

# Conserving the Greater Sage Grouse

Examples of Partnerships and Strategies at Work  
Across the West



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Dear Friends of the Western Governors' Association:

Here in the West, we are witnessing an unprecedented conservation effort. Eleven states are working to protect the Greater Sage Grouse, a bird whose habitat covers most of the Western United States. Given the scope of this area, which stretches from Colorado to California and north from Utah to Montana, the conservation effort highlighted in the following pages is nothing short of remarkable.

Hundreds of stakeholders representing a cross section of Western interests—including ranchers, environmental organizations, industry groups and government agencies—have joined together to form sixty-four local working groups. These groups are busy collecting new scientific data about the grouse, identifying key conservation priorities and forging partnerships for conservation with local landowners.

The following pages chronicle just a few examples of how local leaders are taking the initiative to protect the grouse. Why is this effort so critical? First, it demonstrates that the West—the home of so many of our country's natural landscapes and native species—can mobilize its resources on a massive scale to preserve our natural environment without federal intervention.

A 1999 report by the House of Representatives Resources Committee pointed out that the five, far Western states have 543 endangered species officially listed, whereas the entire American Northeast has only 39 species listed. Clearly, the West has the most to gain from cooperative conservation, and we are leading the way by charting a new course toward grassroots-driven species protection.

Most importantly, this effort is critical because it is good for the species. A climate of trust and cooperation, where landowners work in good faith with government agencies, is the only sure course toward long-term Greater Sage Grouse conservation. If the health and viability of the Greater Sage Grouse is a primary concern, then we should look first to local, cooperative measures, such as those detailed in the attached report, to ensure our success.

Sincerely,

Bill Owens  
Governor of Colorado  
WGA Chairman

Kenny Guinn  
Governor of Nevada

# Conserving the Greater Sage Grouse

## Examples of Partnerships and Strategies at Work Across the West

Conserving the Greater Sage Grouse is a major challenge to the partners in the 11 Western states with sage grouse populations. Sage Grouse inhabit a complex sagebrush ecosystem which is home to multiple species of concern. They are what are known as landscape users, traveling as much as 45 miles a year to find the necessary habitat for their annual life cycle.

The scope of the effort to conserve the sage grouse is unprecedented. It is both broad based and locally driven. All of the states within the sage grouse range are engaged in this conservation effort and have brought a myriad of partners to the table with them. Although the states are at different stages in this process, all of them are applying human and financial resources to meet their goals. The partnerships involve local ranchers, non-profit organizations, industry, local governments, and federal agencies.

The key to the success of this conservation effort is the formation of local working groups across the sage grouse range. Sixty-four local working groups are, or soon will be, functioning in the West. They will identify the local issues and concerns, prioritize local practices and projects, and implement action items in a manner that will help ensure success.

This document illustrates the depth of commitment and cooperation that is taking place across the entirety of the West to conserve the Greater Sage Grouse. The following success stories represent a glimpse of what the successful partnerships are accomplishing and how they are doing it. More detailed information is available in a companion report entitled, "Conserving the Greater Sage Grouse – A Compilation of Efforts Underway on State, Tribal, Provincial and Private Lands."

Front page photos by Lu Ray Parker,  
Wyoming Game and Fish Department



## CALIFORNIA AND NEVADA

# Bi-State Planning Group - Preserving Genetic Diversity of the Greater Sage Grouse



The Bi-State Planning Group encompasses the Mono Basin in Eastern California and Western Nevada and is one of six regional groups participating in this sage grouse conservation planning effort. Group members live in southeastern California and southwestern Nevada, which includes populations of Greater Sage Grouse that have been studied at great length and may be genetically distinct in the region. This local conservation planning group was challenged to reach consensus while considering the threat of a possible listing of the bird as a distinct population segment under the Endangered Species Act. Students in a genetics class at nearby Yerington High School collected blood samples from Greater Sage Grouse to conduct DNA analysis that will help biologists determine whether the sage grouse in their area are a genetically distinct population segment.

The Bi-State Planning Group's first meetings held in the spring of 2002 attracted interested ranchers, tribal members, environmentalists, and state and federal land management staff. The pressure of a possible listing of the species under the Endangered Species Act hung heavy over the proceedings. Many meeting participants decided to get involved in the statewide conservation planning process by identifying the risks to the species and ways to mitigate those risks through a local area plan.

Since that time, the Bi-State Planning Group worked long hours to develop an area conservation plan by June 2004. Approximately 25 members have been integral to the process, representing the California and Nevada state wildlife agencies, the California and Nevada offices of the Bureau of Land Management, and the US Geological Service. Individual landowners, the US Forest Service and tribes also participated.

In the beginning, the group learned from sage grouse experts about habitat requirements, breeding habitats and other related information. Members learned that Greater Sage Grouse require a diversity of habitats during their annual life cycle, and that fragmentation of those habitats was a factor affecting the long-term population trends in the area. Still, the Bi-State Group lacked critical data that would assist them in their conservation planning.

**Prepared by the Nevada Department of Wildlife, in cooperation with the Western Governors' Association and the USDA – Natural Resources Conservation Service.**



That need was met with assistance from the Yerington High School students who had been collecting blood samples and conducting DNA analysis on Greater Sage Grouse. Biology teacher Steve Pelligrini expanded his class efforts to assist the sage grouse planning endeavor.

The students collected 60 DNA samples from various areas within the Bi-State planning area. Their work helped state biologists better understand threats to these populations by monitoring the genetic variation of relatively small, isolated populations in specific areas of Nevada. The Yerington High School has taken such interest in collection, storage, and analysis of genetic data from sage grouse that they have now expanded their efforts to additional sage grouse populations in Nevada. Their research is contributing not only to the conservation of sage grouse in California and Nevada, but also providing an impressive educational opportunity to participating students.

Research by Benedict et al. (2003) and Taylor (2001), had shown that Greater Sage Grouse sampled from Mono County, California and Lyon County, Nevada on the south-western edge of the species range, contained an unusually high proportion (87.5%) of unique haplotypes (genetic markers). Researchers suggested that geographic isolation and lack of gene flow from other



Greater Sage Grouse populations had resulted in significant divergence and genetic distinctiveness in this population. Pelligrini's class data will be statistically analyzed and compared with the earlier research, adding to the reservoir of genetic monitoring data already available.

## Results:

- Citizen Involvement
- Development of local area conservation plan
- Student involvement and education
- Genetic monitoring data obtained

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## COLORADO

# From Conflict to Collaboration Greater Sage Grouse Research and Conservation in Moffat County, Colorado



Moffat County is a rural landscape in the northwest corner of Colorado with an economy based on livestock grazing and natural resource extraction. The county supports the largest population of Greater Sage Grouse in Colorado. Federal lands and private agricultural lands comprise the majority of the species' habitat. Imagine the community concern raised as populations of Greater Sage Grouse tumbled by 50 percent from 1980 to 1995 and potential for a threatened or endangered listing began to rise. The implications for the future of Moffat County were astounding.

More than 70 concerned citizens, landowners, industry representatives, local government officials, and state and federal resource managers began working on a conservation planning framework (Northwest Colorado Sage Grouse Working Group) to maintain sage grouse and land uses in Moffat County in 1996. Early meetings were heated. Finger pointing and blame were the name of the game. Was the problem habitat quality or excessive predation, too much sagebrush treatment or not enough? Lengthy discussions over a period of years gradually set the stage for collaboration, but the work group needed data to answer some of its most vexing questions. Work group members were concerned that data from other regions of the West would be incorrectly applied to Moffat County, an area of considerable vegetation, elevational, and climatic diversity. Locally developed, detailed research was needed. "We agreed to set our differences of opinion aside and let the research speak for itself," recalls T. Wright Dickinson, rancher and past Moffat County Commissioner.

In an attempt to answer some of the questions posed by the work group, a Moffat County sage grouse research project commenced in 2001. Conducted by Colorado Division of Wildlife research biologist Tony Apa, the research program was designed in conjunction with the working group. Several funding partners stepped up to the plate to help pay for an expensive effort to answer questions important to

**Prepared by the Colorado Division of Wildlife, in cooperation with the Western Governors' Association and the USDA - Natural Resources Conservation Service.**



conservation planning in Moffat County. The study was jointly funded by the Colorado Division of Wildlife; the Bureau of Land Management; the National Fish and Wildlife Foundation; Kennecott Energy-Colowyo Coal Mine; Trapper Mining Inc.; Moffat County; Yampa Valley Electric Association; North American Grouse Partnership; Monarch and Associates; the University of Idaho; and the Colorado Cooperative Fish and Wildlife Research Unit. Juan Garcia, Senior Mining Engineer with Kennecott Energy-Colowyo Coal Mine, remembers, “People realized that this issue [sage grouse decline] is bigger than any one of us. We need to work proactively and commit time, energy and money. This study is an investment in our future.” This unprecedented study placed radios on more than 200 sage grouse in representative areas of habitat over a period of three years, and collected sage grouse nest success and adult survival rates, bird movements and distribution, and local measurements of habitat conditions for nesting and brood-rearing.

The study provided vital data, but has had a far more substantial effect on sage grouse conservation in Moffat County. The collaborative approach used in developing and conducting this research program has fostered broad-based community support for sage grouse conservation and continued research in Moffat County. Community interest in sage grouse efforts has dramatically increased. Previous attitudes of suspicion and self interest have been replaced by trust and cooperation. Scores of landowners have opened private lands to research and inventory activities and have been actively involved with research on those lands. Increasing acreage of habitat is being voluntarily managed to enhance attractiveness to sage grouse. A dialogue on natural gas extraction has been initiated to reduce impacts on sage grouse.



*Female sage grouse being fitted with a radio transmitter.*

Many research questions persist and much work remains to be done before the future of Greater Sage Grouse in Moffat County can be secured, but the cooperative, collaborative approach taken in this research project has opened many of the doors necessary for future success. T. Wright Dickinson sums it up this way, “By approaching the planning process in this manner, we were able to build trust and agreement over time. We would not have had buy-in had we pushed forward a conservation plan without this information.”

## **Practices and Results**

- Research questions and methods developed jointly with local work group
- Broad-based funding partners, including organizations from the local community
- Regular updates with work group and funding partners to maintain support
- Demonstrated sensitivity to landowner concerns which improved working relationships
- Local habitat use, seasonal movements, and survival information obtained
- Intensified lek counts to provide more accurate population trends
- Enhanced community support for sage grouse conservation

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## IDAHO

# A Successful Local Partnership Shoshone Basin Local Working Group



The Shoshone Basin extends southwest from Twin Falls, Idaho to the Nevada border, an area where sage grouse numbers have been on the decline. The Shoshone Basin Local Working Group is taking steps to stop that decline by improving sage grouse habitat.

The Shoshone Basin Local Working Group is focusing on three Bureau of Land Management (BLM) grazing allotments – 36,000 acres, 6000 Animal Unit Months (AUMs) – and associated private land where sage grouse numbers have declined. The group developed the following objectives:

- Manage all uplands and riparian vegetation to ensure properly functioning systems;
- Provide sufficient nesting, brood-rearing, and winter habitat to reverse the downward trend and increase sage grouse numbers; and
- Provide a stable long-term forage base to sustain existing cattle operations.

While the working group did not reach consensus on the nature of the potential threats and subsequent impacts, members decided to address habitat and livestock management issues that could benefit sage grouse. They agreed to seek a win-win solution to the often difficult and complex problem of providing livestock forage, while meeting the seasonal habitat requirements of sage grouse.

One of the most significant issues the group dealt with in developing the new management plans was how to handle private lands that are commonly incorporated into BLM grazing allotments. Private lands include much of the important sage grouse habitat and encompass approximately 35 percent of the Shoshone Basin. Management of private lands to provide suitable habitat has to be balanced with the economic importance of the land to the owners' operations. There is often a limit to what landowners can live with in terms of maintaining the economic importance of their private lands for livestock production and what they will accept in terms of wildlife habitat management.

One example of this is the Horse Creek allotment. The working group found that by including the private land holdings in the process

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of developing a plan for the public BLM land, there was greater management flexibility for the overall unit. Under the collaborative, seamless conservation approach for Horse Creek allotment, the acres of sage grouse habitat rated excellent went from two percent to 50 percent, without reducing AUMs for that grazing season.

The approach taken by the Shoshone Basin group, working on sage grouse management issues one allotment at a time, is time consuming and requires a considerable commitment from agency personnel and the ranching community. Other local working groups and states can look to the Shoshone Basin as an example of how livestock and wildlife can both benefit from conservation efforts that utilize partnerships to develop a seamless approach for federal and private land.

## **Partnership**

The Shoshone Basin Local Working Group started in July 1994 and was the first group formed in Idaho to address local sage grouse management issues. The group is composed of Bureau of Land Management employees, Idaho Department of Fish and Game employees, NRCS employees, Idaho Department of Lands employees, and members of the Pleasant Valley Grazing Association.

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*New seedlings coming up after a sage grouse habitat planting.*



## MONTANA

# Partnerships Lead to Sage Grouse Oasis Gordon Cattle Company Conservation Easement



The State of Montana has completed a major project to establish 24,560 acres of prime sage grouse habitat in north-central Montana. An oasis of sagebrush habitat for the sage grouse and other species has been created with the nearly \$1 million acquisition of conservation easements on 15,157 acres of the Gordon Cattle Company and with the agreement to jointly manage adjacent public lands.

The Gordon Cattle Company property is composed of two separate land holdings known as the Border Unit and the Fifteenmile Creek Unit on and just south of the U. S. border with Canada. These properties lie adjacent to over 13,000 acres of Bureau of Land Management (BLM) property and nearly 2,000 acres administered by the Montana Department of Natural Resources and Conservation (DNRC). These public and private lands will have a grazing system implemented as a unit to provide optimum sage grouse habitat.

There are multiple benefits being derived from the conservation easements attached to this land. This area

is located in the silver sagebrush region of Montana, which is different from the big sagebrush regions that cover most of the West. There are over 400 acres of wetlands made up of glaciated prairie potholes and reservoirs on these properties that are being managed jointly for grazing and wildlife purposes. Many of these wetlands are associated with the public lands in this unit. These easements will allow a rest rotation grazing system to be implemented on a total of 30,620 acres of rangeland. This will maintain and improve the sagebrush ecosystem in this area.



*Sage Grouse habitat on the Gordon Cattle Company property.*

**Prepared by the Montana Fish, Wildlife, and Parks, in cooperation with the Western Governors' Association and the USDA – Natural Resources Conservation Service.**

This project provides habitat conservation for numerous game and non-game wetland, grassland, and shrubland wildlife species, including sage grouse, pronghorn antelope, mule deer, waterfowl, shorebirds, grassland birds, and the swift fox (a former candidate species under the Endangered Species Act). At least nine species of concern or potential concern inhabit the easement property for breeding habitat or year-long residence.

Additional benefits of the easement program include maintaining public hunting access; and the cash value of the conservation easement will leverage \$650,000 in funds under the North American Wetlands Conservation Act to purchase additional wetlands and grasslands for conservation purposes along the Hi-Line region.

## Practices and Results

- 15,157 acres of prime habitat protected
- Conserve sagebrush grasslands from herbicide spraying, plowing and burning
- Prohibit draining or filling of wetlands
- Maintain livestock grazing as rest-rotation system
- Limit residential development to one site on the property
- Limit the subdivision of the land units (Border Unit may be divided once)
- Minimum of 450 hunter-days of public hunting access annually
- Fee hunting is not allowed

## Border Unit and Fifteenmile Creek Unit Gordon Cattle Company



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# US DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

## “A Successful Federal and State Partnership in Montana” Federal (BLM) ~ State (Montana)



The Bureau of Land Management (BLM) Miles City Field Office (MCFO) and Region Seven Office of Montana Department of Fish, Wildlife and Parks (FWP) in Miles City have long recognized the importance of the Greater Sage Grouse and their habitat in southeastern Montana. The conversion of sagebrush habitat to croplands or tame pastures, livestock grazing, energy development and rights-of-way have resulted in the loss of sagebrush and greater sage grouse habitat. The FWP and BLM have enjoyed a long history of cooperation. This relationship has resulted in many cooperative and quality projects becoming reality.

Expanding this partnership in the early 1990s to focus on sage grouse was enthusiastically embraced by both agencies. Neil Martin, now retired Regional Game Manager for the FWP in Miles City and personnel from the MCFO, recognized the need to collect strutting ground (lek) and winter range data on the sage grouse. Both strutting ground and winter range inventories have yielded valuable information. Without the cooperative efforts of the two agencies, neither agency would accomplish singularly what the two agencies have done cooperatively, said John Ensign, FWP Game Manager for Region Seven. In addition, this partnership ultimately resulted in the inventory of millions of public and private acres.

Ensign reports that approximately 11.5 million acres of sage grouse habitat occurs within southeastern Montana. Prior to the cooperative efforts of the two agencies, no more than 10 percent of this land had been intensively inventoried. At present, 7 to 8 million acres have been inventoried for strutting grounds. Less than 300 strutting grounds were known to exist in 1990. This number has grown to nearly 650 known strutting grounds today. The agencies collectively monitor 200 strutting grounds annually.

Sage grouse winter range information has long been lacking. However, with recent cooperative efforts, many new winter grounds and key winter habitats have been identified. BLM MCFO Sage Grouse Coordinator Kent Undlin indicated that 25 winter grounds were recorded in 1990. Today the number exceeds 250; the majority being identified within the past two to three years.



**Prepared by the Bureau of Land Management, in cooperation with the Western Governors' Association and the USDA – Natural Resources Conservation Service.**

Due to the high demand for energy, including coal bed methane natural gas, much of the recent inventory and monitoring efforts have been focused on areas being developed or proposed for development. These inventories allowed the BLM to identify crucial sage grouse habitats and, to the extent possible, provide protection for these important areas. Many strutting grounds have been afforded protection. Without the cooperation of BLM and FWP this protection may not have occurred, resulting in significant negative impacts to sage grouse.

The BLM and FWP are cooperatively funding sage grouse research being conducted by the University of Montana. This research, initiated in the spring of 2003, focuses on the potential impact of coal bed methane natural gas development on sage grouse populations, the linkage of sage grouse populations and habitats, and the impacts of West Nile Virus on sage grouse. Based on this research, the BLM will be better able to evaluate the effectiveness of two stipulations designed to protect sage grouse in areas of mineral development: First, a quarter-mile "No Surface Occupancy" buffer around strutting grounds and second, a two mile buffer applied to grouse nesting areas during the nesting season (Controlled Surface Use). Recommendations from this research will assist the BLM and private industry to be better able to avoid negative impacts to sage grouse and their habitats.



*Sage grouse with transmitter applied; Baker, Montana sage grouse radio-telemetry study.*

From data collected, FWP better understands sage grouse population dynamics and habitat needs and use. In addition, this information allows FWP to respond to requests for information and prioritize acquisition and management opportunities.

The BLM can manage public lands in a manner least detrimental to sage grouse, be proactive in managing uses on public lands affecting sage grouse and place priority management on those "at-risk" habitats important to the birds.

### **The following is a list of how the FWP and the BLM have cooperated in the conservation of the Greater Sage Grouse:**

- The BLM and FWP have entered into formal Challenge Cost Share agreements identifying the role of each agency in the collection of data.
- Annual coordination meetings between the two agencies occur in which priority areas are identified for inventory and target areas or populations are prioritized for monitoring.
- The FWP has provided vehicles needed by seasonal BLM employees.
- The FWP and the BLM developed the data base now used throughout Montana in the collection and data storage of sage grouse information.
- The FWP and the BLM provide support to the other agency in the development of projects which benefit sage grouse and their habitats.

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## NEVADA

### Montana Mountains Population Study Area, Humboldt County



The Nevada Department of Wildlife (NDOW) study in the Montana Mountains of north-central Nevada brought wildlife biologists, hunters, and volunteers together with a number of goals: get a more scientifically accurate estimate of the greater sage grouse population in the area, identify hunter harvest rates in the area, and identify the birds' seasonal movements. To date, the study, though not complete, has been effective. The data collected showed increasing populations of sage grouse in the area, and hunter harvest that was lower than anticipated. Finally, the study introduced a number of citizen volunteers to hands-on resource management, and provided essential data to the state's Sage Grouse Conservation Plan that is to be completed in June 2004.

The Montana Mountains historically and presently support a high-density of sage grouse. This attribute, coupled with the gentle topography of the mountain range and relatively good vehicular access, makes the area particularly attractive to sportsmen pursuing sage grouse during the normal nine-day hunting season.

Prior to 2001, NDOW estimated that the population of sage grouse in this area was approximately 3,000 birds based on limited spring lek counts and hunter information from harvested and collected wing samples. It was also estimated that about 200 hunters visited the area annually and harvested between 1.75-2.0+ birds/hunter. In 2000, NDOW collected 438 wings from hunter-harvested birds, reflecting what was then thought to be a harvest rate of approximately 15 percent of the estimated population. The harvest rate and the questionable accuracy of the population estimates caused some concern that hunter harvest might be impacting this particular sage grouse population.

In turn, NDOW proposed and began conducting an intensive mark-recapture study that was initiated in 2001 and will conclude in 2004. The goal of the study was to develop better estimates of populations and also identify seasonal movements of sage grouse, especially as related to the excessive acres of sagebrush habitat lost to wildfires in the area over the past 20 years. The information gained from the marking study and telemetry work has provided baseline information for the North-Central Planning Group, one of six local area planning

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groups participating in development of the state's Sage Grouse Conservation Plan. The table below represents a summary of the efforts and results from the ongoing work in the Montana Mountains.

Over the last three years, 817 sage grouse have been captured (Table 1) and marked with either a leg band or telemetry collar and leg band during the summer months. For the recapture portion of the study, the nine-day fall hunting season served as the mechanism to collect sage grouse randomly. Hunters are given a questionnaire and provided information regarding the study as they enter the field. The questionnaire specifically asks hunters to document the number of birds harvested, leg band number (if applicable), harvest location, number of days hunted, number of hours hunted, and number of birds wounded and lost. The hunters are then asked to deposit one wing from each bird harvested into one of the wing barrels located at several of the access points to the study area.

<b>Capture Data</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
# of Birds Captured	176	348	293
# of Nights Captured	6	6	5
# of Known Marked Birds - Fall	146	311	262
# of Birds Harvested	597	856	1,014
# of Banded Birds Harvested	12	33	24
Population Estimate	7,264	8,067	11,070
Harvest Rate	8.2 %	10.6 %	9.1 %

*Table 1.*

The population estimates above resulted from using the basic Lincoln Index formula. As you can see from the table, the 2003 population estimate of 11,070 sage grouse is significantly greater and more reliable than the 2000 estimate of 3,000 birds described on the previous page. The harvest rates (between 8.2 and 10.6 percent) also fall within the Sage Grouse Management Guidelines adopted by the Western Association of Fish and Wildlife Agencies that indicate an acceptable harvest rate of approximately 10 percent of the total population in a given year. The budget expenditures for conducting three years of this study have been upwards of \$175,000.

The Nevada Department of Wildlife, volunteers, and other agency personnel have devoted a tremendous amount of effort conducting the trapping, telemetry follow-up, and field contact necessary to make this study a success (Figure 2 shows a few of the many participants). We would like to take this opportunity to thank those volunteers that have participated in this endeavor. Their efforts have shown that population estimates based solely on lek surveys and harvest often underestimate the number of individuals in a population in a given area and that it takes intensive investigations to develop solid population estimates that have some level of statistical significance.

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## OREGON

# Cooperation, Science, and Knowledge Keys to Conservation



Clouds low on the horizon obscure the first rays of sun across the vast sea of sage. To the north, rises Beatys Butte. Scarred by wildfire in 2000, this volcanic butte rises above the high desert and serves as a landmark visible from Steens Mountain to the East and Hart Mountain to the West. And so begins another day of sage grouse research in the Northern Great Basin to learn about the factors that influence the survival and recruitment of sage grouse chicks.

This study was conducted on three main areas; Hart Mountain National Antelope Refuge, Sheldon National Wildlife Refuge and the Bureau of Land Management's Beatys Butte Allotment. Sage grouse can be non-migratory or cover great distances to meet their seasonal habitat needs. Sage grouse may spend their spring and summers on the Beatys Butte Allotment in Oregon, and their fall/winter 40 miles to the south on Sheldon NWR in Nevada.

"Sage grouse use such large landscapes, and populations intermix so much, that we should just throw out state lines to manage this species" said Mike Gregg, Ph.D. candidate, and lead researcher on the chick survival project. "Because of the size of the area and scope of the issue, cooperation is key for both researchers and land managers."

Gregg's project exemplifies the role cooperation plays in the conservation of sage grouse. On the Beatys Butte Allotment, the researcher's camp was located on a private inholding, by permission of the Grazing Association. "We wanted the opportunity to get the best science we could" responded Dick Bradbury, President of the Beatys Butte Grazing Association, when asked about the association's cooperation with this research project.

Over the last three years, during March and early April, female sage grouse were captured at night with the aid of a spotlight and net. Each hen was fitted with a radio transmitter to allow researchers to relocate the hen. Nest success of each hen was monitored. Hens that successfully hatched their clutch of eggs were located, and within two days of hatch, the broods were captured, and each sage grouse chick

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had a tiny transmitter surgically implanted. Chicks with radios were monitored for 28 days following capture to determine daily survival rates.

While monitoring the hens prior to nesting, during incubation, and during brood-rearing, information about the type of habitat being used and the availability of known foods was collected. These data, along with the survival information, will help researchers and land managers alike.

“The factors affecting chick survival and their eventual recruitment into the fall population has been one of the biggest pieces of information missing,” said Michael Pope, Ph.D., Oregon State University, Game Bird Research Program. Dr. Pope added, “Results from this research will help land managers understand the habitat needs of sage grouse, which is critical for population management.”

Because of their complex life history and use of large landscapes that cross many jurisdictional boundaries, the future management and conservation of sage grouse absolutely depends on extensive cooperation of many government and non-government organizations. This project was only possible through the cooperation of Sheldon-Hart Mountain Refuges (U.S. Fish and Wildlife Service), Bureau of Land Management (Oregon State Office, Lakeview and Winnemucca Districts), Oregon Department of Fish and Wildlife, and the Nevada Division of Wildlife. The financial support was provided by Nevada Bighorns Unlimited, National Fish and Wildlife Foundation, and the Nevada Chukar Foundation; and additional support was provided by the Beatys Butte Grazing Association.



*Figure 1. Sage grouse chick fitted with tiny radio transmitter. Antenna is visible extending from the back. Photo by Mike Gregg.*

## **Practices and Results**

- Fostered cooperation between private and public sector
- Better science to make decisions
- More knowledge of hen habitat needs and food sources
- More knowledge of survival and recruitment
- More knowledge of sage grouse chicks habitat needs

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## Utah's Habitat Initiative Healthy Rangelands are Key



The tests have been run and range management professionals have made their diagnosis. Utah's sagebrush rangelands and pinyon-juniper woodlands are suffering from the ecological equivalents of old age and malnutrition.

State and federal agency administrators, who meet regularly as the Utah Partners for Conservation and Development, have decided that drastic measures are needed to come up with a "cure," and are seeking \$4 million annually to fund habitat restoration projects on public and private lands.

A conservation partnership has developed among federal and state natural resources agencies, conservation organizations, private landowners and others, which is unprecedented in Utah's history. Success will be measured in watershed-related benefits such as improved water quality, water quantity, timing, and duration of stream flows, fewer at-risk wildlife populations, economically viable ranching operations, productive big game winter ranges, and other by-products of healthy rangelands.

Rangeland is a kind of land dominated by grasses, grass-like plants, forbs, or shrubs. In Utah, rangeland dominated by sagebrush is found in two vegetation types; Great Basin sagebrush and sagebrush steppe. When healthy, both types provide habitat for numerous species of plants and animals; food, cover and space for wildlife; forage for livestock; water for irrigation and culinary uses; and open space for a wide range of recreational activities.

One of the best indicators of healthy rangelands is the presence or absence of wildlife. Rangelands dominated by native perennial shrubs and grasses attract a variety of wildlife species and provide for many of their life cycle requirements.

Greater Sage Grouse, mule deer and pronghorn antelope provide perfect examples of the effect of degraded rangelands on wildlife. Sage grouse occupy half the habitat and are less than half as abundant as they were before 1847. Mule deer and pronghorn populations have also declined dramatically over the past two decades.



Ranchers throughout Utah depend on healthy rangelands to maintain economically viable livestock operations. One of the greatest challenges facing the Habitat Initiative is for state and federal land managers and livestock operators to apply the best available science in developing grazing management programs. This will involve preparing and implementing ecologically sound grazing plans, monitoring changes in plant community composition, and making adjustments when needed to meet management objectives.



*Degraded Rangeland such as this needs aggressive restoration.*

With the understanding that habitat loss and degradation are threatening Utah's wildlife today more than any other factor, the Utah Partners for Conservation and Development recently launched Utah's Habitat Initiative to aggressively deal with this statewide problem. In partnership with federal and state land managers, the Utah Division of Wildlife Resources has identified and mapped restoration focus areas in the sagebrush habitat ranges.

Active restoration involves physical intervention in the form of invasive species control and revegetation. This type of restoration is expensive, often approaching \$100 per acre, and involves some type of mechanical or chemical treatment, in combination with artificial seeding, to re-establish perennial grasses, forbs, and shrubs.

Within the Habitat Initiative focus areas, particularly in eastern and southern Utah, the prolonged drought has exacerbated the situation, resulting in large-scale sagebrush die-offs. These areas are now prime for cheatgrass invasion and will require immediate active restoration to prevent the cheatgrass/fire regime from becoming established and to prevent the loss of sagebrush habitat that is so critical to wildlife.

Active restoration in areas that support isolated populations of species that require dense stands of sagebrush during a portion or all of their annual life cycle (sage grouse, pygmy rabbits, several bird species and others) will require special planning to ensure that sufficient habitat is available to perpetuate the populations during the recovery period. The long-term habitat objective in these areas is to maintain the potential for a sagebrush-dominated landscape.

### **For further information on Utah's Habitat Initiative contact:**

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**PRIVATE**

## **Deseret Land and Livestock Ranch Livestock Grazing and Sagebrush Management Benefit Greater Sage Grouse**



The Deseret Land and Livestock Ranch (DLL) is located in beautiful Rich County where the Bear River flows through northern Utah. The river has sagebrush-steppe communities on either side, bounded by the Wasatch Mountains on the west and the Bear River divide to the east.

DLL grazes approximately 90,000 acres of privately owned and 13,000 acres of BLM public lands in southern Rich County. Revenues funding research and management are generated from beef production and wildlife-recreation programs. Four major vegetation types dominate the DLL lands: upland range disked and seeded to crested wheatgrass 30 to 40 years ago that is being repopulated with sagebrush; native sagebrush rangeland; sparse sagebrush rangeland; and mountain sagebrush rangeland.

Sage grouse investigations on the DLL Ranch began in 1984 in response to declining populations over the previous 10 years. The primary objectives of the study were to: identify areas and vegetation types used by sage grouse during the winter, summer and breeding seasons; obtain estimates of the sage grouse population; collect recruitment and mortality data; and gain a basic understanding of how weather, land use practices and other wildlife might affect sage grouse. Funding and support for the project came from the Deseret Land and Livestock Ranch, the Utah Division of Wildlife Resources, the Bureau of Land Management, Utah State University, Pheasants Forever, and Private Lands Consulting.

The principle management technique used on the DLL is time-controlled grazing. This involves the use of a few large herds of cattle and sheep that intermittently graze the pastures. Grazing occurs on the pastures for short periods of time when forage is rapidly growing (May-July), and longer periods of time when forage is dormant or slow growing. The season of grazing varies between years, and pastures receive periodic rest for a full growing season. This system recognizes that plant health is the key to having well functioning watersheds. The time-controlled grazing practices used at DLL since 1979 have increased herbaceous cover on rangelands and slowed the rate of sagebrush increase.

**Prepared by the Deseret Land and Livestock Ranch, in cooperation with the Western Governors' Association and the USDA – Natural Resources Conservation Service.**



Rick Danvir of DLL said, “The grazing and other management techniques being used are focused on providing both forage for an economically viable ranching operation and improving habitat for a variety of wildlife species. The key items in our management system is the rest-rotation grazing system and the emphasis we place on increasing forbs, including inter-seeding forbs into crested-wheatgrass dominated rangeland.”

Rick has seen the number of male sage grouse increase from 125 to over 400 on 11 leks surveyed over the last 20 years. A slight downturn in numbers occurred with the onset of the present drought conditions in 2002.

## **Study Results:**

- Time-controlled grazing practices at DLL since 1979 have increased herbaceous cover on rangelands and slowed the rate of sagebrush increase.
- Grazing exclosure data suggest:
  - a. grass production depends on prior-year precipitation, and
  - b. excluding livestock increases shrub production, reduces forbs and fails to increase plant species diversity.
- Wyoming sagebrush vigor declined in areas receiving winter browsing by elk and pronghorn, but improved in areas where grasses were purposely overgrazed by cattle.
- Hot, August wildfire burns in Wyoming sage wintering areas appeared detrimental, while cool-season controlled burns in summering areas appeared beneficial to sage grouse.
- Mechanical brush thinning and planting desirable forbs may be effective ways to improve summer nutrition for sage grouse and pronghorn, without severely reducing winter and nesting habitat.
- Sage grouse and pronghorn abundance and production increased significantly as we increased forb abundance on five percent of the DLL sagebrush country.
- Results of the study on DLL suggest livestock grazing and brush management techniques can be used to enhance sagebrush habitats for sage grouse, pronghorn and other sagebrush-dependent species if used wisely.

The south Rich County sage grouse population is driven largely by the interplay between weather and habitat. Management strategies that maintain or increase available sagebrush above snow in deep snow winters, or increase forb availability in droughts should reduce sage grouse mortality in poor winter years, thus maintaining larger populations to rebound in favorable weather years.

The success of the management practices implemented on the Deseret Land and Livestock Ranch has led others in the area to begin implementing them. Several large tracts of public and private lands are implementing the DLL techniques in the Rich County area.

The results of the Deseret Land and Livestock Ranch study are compiled and available in a report entitled, “Sage Grouse Ecology and Management in Northern Utah Sagebrush-Steppe,” jointly published by and available from Deseret Land and Livestock Ranch and the Utah Foundation for Quality Resource Management. The cost is \$15.00.

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## WYOMING

# Triple W Ranch Best Management Practices Increase Greater Sage Grouse Numbers



The Triple W Ranch is located approximately 15 miles east of Buffalo, Wyoming between Crazy Woman Creek and the Powder River. It is comprised of about 50,000 acres.

Before 1993, the Triple W Ranch and surrounding ranches were grazed mostly by sheep during the winter and spring grazing periods. The sheep were then trailed to the Big Horn Mountains for summer pasture. Since 1993, management has shifted to cattle grazing, with a strong emphasis on innovative range and water management and rotational grazing practices.

In 1996 and 1997, a land, cattle, and management partnership formed with the Pete Widener family of Sheridan. The partnership decided to learn more about the wildlife potential on the ranch and in particular the Greater Sage Grouse's relationship to cattle grazing. The intention was to improve wildlife habitat for all the species present on the ranch.

The ranch's owners began installing best management practices to develop a more effective grazing system. Extensive improvements to livestock watering facilities were completed with the installation of stock water pipelines, reservoirs and other structures. The ranch modified its stock water pipeline operation to ensure water in all pastures during all seasons to facilitate sage grouse and other wildlife.

They established contacts with the Wyoming Game and Fish Department personnel, the Bureau of Land Management and the Natural Resources Conservation Service. This resulted in a coordinated effort to document sage grouse leks, the recording of actual bird counts by sex during the mating season (March 15-May 15), and identifying previously unknown leks.

The ranch and surrounding area has seen greatly increased Coal Bed Methane (CBM) development. The CBM companies' management worked cooperatively with landowners and agencies to address wildlife, and especially sage grouse concerns.

The landowners have successfully negotiated that no overhead

**Prepared by the Wyoming State Planning Office and the Triple W Ranch, in cooperation with the Western Governors' Association and the USDA – Natural Resources Conservation Service.**



power lines or “raptor-friendly” structures would be allowed in the developing areas. No construction activity is allowed during deer and antelope season, or the sage grouse mating and nesting seasons. It is the ranch's observation that the greatest predation of sage grouse is by golden-eagle, fox, bobcat, coyote, mink, raccoon, and badger. Predator control measures are a management tool used on the ranch.

A three-year University of Montana research project to examine the effects of CBM, drought and West Nile Virus is ongoing in the area and involves a portion of the ranch. The roles of CBM, drought and West Nile on sage grouse populations are not well documented at this time.

The ranch owners note that actual bird surveys on various leks during the spring of 2004 has shown the number of birds surveyed has doubled for both sexes in comparison to 2002 and 2003. The ranch will continue to monitor all aspects of sage grouse activity and improve wildlife habitat. The drought is a major negative factor in the ranch's efforts to help the grouse.

For their efforts related to habitat improvements on the Triple W Ranch, the Wideners and the Bill Welles' family received the “Outstanding Regional Stewardship Awards” by the Wyoming Game and Fish Department in 2002.



*Sagebrush rangeland on Triple W Ranch with the Big Horn Mountains in the background*

## **Practices and Results:**

- Planned grazing system
- Comprehensive livestock watering system
- Survey of sage grouse numbers and leks
- Utilization of Coal Bed Methane best management practices
  - No overhead power lines
  - No raptor friendly structures
  - No construction during critical periods for wildlife
- Research on CBM, drought and West Nile Virus
- Surveys show a doubling of Greater Sage Grouse numbers

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## PRIVATE SECTOR

# Powder River Coal Company “The Prairie Project” North Antelope Rochelle Mine



Powder River Coal Company (PRCC) voluntarily initiated “The Prairie Project” in 2001 as a means to gather data on the status of Greater Sage Grouse populations using habitat in and adjacent to the North Antelope Rochelle Mine. The immediate goal of this ongoing study was to identify key habitats (nesting, brooding and wintering) so that PRCC could adequately plan reclamation and/or mitigation strategies. Secondly, vegetative data was collected to evaluate the quality of the available habitat. Third, reproductive data (nest fate, clutch size, chick survival and adult survival) was collected. Fourth, “The Prairie Project” monitored Greater Sage Grouse use of reclaimed mine lands managed by PRCC.

Grouse were captured in early April and fitted with a 14 g. necklace-style radio transmitter and released at the point of capture. Throughout the study period, radio-collared grouse were located approximately every 10 days. Tracking was accomplished using a portable receiver and a hand-held, three-element yagi antenna; biologists “homed-in” on each radio signal until the

grouse was visually identified.

Throughout the year, coordinates of each grouse location were recorded. During spring, summer and fall, estimates of canopy cover of big sagebrush, grasses and forbs were recorded. In addition, data was collected from each nest site to determine the height, crown volume and shrub species used. Nest fate (hatched or depredated) was determined from the condition of the eggs and shell membranes.

Of particular note was the documented use of reclaimed lands at the North Antelope Rochelle Mine by two hens and their broods. The reclamation used by these grouse supported a diverse and prominent (> 25% cover) mosaic of forbs.

PRCC received the 2002 Mine Reclamation and Wildlife Stewardship Award from the Wyoming Game and Fish Department for its wildlife reclamation program, which includes “The Prairie Project.” The monitoring program initiated in “The Prairie Project” was expanded and funded in 2003 through the Wyoming Abandoned Coal Mine Lands Research Program. Today, Powder River Coal Company – North

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Antelope Rochelle Mine is continuing the project on a voluntary basis and has expanded the program to track Greater Sage Grouse in, and adjacent to, the Powder River Coal Company – Caballo Mine.

The North Antelope Rochelle Mine also received the 2004 “Corporation of the Year” Award from the Wyoming Wildlife Federation for its work with sage grouse.

## Practices and Results

- Reclamation of coal mining lands
- Identification of key habitat
- Identification of reclamation and mitigation strategies
- Re-establishment of sagebrush plant community
- Evaluation of vegetation establishment
- Monitoring of sage grouse use of reclaimed lands



*A radio transmitter is attached to a sage grouse.*

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Note: Stars depict the locations of Greater Sage Grouse conservation efforts described in this report as of June 2004.



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