the Sage-grouse Restoration Project) to hire three 2-person sampling crews for the summer 2006 field season. The crews were able to sample 17 areas treated with 2,4-D (Figure 1), 17 areas treated with Spike (Figure 2), 16 burned areas (both wild and prescribed; Figure 3), 9 areas treated by brushmowing (Figure 4), 3 areas treated with a Dixie harrow (Figure 5), and 3 long-term exclosures. These areas were located with the help of John Scott, NRCS District Conservationist for Gunnison County, and various personnel from the local BLM office. Age of the treatments was quite variable with an overall range from 1 (2005) to 22 years (1984) old.

Vegetation Monitoring

Vegetation measurements were taken in a manner that will allow comparison to the structural habitat guidelines as outlined in the Gunnison Sage-grouse Rangewide Conservation Plan published in 2005. Canopy cover of sagebrush and other shrubs was measured using the line intercept method (Figure 6) while cover of grasses and forbs was determined by placing 10, 0.1 m² Daubenmire quadrats along each transect (Figure 7). Additionally, sagebrush, grass, and forb heights were measured along each transect. Depending on the size of a given treated area, either 5 or 10, 30-m long transects were sampled in each area. If feasible, an equal number of transects were sampled in adjacent untreated sagebrush for use as controls.

Project Plans

To date, all of the data has been entered in the computer and is in the process of being checked. Beginning in January, we will start to analyze the data. The goal is to have a draft of the habitat improvement guide available for review by late March 2007.

During the summer of 2006, there were 3 tours held that related to sagebrush habitat improvement for the Gunnison sage-grouse. I was able to participate in each of these tours and present information concerning development of the habitat improvement guide. The first tour was held on June 14, 2006 to discuss the habitat assessment protocol we were using for this project. Information was presented to about 17 people from the Gunnison Basin Strategic Committee for Sage-grouse (Figure 8). The second tour was held on the afternoon of June 14th at the request of the US Fish and Wildlife Service (USFWS) to highlight projects connected with the Gunnison sage-grouse (Figure 9). Of the 7 people in attendance, one was a congressional aide for a Colorado senator and one was a USFWS congressional liaison. The third tour was held for state legislators on August 17th with about 50 people in attendance (Figure 10). The tour was hosted by the Gunnison-Dolores Watershed Group to highlight projects that local Conservation Districts have been involved in. John Scott with the NRCS was integral in organizing all of the tours.

Amount funded over 3 years: \$15,082
Status: On-going



Figure 1. Area treated with 2,4-D in 1995.



Figure 2. Area treated with Spike in 1994.



Figure 3. Area treated with fire in 2000.

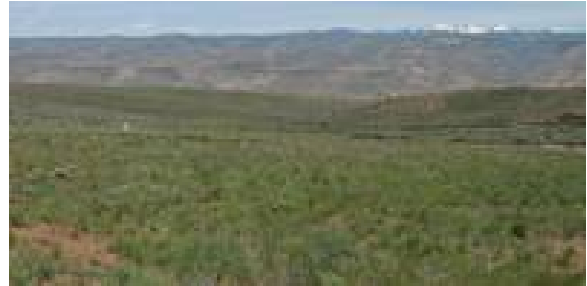


Figure 4. Area treated by brushmowing in 2003.



Figure 5. Area treated with Dixie Harrow in 2000.



Figure 6. Line-intercept method measures shrub canopy cover.



Figure 7. Daubenmire quadrats measure herbaceous cover.



Figure 9. The project highlight tour with USFWS, Gunnison Basin 2006.



Figure 8. Participants in a field tour to assess habitat protocols, Gunnison Basin 2006.



Figure 10. Participants on a tour to highlight Conservation Districts' projects, 2006.

Monitoring Greater Sage-grouse Use of Restored Sagebrush Areas in Rich County Utah

Project Summary

We are using several methods to assess Greater Sage-grouse habitat use in three types of areas: areas where sagebrush cover is being actively reduced (treated), areas of historic treatment (retrospective) and in reference (untreated) areas. We will assess the efficacy these several methods which range from “quick and dirty” to state-of-the-art. This will allow us to develop portable and efficient means of evaluating sage-grouse use on a broader scale. Methodologies include distance sampling to estimate density of sage-grouse pellets (potential index to use), flushing counts using trained dogs and distance sampling (snapshot measure of use), occupancy estimation (proportion of landscape used) and radio-telemetry (roost site and seasonal use). Since habitat use may vary with population size, we are also conducting lek counts in association with habitat use measures.

Vegetation Manipulations

Habitat treatments have taken place in several areas of Rich County. We are focusing on two areas where large scale treatments have been recently conducted and where additional treatments are planned in the near future (Deseret Ranch and Duck Creek Allotment); in these areas, we collect data before and after treatments in treated and untreated areas. We also collect information from historically treated areas in the two primary study sites and across the county. This combination of evaluation approaches will allow us to assess the immediate impact of sage reduction treatments on sage-grouse as well as evaluate long-term recovery after such treatments.

Project Objectives and Activities

Our project addresses the following objectives: 1) Monitor sage-grouse response to sagebrush reduction by comparing use on treated, untreated and retrospective study areas (Figure 1); 2) Determine Ecological Site Descriptions and habitat characteristics of areas used by sage-grouse; 3) Model habitat characteristics of sage-grouse use areas; 4) Develop “portable” and efficient sage-grouse monitoring techniques through evaluation of various methodologies. This project also benefits from several related projects with similar objectives on different focal species and their habitats.

During 2006 we focused on background research, development of techniques and collection of habitat data and pilot sage-grouse data. We plan to initiate full field work in early 2007.

Objective 1: we identified potential study sites through ground surveys, agency records and discussions with land managers. Sites where sage-grouse use data will be collected were identified in reference (untreated) areas, in areas that will be treated (sagebrush reduced) in the next two years, in areas where sage has been treated within the last 10 years and in areas treated from 10 – 50 years age. These sites have all been georeferenced and included as coverages in our GIS database.

Lek sites were identified and mapped through the use of aerial and ground searches. These efforts yielded 6 new lek locations which bring the number of known leks in Rich County to 50. Twenty-nine occupied leks sites were surveyed and 1079 male grouse were counted.

Objectives 2 and 3: While no direct use data (other than lek surveys) was collected in 2006, vegetation sampling was conducted at several thousand sampling points in treated, untreated and retrospective study sites across the county (Figure 2). We also obtained a 2006, high-resolution (4-m multispectral, 1-m pan-chromatic) satellite image of the Duck Creek grazing allotment. Imagery and on-the-ground samples will be used to develop a continuous-field vegetation map of the area. This vegetation map will in turn be used in the development of habitat models and species abundance estimates for sage-grouse. The vegetation data will also contribute to the determination of habitat characteristics and Ecological Site Descriptions at our study sites and across Rich County (our data will be shared with Drs. Douglas Ramsey and Neil West).

Objective 4: We began sampling sage-grouse pellets (Figure 3) in a 2006 pilot effort; initial efforts indicate that 1) in areas of low pellet detectability and low sage-grouse use, lines transects will have to be several km long, 2) a pellet aging chart will need to be developed (to avoid counting pellets over a certain age) and 3) the rate at which sage-grouse produce pellets should be determined to enhance our index to sage-grouse use (Figure 4). We will be able to compare our data with similar data being collected in Box Elder, Sevier, and Piute Counties Utah by Dr. Terry Messmer of Utah State University. Background research and pilot efforts at using dogs to flush sage-grouse indicated that combining distance sampling theory with GPS technology should prove fruitful. Based on these initial efforts, we are developing a line transect protocol utilizing few (1-3) well trained dogs each with small GPS tracking units and trained observers to flush and record (also with GPS units) grouse in treated and untreated fields.

To assess use of treated and untreated sagebrush habitats, we determined that the best approach would be to telemeter a sample of adult sage-grouse. Two approaches were discussed: 1) using (~30) state-of-the-art GPS radios which can collect data nearly continuously and can be downloaded remotely or 2) using (~100) standard VHF radios which simply emit a signal that must be collected manually by (~10) observers with radio receivers. Use of GPS radio-telemetry is not currently possible, though we anticipate that an appropriately weighted radio will be available for sage-grouse by 2008. We are currently planning on using standard VHF radios beginning in early 2007 and using these radios to record grouse roosting locations in relation to treated and untreated fields. Dr. Messmer is currently evaluating use of VHF radios on sage-grouse in Box Elder County. Again, we will be able to combine these datasets and assess the efficacy and cost of this method.

We have also determined that Occupancy Estimation and Modeling might provide a feasible mid-level technique for monitoring the proportion of land used by sage-grouse. Recent developments in occupancy estimation techniques (MacKenzie et al. 2006) expand on traditional presence/absence techniques by incorporating detectability (similar to distance sampling). These techniques require 2 to 3 visits to each site, but only require detection of sage-grouse or sage-grouse sign (e.g., droppings). The technique does not yield density, but does yield proportion of sites occupied which can be interpreted as proportion of area used. As such, this technique will be added to the radio-telemetry, dog flushing transects and pellet transects.

Preliminary Recommendations

We provide the following recommendations which will address all 4 project objectives:

- 1) Sage-grouse: Initiate full field season with graduate student and 4 technicians comparing all sage-grouse monitoring methods in treated, untreated and retrospective areas and continuing lek searches and surveys.
- 2) Vegetation: continue efforts on a county-wide basis to depicting current vegetation status by assessing the ability of various remote sensing tools to detect change (i.e., impacts due to disturbance); initiate sage-grouse/habitat modeling effort.

Project and Budget Status

The project is on schedule to meet all primary objectives by the end of year 3. SGRP and NRCS have provided the pivotal seed money for this multi-partner project. SGRP funding was only obtained for year one of this three-year project, though efforts are ongoing to secure additional years of SGRP funding. The Utah Division of Wildlife Resources (UDWR) is providing matching funding for the duration of the project and has committed to completing all objectives.

This project is being closely coordinated with several other shrubsteppe wildlife research projects in Rich County; these include response of vegetation, passerines (Figure 5), pygmy rabbits, small mammals, and mule deer to sagebrush reductions. While UDWR and NRCS/SGRP are the only funding agencies identified for this specific project, the project actually also involves partner support from Utah Department of Natural Resources, Intermountain West Joint Venture, U.S. Fish and Wildlife Service, Bureau of Land Management, The Quinney Foundation, Rich County Coordinated Resource Management (CRM), U.S. Forest Service, U.S. Geological Survey, North American Space Administration and the Rich County Landowners. We are also coordinating with Utah State University researchers who are developing Ecological Site Descriptions and state-transition models for shrubsteppe in Rich County and USU researchers studying sage-grouse in other areas of the state.

Amount funded over 3 years: \$150,000

Status: On-going



Figure 1. Sage-grouse in a study plot, Rich County, Utah 2006.



Figure 4. Conducting a pellet count transect, Rich County, Utah 2006.



Figure 2. Vegetation sampling in a control plot, Rich County, Utah 2006.



Figure 5. Bird biologists in untreated sagebrush, Rich County, Utah 2006.

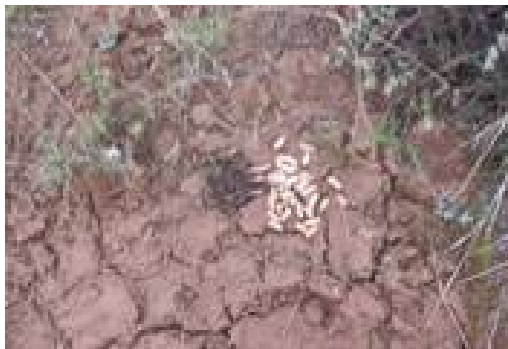


Figure 3. Sage-grouse droppings, Rich County, Utah 2006.

SGRP Publicity

Terry Messmer presented a paper (Appendix 2) entitled “The Sage-grouse Restoration Project: Turning data into management information” at the 11th Triennial Extension Wildlife and Fisheries Specialists Conference in Big Sky, Montana. The conference was attended by over 100 natural resource and wildlife extension specialists from around the country. There was tremendous interest in SGRP, particularly the library and its application to address North American grouse management needs.

Future Plans

Assembly of information for the web-based project library will continue. This work includes posting photos, video, and findings from SGRP-funded and Farm Bill-funded research projects.

Appendix

Appendix 1



NEWS RELEASE

United States Department of Agriculture - Natural Resources Conservation Service
125 S State St, Salt Lake City, UT 84138 - Phone (801) 524-4557 - www.ut.nrcs.usda.gov

For Immediate Release

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July 12, 2006

SAGE-GROUSE RESTORATION PROJECTS ANNOUNCED

NRCS State Conservationist Sylvia Gillen recently announced that three proposals were selected to receive a total of \$200,000 in funding through the Sage-Grouse Restoration Project, a cooperative agreement with Utah State University Extension to help evaluate the effects of Farm Bill conservation practices on private lands on sage-grouse and other sagebrush-dependent wildlife. Gillen said “the projects selected for funding will address critical information needs regarding the management and conservation of both greater and Gunnison sage-grouse species. The information obtained from these projects will be reported on the Sage-grouse Restoration Project web site to assist local sage-grouse working groups implementing their sage-grouse conservation plans.”

Over 60 local working groups have been organized throughout the current sage-grouse range. There are 12 groups active in Utah. The efforts of these groups were cited by the U.S. Fish and Wildlife Service in their 2005 decision denying the petition to list greater sage-grouse as an endangered species.

Seven proposals were received from California, Colorado, and Utah. The proposals selected for funding were:

1. “Grazing Sagebrush with Sheep to Enhance Greater Sage-grouse Brood-rearing Habitat.” This project will be conducted by Utah State University on Parker Mountain in Garfield, Sevier, Piute and Wayne counties of Utah to determine if sheep grazing can be used to enhance sagebrush habitat for greater sage-grouse and other sagebrush obligate species while maintaining animal performance.
- 2.) “Development of a Sagebrush Habitat Improvement Guide for the Gunnison Sage-grouse by Evaluating Recently and Historically Treated Areas within the Gunnison Basin.” This project will be conducted by Colorado State University at numerous locations within the Gunnison Basin of western Colorado. This work will evaluate the habitat conditions within recently and historically treated sagebrush areas in the Gunnison Basin and relate those findings to the habitat requirements of sage-grouse as outlined in the Gunnison Sage-grouse Rangewide Conservation Plan.
- 3.) “Greater Sage-grouse Use of Restored Sagebrush Areas in Rich County Utah.” This project will be conducted by the UDWR in Rich County in northeastern Utah. The UDWR will evaluate methods to assess habitat use by greater sage-grouse in areas where sagebrush cover has been to benefit the species.

More information about SGRP and these projects can be found on the web site: www.sgrp.usu.edu.

The Natural Resources Conservation Service provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment.

An Equal Opportunity Provider and Employer

Appendix 2

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The Sage-Grouse Restoration Project: Turning data into management information

ABSTRACT: The Office of Management Budget is demanding increased accountability of funds used to implement conservation practices and strategies. Although, current Farm Bill policy provides priority funding for projects that are designed to enhance species conservation, it does not allocate funds to conduct the evaluations needed to document the effect of conservation practices on wildlife. The Sage-Grouse Restoration Project (SGRP) is a cooperative agreement between the Natural Resources Conservation Service (NRCS) designed specifically to facilitate evaluations to determine the effect of conservation practices and technologies implemented under the 2002 Farm Bill on restoring or enhancing sage-grouse habitat on private lands. Information gained through SGRP projects will be used to assist private landowners, and NRCS, Soil Conservation Districts, and state wildlife agency field staff in planning and implementing habitat projects and practices on private lands to benefit wildlife species dependent upon sagebrush-steppe. Completion of the projects will result in the development of the SGRP Library, which will provide conservation planners with information regarding the effects of

integrating 2002 Farm Bill conservation practices on wildlife, agricultural productivity, and natural resource conservation.

KEY WORDS: sage-grouse, Farm Bill, Natural Resources Conservation Service, sagebrush-steppe, conservation, funding assistance, grants-in-aid

Sage-grouse are restricted to the sagebrush rangelands of western North America. Sage-grouse once inhabited 16 states and 3 Canadian provinces (Connelly et al 2004). Currently, populations exist in only 11 states and 2 provinces. There are two species of sage-grouse. All birds located north and west of the Colorado River are known as greater sage-grouse (*C. urophasianus*; Connelly et al 2004). A newly described species, the Gunnison sage-grouse, (*C. minimus*) is found only south and east of the Colorado River in Utah and Colorado (Connelly et al. 2004). The scientific literature clearly indicates that sage-grouse are dependent upon large expanses of sagebrush. However, more information is needed regarding the appropriate sagebrush-steppe patch sizes that are needed to provide for seasonal habitat requirements (Connelly et al. 2004).

In 1999 the Western Association of Fish and Wildlife Agencies (WAFWA) in a memorandum of understanding among its members regarding sage-grouse conservation recognized a need to conduct experiments of sufficient scale that demonstrate how habitats can be managed to stabilize and enhance sage-grouse distribution and abundance (WAFWA 2001). Approximately 30% of the sagebrush lands in the western United States are privately owned. The greatest percent of privately-owned sagebrush lands occurs in Montana, Colorado, Washington, and South Dakota (Connelly et al. 2004). Because of private landowners' ability to access Farm Bill funds to develop and implement conservation projects, privately-owned lands

may provide the greatest opportunity to implement landscape-level experiments called for by WAFWA.

ADDRESSING MANAGEMENT INFORMATION NEEDS

The Sage-Grouse Restoration Project (SGRP) was established specifically to provide funds for the design and implementation of research and demonstration projects that evaluate and communicate the effectiveness of 2002 Farm Bill conservation practices and technologies in restoring or enhancing sage-grouse habitat on private lands. It is a cooperative effort involving private landowners, universities, and conservation agencies and organizations, and in a process to identify, integrate, evaluate, and document the effects of 2002 Farm Bill conservation practices in restoring sagebrush-steppe ecosystems to benefit sage-grouse and other sagebrush obligates. Partners in this venture include U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS); Utah State University (USU); USU, College of Natural Resources; USU Extension Services; Jack H. Berryman Institute; Western Governors' Association; WAFWA, Western States Sage and Columbian Sharp-tailed Grouse Technical Committee; North American Grouse Partnership; and Utah Division of Wildlife Resources (UDWR). NRCS has the lead role in establishing and overseeing the SGRP and coordinates with USU to implement the Project.

Goals of the SGRP include:

1. To implement and conduct multi-state management experiments of sufficient scale to demonstrate how conservation provisions of the 2002 Farm Bill can benefit sagebrush-steppe obligate species.
2. To develop a multi-state grants-in-aid program to assist researchers and landowners in integrating and evaluating the effects of conservation provisions of the 2002 Farm Bill

on sagebrush-steppe obligate species.

3. To develop a web-based Project Library that documents the effects of conservation provisions of the 2002 Farm Bill on sagebrush-steppe obligate species.

Information gained through SGRP projects will be used to assist NRCS, Soil Conservation Districts (SCD), and state wildlife agency field staff, as well as private landowners in the planning and implementation of habitat projects and practices on private lands to benefit wildlife species dependent upon sagebrush-steppe. The projects implemented also will contribute to range-wide sage-grouse conservation efforts. It is important to know that the evaluation of current working-lands technology and proposed technology development is important to NRCS and state wildlife agency field staffs. Therefore, each project must provide letters of endorsement from the NRCS state conservationist(s) and the state wildlife agency director(s) associated with the study site(s).

PROCESS

All SGRP grants will be awarded on the federal fiscal year in 1-year increments. Multi-year (up to 3 years) grants will be considered for funding but will be awarded in annual increments, pending availability of funds. All grants are cost-reimbursable for up to 75% of the award amount; the final 25% of the grant will be reimbursed when all products (e.g., reports, products, etc.) are submitted.

Products

Each funded project will be required to submit the following products:

1. Annual and final reports
2. Photos of practices, resource management systems, research activities, etc.
3. A photo-ready 2- to 4-page wildlife technical note describing project outcomes for use

by NRCS and partners

4. A PowerPoint presentation describing project objectives, implementation, and outcomes for use in NRCS training
5. Copies of publications, theses, dissertations, manuals, handbooks, technical notes or popular articles that arise from project
6. During the duration of the project grant recipients must host at least one field tour, on-farm demonstration day, or on-site training course for landowners, natural resource management professionals, and/or NRCS field personnel. These must be documented with date, photos of participants, and summary of number of participants, affiliations, and agenda.

Project Library

Completion of the projects will result in the development of the Project Library, which will provide visitors with visual information regarding the effects of integrating 2002 Farm Bill conservation practices on wildlife, agricultural productivity, and natural resource conservation (e.g., soil and water). The Project Library contains case histories or chapters regarding evaluations conducted through habitat or range improvement projects completed under conservation provisions of the 2002 Farm Bill. Each case study chapter contains the actual project proposal that was submitted to obtain funding, includes the costs of completing the project, and any NEPA or archeological surveys that may have been required. The library contains actual video footage and photographs of the treatments as they are being conducted and of the project sites before and after treatment. These photographs and footage are matched up with data on vegetation, sage-grouse, and other wildlife responses to the treatments.

Visitors to the site will be able to follow each project from planning through completion. This information will allow NRCS, SCD, and state wildlife agency biologists; farmers; and ranchers to optimize the benefits of conservation planning.

PROJECT PROPOSALS

In 2005, we received 7 proposals from California, Colorado, and Utah. Of these, 3 proposals were selected to receive a total of \$200,000 in funding. The proposals selected for funding were:

1. “Grazing Sagebrush with Sheep to Enhance Greater Sage-Grouse Brood-rearing Habitat.” This project will be conducted by Utah State University on Parker Mountain in Garfield, Sevier, Piute, and Wayne counties of Utah to determine if sheep grazing can be used to enhance sagebrush habitat for greater sage-grouse and other sagebrush obligate species while maintaining animal performance.
2. “Development of a Sagebrush Habitat Improvement Guide for the Gunnison Sage-grouse by Evaluating Recently and Historically Treated Areas within the Gunnison Basin.” This project will be conducted by Colorado State University at numerous locations within the Gunnison Basin of western Colorado. This work will evaluate the habitat conditions within recently- and historically-treated sagebrush areas in the Gunnison Basin and relate those findings to the habitat requirements of sage-grouse as outlined in the Gunnison Sage-grouse Rangewide Conservation Plan.
3. “Greater Sage-grouse Use of Restored Sagebrush Areas in Rich County Utah.” This project will be conducted by the UDWR in Rich County in northeastern Utah. The UDWR will evaluate methods to assess habitat use by greater sage-grouse in areas where sagebrush cover has been treated to benefit the species.

ANTICIPATED PROJECT BENEFITS

The SGRP will result in the development of the Project Library, which will provide visitors with visual information and data regarding the role NRCS conservation practices play in increasing their productivity and natural resource conservation. This information will allow them optimize the benefits of conservation planning.

The SGRP will benefit NRCS field staff by providing current information on the role of existing conservation practices and technologies relative to conserving sage-grouse and other sagebrush obligate species. In addition, SGRP will result in new technologies that will assist NRCS field staff and other partners in their conservation planning efforts.

Lastly, the SGRP will identify private lands conservation planning needs to a much wider research audience. This ultimately will increase the awareness and involvement of the best researchers in the field to address field-level technology needs. Additionally, the agency partners, private landowners, graduate students, and undergraduate technicians involved in these research efforts will develop a new appreciation for conservation planning and evaluation. The students involved in the SGRP are a source of future NRCS employees that will already have experience in conservation planning.

LITERATURE CITED

Connelly, J. W., S. T. Knick, M. A. Schroeder, and S. J. Stiver. 2004. Conservation assessment of greater sage-grouse and sagebrush habitats. Western Association of Fish and Wildlife Agencies. Unpublished Report. Cheyenne, Wyoming.

Western Association of Fish and Wildlife Agencies. 1999. Memorandum of understanding among members of the Western Association of Fish and Wildlife Agencies, Conservation and Management of Sage Grouse in North America. Appendix 1 *in* Connelly, J. W., S. T.

Knick, M. A. Schroeder, and S. J. Stiver. 2004. Conservation assessment of greater sage-grouse and sagebrush habitats. Western Association of Fish and Wildlife Agencies. Unpublished Report. Cheyenne, Wyoming.