

**Utah's Adaptive Resources Management
Greater Sage-grouse Local Working Groups**

Accomplishment Report

2006-2007



Photo by Todd Black

June 2008

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Utah's Adaptive Resources Management Greater Sage-grouse Local Working Groups

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Preface

This report summarizes the 2006-2007 accomplishments of Utah's Adaptive Resource Management Greater Sage-grouse (*Centrocercus urophasianus*, hereafter referred to as sage-grouse) Local Working Groups (LWGs). These groups were facilitated by staff affiliated with the Utah Community-Based Conservation Program (CBCP). This report incorporates the information requested under 50 CFR Chapter IV, US Fish and Wildlife Service (USFWS) Policy for Evaluation of Conservation Efforts (PECE) When Making Listing Decisions (USFWS 2003). Specific topics addressed by the LWGs plans hence reported in this annual report include:

1. Staffing, funding, funding sources, and other resources necessary to implement LWG's plans.
2. Legal authority of the partners to implement the plan.
3. The legal procedural requirements (environmental reviews) needed to implement the plans and how this will be accomplished.
4. Authorizations or permits that may or will be needed and how these will be obtained.
5. The type and level of voluntary participation (number of landowners involved, types of incentives used to increase participation).
6. Regulatory mechanisms (laws, ordinances, etc.) that may be necessary to implement the plans.
7. A statement regarding the level of certainty that the funding to implement the plans will be obtained.
8. An implementation schedule to include incremental completion dates.
9. A copy of LWG's approved management plans.

Additionally, the annual report discusses the level of certainty that the management efforts identified and implemented will be effective. Specific topics addressed in the annual report and conservation plans included:

1. The nature and extent of threats to be addressed by the LWG's plans and how management efforts will reduce the threats described.
2. Explicit objectives for each management action contained in the plans and dates for achieving.
3. The steps needed or undertaken to implement management actions.
4. The quantifiable, scientifically valid parameters by which progress will be measured (e.g., change in lek counts, improved habitat conditions).
5. How the effects of the management actions will be monitored and reported.
6. How the principles of adaptive management resource management are being implemented.

This report is linked to the Utah Department of Natural Resources (UDNR), the Utah Division of Wildlife Resources (UDWR) web-sites. This report, LWG sage-grouse conservation plans, annual reports, and meeting minutes can be accessed at www.utahcbcp.org.

Executive Summary

Utah's Adaptive Resources Management Greater Sage-grouse (hereafter referred to as sage-grouse) Local Working Group (LWG) Conservation Plans (Plan) are the culmination several years of effort by representatives from state and federal agencies of land and resource management, non-governmental organizations, private industry, local communities, and private landowners. The LWGs were organized proactively manage sage-grouse and their habitats, in response to increasing concern about the rangewide and local population declines. The impetus for preparing these Plans came from the UDWR Statewide Sage-grouse Strategic Management Plan, which was approved Utah Wildlife Board in 2002.

The LWG Plans include an assessment of the status of the sage-grouse populations in each LWG area. The intent of the Plans is to provide guidance and recommendations to meet the overall goal of maintaining and, where possible, increasing sage-grouse populations and improving habitat conditions in the LWG areas. Conservation and management strategies outlined in the Plans are designed to meet the guidelines set forth by the US Fish and Wildlife Service (USFWS) in their Policy for Evaluation of Conservation Efforts (PECE) standards. The Plans directly and indirectly addresses the five USFWS listing factors as they apply to sage-grouse in each LWG area. Plan recommendations and guidance are voluntarily being implemented by all LWGs. The LWGs continue to meet regularly to review actions and encourage adoption of Plan conservation strategies and actions. The LWGs recognized the participation by private landowners and consideration of landowner needs are critical for management of sage-grouse populations and habitat located on private lands in Utah. As such the Plans promote ecologically sound management of private and public lands for sage-grouse, without impinging on private property rights.

Information contained in the Plans are based on a thorough review of the published and unpublished literature relevant to sage-grouse and sagebrush habitats as well as knowledge possessed by LWG partners who live and work in each area. Given the depth of general information about sage-grouse available in published documents (Connelly et al. 2000, Connelly et al. 2004), each LWG plan includes a brief overview of general sage-grouse ecology. Greater emphasis has been placed on trying to identify population and habitat conditions and issues specific to each LWG area. Knowledge gaps were also identified.

Each LWG analyzed threats currently or potentially affecting sage-grouse and sagebrush habitats in their area. This threat analysis, combined with recommended strategies and actions, provided a framework for LWGs to implement their Plans over the next ten years. Implementation will be conducted with an adaptive resource management approach. Thus as new information emerges from local and range wide conservation efforts, it will be reviewed and used to update management strategies, and priorities in each LWG area. Annual evaluation and reporting will be conducted by participants to monitor LWG progress on objectives outlined in their Plans. As of January 2008, 10 Utah LWGs have completed sage-grouse conservation plans. These plans and a summary of LWG activities can be found on-line at www.utahcbcp.org.

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Introduction

A. Background

Sage-grouse are restricted to the sagebrush rangelands of western North America. Both the distribution and abundance of sage-grouse have dramatically declined. Sage-grouse once inhabited 15 states and 3 Canadian provinces. Currently, populations exist in only 10 states and 1 province.

There are 2 sage-grouse species found in Utah. All birds located north and west of the Colorado River are known as the greater sage-grouse (*C. urophasianus*). A newly described species, the Gunnison sage-grouse, (*C. minimus*) is found only in San Juan County in Southeastern Utah (south and east of the Colorado River).

In Utah, sage-grouse inhabit sagebrush habitats of the Colorado Plateau and the Great Basin geographic regions between 4,000 to 9,000 feet in elevation. The largest populations are found in Rich County, the Park Valley area of Box Elder County, on the Diamond and Blue Mountains in Uintah County, and on the Parker Mountain in Wayne County. Other smaller populations are scattered in the central and southern parts of the state. The UDWR believes that all of Utah's 29 counties at one time provided sagebrush habitat suitable for sage-grouse. Pioneer journals indicate that sage-grouse were abundant throughout Utah in the early 1800s.

The UDWR estimates that sage-grouse in Utah currently occupy less than 50% of their previous habitat and are one-half as abundant as they were prior to the 1850s. In 1996, DWR biologists counted 126 sage-grouse leks. Biologist reported an average of 10 males per lek. This is down 51% from long-term averages. These declines have been largely attributed to land use practices that reduced, eliminated, or fragmented suitable sagebrush habitats. The UDWR estimates that about 50% of the remaining sage-grouse habitat and population are on private land. (UDWR 2002).

B. Purpose

Utah's LWGs consist of stakeholders who are committed to managing local conservation issues through education, dialogue, adaptive management, and cooperation. Stakeholders include representatives of the local community, as well as public natural resource management and conservation agencies and private organizations. More specifically, LWGS were organized to prepare and implement conservation plans to enhance local sage-grouse populations.

The Plans provide a framework for actions to maintain and improve the abundance and viability of sage-grouse populations and their habitat in LWG areas. The Plans also consider historical land uses and long-term socio-economic issues. Although LWG participants recognize the wildlife management authority rests with the UDWR, they believe the Plans will assist that agency in conserving the species by providing local management solutions based on available information, experimentation, research, and monitoring. In addition, LWGs have agreed to identify, develop, implement, and evaluate management actions that will sustain sage-grouse populations and healthy sagebrush habitats that are valuable to the existence of other species.

C. Goals

The goals each Plan are separated into two categories: Assessment Goals and Strategy Goals. The goals are not listed based on priority.

1. Assessment Goals:

The Plans provide an assessment of the status of the LWG area sage-grouse populations by striving to accomplish the following goals:

1. Estimate current population size and evaluate population trends; estimate amount and condition of habitat
2. Identify research and monitoring needs and knowledge gaps
3. Determine population and habitat needs for the future
4. Identify and discuss threats that have potential impact sage-grouse in the LWG area

2. Strategy Goals:

The intent of the Plans are to maintain and where possible, increase sage-grouse populations and improve habitat conditions in the LWG Area by implementing the following strategies:

1. Implement appropriate management strategies to conserve sage-grouse and their habitats
2. Increase effective communication with all potential stakeholders in the LWG Area and the state of Utah through outreach, information distribution, and education
3. Address and prioritize threats to aid in prioritizing management solutions
4. Identify and pursue funding sources, or support partners in their pursuance of funding for projects that will help achieve specific strategies and actions

D. Staffing and Program Administration

1. Personnel

The LWG effort is administered by Utah State University Extension (USUEXT) through the Utah Community-Based Conservation Program (CBCP). The program is directed by Dr. Terry A. Messmer, Utah State University Professor and Extension Wildlife Specialist. The program currently includes several staff specialists. These specialists employed by the program during the 2006-2007 reporting period were Dr. S. Nicole Frey, Mr. Todd Black, Ms. Sarah Lupis, and Ms. Rae Ann Hart. These staff specialists were responsible for facilitating the LWGs and writing local plans. They are currently working with the LWGs to evaluate the process and conservation actions implemented under the plans. They work directly with the LWG participants and partners to prepare and revise area-wide sage-grouse conservation plans and implement restoration projects.

During the reporting period, CBCP staff were assisted by several graduate students and numerous technicians. Project reports and theses summarizing this work can be found on the CBCP web site (www.utahcbcp.org). Graduate students conducting research to evaluate the effects of conservation actions on sage-grouse and their LWG focus areas were:

David Dahlgren (Ph.D.) – Parker Mountain LWG
Michael Guttrey (Ph.D.) – Parker Mountain LWG
Eric Thacker (Ph.D.) - West Box Elder and Uintah Basin LWG
Jason Robinson (M.S.) - West Desert LWG
Jan Kneer (M.S) – West Box Elder LWG
Leah Smith (M.S.) – Uintah Basin LWG
Chris Perkins (M.S.) – Castle County LWG
Rhett Boswell, Biological Technician – Southwest Desert and Color County LWG

2. Funding

To facilitate LWGs in Utah, the UDWR entered into a initial cooperative agreement in 2001 with USUEXT to develop a Utah Community-Based Conservation (CBCP) program. This contract was amended in 2006 to provide funding through 2011. The UDWR funding support one staff specialist position and provides funds to support LWG administration to include monitoring sage-grouse response to management actions. These funds were matched by USUEXT with funding provided through the Jack H. Berryman Institute to support two additional specialists and an administrative assistant. Additional funding was received through various contracts and grants received from federal, state, and private partners. During the 2006-2007 reporting period \$300,000 were expended annually to support the LWG through the CBCP process. This level of funding has been committed by the UDWR and USUEXT through 2011. An additional \$200,000 was received annually through grants and contracts to support graduate students and research technicians. The total program expenditures to support LWGS sage-grouse conservation efforts in the reporting period exceeded \$1 million dollars.

E. Legal Authority and Procedures

The LWG Plans implement Utah’s Sage-grouse Strategic Management Plan (Strategic Plan) that was approved by the Utah Wildlife Board in 2002 (UDWR 2002). The Strategic Plan identified specific management units throughout Utah in which local working groups could be organized to identify issues and implement adaptive resource management plans to address impacts to sage-grouse populations and sagebrush habitats (Figure 1). The Plans were written to span multiple land ownerships and land uses throughout LWGs geographic areas. Specific conservation issues were addressed, implemented, and monitored across geographic and political boundaries to increase management and monitoring consistency. The assessment and strategies described in each Plan are specific for the LWG area for which they were developed. The LWGs coordinate development of project proposals designed to achieve the goals of the Plans with Utah Partners for Conservation and Development (UPCD) Regional Teams.

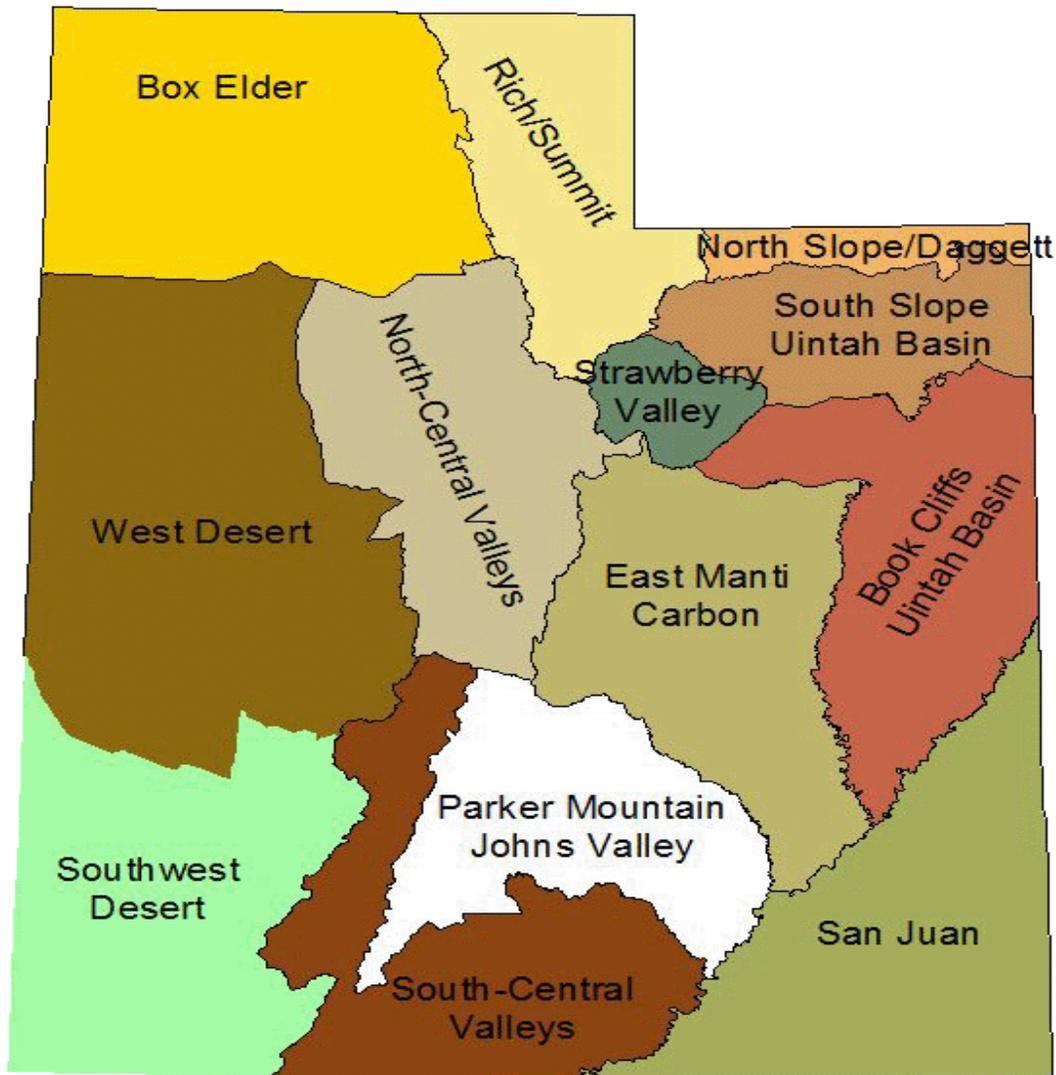


Figure 1. Utah Sage-grouse conservation areas, Utah Strategic Management Plan for Sage-grouse (UDWR 2002).

1. Relevance to U.S. Fish and Wildlife Service Policy for Evaluating Conservation Efforts (PECE)

The Plans also contain conservation and management strategies and actions designed to meet the guidelines promulgated by the U.S. Fish and Wildlife Service (USFWS) in their Policy for Evaluation of Conservation Efforts (PECE) standards (USFWS 2003). The USFWS uses PECE standards as a guideline to evaluate whether conservation efforts will be considered when making listing decisions. The Plans were written to address five listing criteria or factors identified by the USFWS. These factors include :

1. Present or threatened destruction, modification, or curtailment of its habitat or range
2. Over-utilization for commercial, recreational, scientific, or educational purposes

3. Disease or predation
4. Authorities and inadequacy of existing regulatory mechanisms
5. Other natural or man-made factors affecting its continued existence

The Plans directly and indirectly addresses the five USFWS listing factors as they apply to sage-grouse each LWG area. In addition the Plans identify issues, potential strategies, and provide for implementation of proposed conservation actions. The Plans are neither a National Environmental Policy Act (NEPA) decision document, nor a federal or state recovery plan. Any Candidate Conservation Agreement with Assurances developed by the LWG participants may be based on the Plan, but will include the NEPA process.

Compliance with these Plans by agencies, private enterprise, and private individuals is strictly voluntary. State and federal resource management agencies involved with sage-grouse management are required to manage sage-grouse populations and habitat by various state and federal statutes and policies. The information contained in these Plans is intended to provide guidelines and objectives for state and federal agencies to conserve sage-grouse in each LWG area. However, LWG participants believe the participation of private landowners and consideration of landowner needs is critical for management of sage-grouse populations and habitat, and will be essential to achieve the overall goals of the Plan on a landscape scale. The Plans promote ecologically sound management of private and public lands for sage-grouse, without impinging on private property rights. The Plans have been designed to be read and interpreted in their entirety. If the reader reads only isolated sections of the Plans, single statements may be taken out of context or misinterpreted.

2. The Planning Process

Staff specialists implemented the The Nature Conservancy's (TNC) Conservation Assessment Program (CAP) process to develop sage-grouse populations and habitat viability tables (TNC 2005). This process relied on the collective knowledge of participants, literature reviews, and data collected in the LWG area. In a step-wise fashion, LWG participants identified key ecological aspects (KEAs) of sage-grouse ecology and biology and associated indicators (to measure KEAs), determined and ranked the range of variation for each KEA, and assessed the current and desired conditions for each KEA. They then identified and ranked potential threats and listed potential strategies and actions that would abate threats and enhance viability of sage-grouse populations and habitats. Tables identifying each LWG threats, conservation strategies and actions are provide later in this report. To facilitate project planning and implementation, CBCP staff also developed a threat coding system (Table 1). These codes are referenced in subsequent tables to identify the conservation threats mitigated by specific projects completed in each LWG area.

Table 1. Threat code system developed for Utah’s Adaptive Resources Management Sage-grouse Local Working Groups to identify conservation threats addressed by specific projects, 2007.

Threat Code	Threat
1	Poor (not within sage-grouse guidelines) Nesting and Brood rearing habitat
2	Poor (not within sage-grouse guidelines) wintering habitat
3	Loss of sage-grouse leking areas due to brush encroachment
4	Inability to maintain local control and input
5	Area subjected to prolonged drought and/or severe weather (temperature extremes)
6	Home and cabin development and associated utilities
7	Desirable vegetation impacted by lack of manipulation by land managers
8	Power lines and other tall structures within 2 km of known breeding habitat
9	Altered historic fire regimes (area susceptible to frequent wildlife fires)
10	Increased natural resource exploration and renewable/non-renewable energy development
11	New or improved (upgraded) roads within sage-grouse habitat contributing to increased traffic volumes
12	Incompatible (with soils and climate) vegetation treatments and vegetation management
13	Excessive/over hunting and associated disturbance
14	Poaching (non-regulated hunting or out of season hunting)
15	Vegetation altered by historic over grazing (domestic/wild)
16	Grazing practices that are detrimental to the habitat (domestic/wild)
17	Excessive recreational uses (ATV, snowmobiles, horseback riding, hiking)
18	Encroachment of invasive, non desirable or noxious plants
19	Extraordinary parasites and disease outbreaks
20	Extraordinary predation – to include introduced species red fox, raccoons and high raven densities
21	Pinyon-Juniper encroachment
22	Altered water distribution – wet meadows, wetlands, and riparian areas have been drained or function altered by existing or new land use
23	Existing and/or new fences (vertical structures) are contributing to increased mortality
24	Conversion of sage-grouse (sagebrush-steppe) habitat to cropland or grasslands

The KEAs identified included sage-grouse; 1) population size, 2) population distribution, 3) lek habitat quality, 4) nesting/early brood rearing habitat quality, 5) summer/late brood rearing habitat quality, 6) winter habitat quality, connectivity of populations and subpopulation, and 7) connectivity of key habitat types. These KEAs were chosen because they are critical aspects of sage-grouse biology and ecology that, if missing or altered, would lead to the loss of the species over time. Indicators, variability, current, and desired conditions for each KEA are listed periodically throughout LWG Plans to demonstrate the results of the planning process and the aspirations of the group. The KEAs identified by each LWG for their area are provided in subsequent tables found in this report.

F. Level of Voluntary Participation

1. Partners and Roles

Utah CBCP specialists engaged over 700 participants in preparation of the LWG Plans. The participants represented public and private interests (Table 2).

Table 2. Utah’s Adaptive Resources Management Sage-grouse Local Working Group participants and their roles in plan implementation, Utah 2006-2007.

Partner	Role
Utah State University Extension (USUEXT)	Community-based conservation and local sage-grouse working group program administration and support, reporting, working group facilitation, sage-grouse population and habitat viability analysis, project prioritization and recommendations, coordination, implementation, and evaluation.
Private Landowners and Local Community	Work group leadership and participation, coordination within the community, cost-share authorization, identification of project sites and project prioritization.
County Commissioners	Work group support and participation
Natural Resource Conservation Service (NRCS) Farm Service Agency (FSA)	Work group participant, technical assistance, WHIP, EQIP project proposal preparation, funding
Bureau of Land Management (BLM)	Work group participant, funding support for monitoring and work group operations, project challenge grants, technical assistance, and identification of project sites
U.S. Forest Service (USFS)	Work group participant, funding support for monitoring and work group operations project challenge grants, technical assistance, and identification of project sites
Utah Division of Wildlife Resources (UDWR)	Community-base conservation program oversight and review, work group participant, funding support for monitoring and work group operations, project challenge grants, technical assistance, identification and prioritization of project sites
Native American Tribes	Work group participant, identification of project sites, cost-share, funding support for monitoring and work group operations
US Fish and Wildlife Service (USFWS)	Work group participation, funding support for projects and monitoring
Utah School and Institutional Trustlands (SITLA)	Work group participants, funding support for operations and monitoring
Utah Farm Bureau Federation	Work group participant, communications with FB membership

(UFBF)	
Utah Partnership for Conservation and Development (UPCD)	Working group information clearinghouse, project identification, prioritization, and funding
Utah Cattlemen and Woolgrowers	Working group participants, communication with membership
Utah Department of Agriculture and Food (UDAF)	Working group participant, communications, funding support for projects
Utah Rural Coordination and Development Council (Utah RC&D)	Working group participant, project funding support, communications
Utah Soil Conservation Districts (USCD)	Working group participation, communications with SCD members, identification and prioritization of project, landowner technical assistance and preparation of project proposals.
Sportsmen Organizations and Dedicated Hunters	Working group participants, cost-share to support projects, participation in leks counts, population, and habitat monitoring
Conservation/Environmental Organization	Working group participants, funding to support projects and monitoring
USDA Wildlife Services (WS)	Working group participant, in-kind support, predation management technical assistance
Local educators, 4-H, Boy/Girl Scouts	Participation in citizen science monitoring programs to support local working groups

2. Other Considerations

Communities in the Intermountain West reflect diverse and complicated relationships between natural resource extraction industries (agriculture, minerals, energy development, etc.), landownership (private vs. public) and local, state, and federal laws and regulations. These rural communities are also affected by cyclic (boom/bust) economies and global economics that drive commodity prices. To achieve success, management recommendations and solutions designed to improve sage-grouse populations and habitats must be sensitive to local socio-economic issues.

The LWG participants recognize that state and federal agencies must coordinate actions with private landowners, county, and local governments to develop solutions that will meet ecological requirements while maintaining the social and economic values of the local community. Participation by local stakeholders in the planning process has helped to ensure that recommendations and guidelines presented in the Plan address community needs and concerns. The LWG participants believe that cooperation between landowners and agencies will result in more useful and cost-effective habitat improvement projects that ultimately benefit both sage-grouse and local economies.

G. Regulatory Mechanisms

Listing the sage-grouse under the provisions of ESA could have a variety of consequences for LWG participants. Depending on listing status, activities that could be affected include noxious weed control, maintenance of rights of way, subdivisions and land development, livestock grazing management, big game wildlife management, natural resource exploration, and recreational land use. Broadly applying 'take' regulations under the ESA could have a significant local impact. There would likely be an increase in legal compliance. Increased cost of environmental permitting and compliance could have effect community economic development.

1. LWG Plans Role in Recovery

In the event of listing, LWG Plans in concert with other local conservation plans, statewide conservation plans, and range wide conservation assessments and strategies may be used by the USFWS to develop a federal recovery plan. Should these events transpire, the USFWS would also strive to consider social and economic needs to the maximum extent possible. In the July 1, 1994 Federal Register (59 FR 34272), the USFWS issued a policy to involve stakeholders in the preparation of federal recovery plans to help minimize the social and economic impacts of implementing recovery actions.

2. Management Authorities

Existing state, federal, and county regulations offer protection to sage-grouse in each LWG Area. State laws restrict possession of individual birds. Funding programs in Utah support population and habitat conservation and monitoring activities. Federal agencies have laws, regulations, policies, and funding programs that authorize and support conservation efforts. Some counties in the each LWG area have provisions for wildlife or sage-grouse conservation. Specific management authorities that are applicable in all LWG areas are described below.

Utah Division of Wildlife Resources

Title 23 of the Utah Code is the Wildlife Resources Code of Utah, and provides the UDWR with the powers, duties, rights, and responsibilities to protect, propagate, manage, conserve, and distribute wildlife throughout the state. Section 23-13-3 declares that wildlife existing within the state, not held by private ownership and legally acquired, is property of the state. Sections 23-14-18 and 23-14-19 authorize the Utah Wildlife Board to prescribe rules and regulations for the taking and/or possession of protected wildlife. The UDWR's wildlife management philosophy is captured in its Mission Statement, Strategic Plan, and Comprehensive Wildlife Conservation Strategy (CWCS) approved in 2005 (also known as the Utah Wildlife Action Plan). The mission of the Division of Wildlife Resources is "...to serve the people of Utah as trustee and guardian of the state's wildlife, and to ensure its future and values through management, protection, conservation and education."

There are three goals associated with this mission. The resource goal states that the UDWR intends to, "Expand wildlife populations and conserve sensitive species by protecting and improving wildlife habitat." The UDWR 2005-2015 Strategic Plan calls for focusing efforts on increasing the abundance, distribution, and range for species of conservation need by sustaining and restoring habitat functions. To this end, a ten-year, 2005-2015 Comprehensive Wildlife Strategy (CWCS)) was approved in 2005 by the Utah Wildlife Board and the USFWS to address species and habitat of greatest conservation need, priorities for conservation, and actions and future implementation opportunities through partnerships.

In Utah's CWCS sage-grouse are classified as "State Species of Concern" and are among the terrestrial species identified as being in the second tier (i.e., Tier II) of three priority categories of species identified in the CWCS. Approximately 60 species across five taxa in Utah are identified as being potentially petitioned for placement on the ESA defined Threatened and/or Endangered Species list.

Natural Resources Conservation Service (NRCS)

The United States Department of Agriculture (USDA) NRCS has authority to conserve sage-grouse through: 1) The Soil Conservation and Domestic Allotment Act of 1936, as amended (P.L. 74-46). 2) The Department of Agriculture reorganization Act of 1994 (P.L. 409-354; 7 U.S.C. 6962), and the 3) The Farm Security and Rural Investment Act (Farm Bill) of 2002 (P.L. 107-171) The NRCS and Farm Service Agency (FSA) jointly implement programs, which provide landowners with technical and financial assistance to restore and protect grassland, rangeland, pastureland, shrub land, and certain other lands through long-term agreements and easements.

The USDA NRCS offers help to private land owners, through the 2002 Farm Bill programs, to improve their range and pastureland to improve sage-grouse habitat. These include watershed practices on private lands, such as water developments and fencing for prescribed grazing to improve livestock distribution. Vegetative or brush management practices include seeding of introduced and native species of grasses and forbs for forage improvement to benefit both wildlife and domestic animals. Other Farm Bill programs include wildlife enhancement, conservation easements, watershed and riparian programs, and programs to reduce soil erosion.

Bureau of Land Management (BLM)

The United States Department of Interior (USDI) BLM has authority for conservation of sage-grouse through: 1) The Federal Land Management Policy Act (FLMPA) of 1976 (43 U.S.C. 1701 et seq., 90 stat. 2743; PL 94-579), 2) The Sikes Act, Title II (16 U.S.C. 670 et seq.), as amended, and 3) The BLM Manual 6840, Special Status Species Management

Specifically, the FLMPA guidance on sensitive species authorizes that “the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, and environmental, air, and atmospheric, water resource, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals...(43 U.S.C. 1701 Sec. 102 (a) (8)).”

The 6840 Manual defines Special Status Species as “...any species which is listed, or proposed for listing, as threatened or endangered by the USFWS or National Marine Fisheries Service under the provisions of the Endangered Species Act; any species designated by the USFWS as a ‘listed’, ‘candidate’, ‘sensitive’ or ‘species of concern’, and any species which is listed by the State in a category implying potential danger of extinction.” The Manual provides for the BLM to implement management plans that conserve these species and their habitats, and to ensure that actions authorized, funded, or carried out by the BLM do not contribute to the need for the species to become listed under provisions of the ESA.

In addition, the USFWS Policy: State-Federal Relationships (43CFR part 24.4 (c)) contends that the Secretary of the Interior is responsible for the management of non-wilderness BLM lands for multiple uses, including the conservation of fish and wildlife populations. Finally, the BLM provides conservation guidelines for management of sage-grouse on BLM lands in the National Sage-grouse Habitat Conservation Strategy (BLM 2004).

Utah School and Institutional Trust Lands Administration (SITLA)

Utah School and Institutional Trust Lands Administration (SITLA) was created in 1994 to manage 12 real estate trusts, granted to the state at statehood (1896) to Utah by the United States federal government. SITLA is an independent agency of the state government established to manage those lands for the support of common schools and other beneficiary institutions, under the Utah Enabling Act (Title 53C-School and Institutional Trust Lands Management Act).

Title to these trust lands is vested in the state as trustee to be administered for the financial support of the trust beneficiaries. As trustee, SITLA must manage the lands, and any revenues generated from the lands, in the most prudent and profitable manner possible, and not for any purpose inconsistent with the best interest of the trust beneficiaries. The trust principles impose fiduciary duties upon the state, including a duty of undivided loyalty to, and a strict requirement to administer the trust corpus for the exclusive benefit of, the trust beneficiaries. The beneficiaries do not include other governmental institutions or agencies, the public at large, or the general welfare of the state. SITLA must be concerned with both incomes for the current beneficiaries, and the preservation of the trust corpus for future beneficiaries, which requires a balancing of short and long-term interests so that long-term benefits are not lost in an effort to maximize short-term gains. SITLA has no jurisdiction over wildlife populations on trust lands. Management of rangelands is addressed in Section 53C-5-101 of the School and Institutional Trust Lands Management Act, which states 1) The director is responsible for the efficient management of all range resources on lands under the director's administration, consistent with this fiduciary duties of financial support to the beneficiaries, and 2) This Management shall be based on sound resource management principles.

United States Forest Service (USFS)

The USFS has authority for conservation of sage-grouse through: 1. The Multiple-Use Sustained Yield Act (MUSY) of 1960 (P.L. 86-517, 74 Stat. 215, 16 U.S.C. 528, 528-531) 2. The Sikes Act of 1960 (P.L. 86-797, 74 Stat. 1052, 16 U.S.C 670 et seq., as amended) 3. The Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974 (P.L. 93-378, 88 Stat. 476, as amended; 16 U.S.C. 1600, 1600-1614) 4. The National Forest Management Act (NFMA) of 1976 (P.L. 94-588, 90 Stat. 2949, 16 U.S.C. 472 et seq.) and its implementing regulations (36 CFR 219, 2005) 5. Public rangelands Improvement Act of 1978 (P.L. 95-514, 92 Stat. 1806, 43 U.S.C. 1901-1908) 6. USDA Regulation 9500-4 and the Forest Service Manual (FSM) Chapter 2600 MUSY directs the USFS to administer the National Forest for multiple uses including fish and wildlife purposes, in cooperation with interested State and local governmental agencies, and others. 'Multiple use' refers to the congruent and coordinated management of the various surface renewable resources so that they are utilized in a manner that will best meet the needs of the American people. The Sikes Act provides authority for cooperative planning, habitat improvement, and providing adequate protection for species considered to be threatened, rare, or endangered by a State agency. RPA and NFMA provide for comprehensive, integrated planning that will provide for the diversity of plant and animal communities to meet overall multiple-use objectives. USDA Regulation 9500-4 directs the USFS to manage "habitats for all existing native and desired nonnative plants, fish and wildlife species in order to maintain at least viable populations of such species." USFS policy includes provisions for the development of conservation strategies for species that could be negatively affected by forest plans or proposed projects (FSM 2621.2).

U.S. Department of Agriculture – Animal Plant and Health Inspection Service – Wildlife Services (USDA WS)

USDA/WS has the statutory authority to cooperate with “... states, local jurisdictions, individuals, and public and private agencies, organizations, and institutions...” for the control of wildlife damage. Wildlife Services will cooperate in the protection of sage-grouse through agreements with federal and state agencies and private landowners.

Predation on sage-grouse is a naturally occurring dynamic process which has helped to shape both predator and prey communities over time. However, due to changes in predator hierarchy and composition, habitat quantity and quality, and prey abundance, predation may have significant impacts on remnant populations occupying fragmented habitats. The LWGs recognize that improving habitat conditions in conjunction with predation management can protect and increase sage-grouse populations.

Predation is of concern primarily during the nesting season. Ground nesting birds are subject to nest destruction or direct predation while incubating their eggs and caring for flightless juveniles. When identified, predators may be removed from breeding complexes prior to the nesting season to decrease predation risks. Potential sage-grouse predators occurring in the LWG areas core area during the nesting season may include coyote, red fox, striped skunk, ground squirrels, and raccoon. Coyote and red fox numbers may also be reduced on key wintering areas.

Although predator management may be necessary for the maintenance and enhancement of sage-grouse populations, LWG will determine the need for predator control prior to implementation. The LWGs realize that substantial improvements of sage grouse habitats, which include escape cover, and may reduce the need for wide-scale predator management. Predation of adult sage grouse by golden eagles, and ravens and magpies on nest and sage-grouse chicks has been documented and may impact sage-grouse production. The impacts of high densities of golden eagles on resident wildlife species may be most pronounced in areas where the birds winter. When eagles are concentrated on winter ranges and prey is reduced, larger, slower flying species such as the sage grouse are at increased risk of predation. Resident eagles may also take grouse during nesting and brood rearing periods.

Eagle damage management involves two specific strategies:

1. Identification and reduction or modification of habitat conditions which facilitate eagle depredation situations. Management actions include the enhancement or maintenance of suitable escape cover and the removal of environmental conditions which attract eagles (i.e., carrion, and vegetation or structures such as unused telephone or utility poles that may function as roosting sites or hunting perches).
2. Relocation of eagle abundance in key habitats by harassment, trapping and relocation, supplemental feeding, etc.

All eagle, raven, and magpie damage management activities will be conducted consistent with existing laws, regulations, and permits under the supervision of the Utah WS state director.

USFWS Policy for Evaluation of Conservation (PECE) Standards

The PECE Standards set criteria for the USFWS to use in determining whether a formalized conservation effort contributes to making the listing of a species unnecessary, or contributes to forming a basis for listing a species as threatened rather than endangered. The draft PECE was published on June 13, 2000 (65 FR 37102), and was finalized on March 28, 2003 (68 FR 15100-115). The PECE contains nine criteria the USFWS will use to evaluate that the conservation effort will be implemented, and six criteria to determine if the effort will be effective.

Conservation efforts included under this policy are those identified in conservation agreements, conservation plans, management plans, or similar documents developed by federal agencies, state and local governments, tribal governments, businesses, organizations, individuals, or combinations of the above. The criteria are not considered comprehensive. The USFWS will consider all appropriate factors and unique, specific circumstances when evaluating formalized conservation actions. PECE reviews will be conducted on individual conservation actions (rather than conservation plans). Should Greater sage-grouse be petitioned for listing or be listed under the ESA, this Plan will be reviewed and assessed as part of the preparation of a listing decision, and will follow the most recent procedural guidance. Signature of this Plan by the USFWS does not constitute a PECE review of any conservation efforts in this Plan.

H. Implementation Schedule

The LWG Plans were written to be a dynamic document that can be adapted to incorporate new information regarding local sage-grouse populations, habitats, and the local community. The LWGs annually re-evaluate the status of sage-grouse populations and habitats in their areas and review progress of the strategies provided in the Plans. The Plans were written to recommend and support conservation actions over a ten-year period from 2007-2016.

Early termination of the Plans would occur if the sage-grouse was listed under the Endangered Species Act (ESA), or if sage-grouse were removed from the UDWR Sensitive Species list. Species on the Sensitive Species list include species that are federally listed, are candidates for federal listing, or for which there is “credible scientific evidence to substantiate a threat to continued population viability” (UDWR 2006).

I. Plan Certainty

The LWG participants have voluntarily committed to implement their Plans. This report contains evidence to that effect. The report documents projects and conservation actions that have been completed by LWG participants since initiation of their planning process.

J. Memorandums of Understanding

There are two Memoranda of Understandings (MOU) that address conservation of sage-grouse. The first was signed in 1999 the Western Association of Fish and Wildlife Agencies (WAFWA) to promote conservation and management of sage-grouse and their habitats. Thirteen states, including Utah, and two Canadian provinces were signatories to that MOU. The second MOU, signed in 2000, is between WAFWA, USFS, BLM, and the USFWS. This MOU provides for cooperation among state, provincial, and federal agencies in the development of a range wide strategy to direct conservation of sage-grouse and their sagebrush habitats.

K. Synopsis of Local Working Group Conservation Plans

1. Box Elder County Adaptive Resources Management (BARM) Sage-Grouse Local Working Group

The Box Elder County Adaptive Resources Management Sage-grouse Local Working Group was organized in 2002 by Terry Messmer. The LWG is now facilitated by Mr. Todd Black. Mr. Black also served as the technical writer and compiler of LWG Plan.

a. Local Legal Authority

The Box Elder County Commission serves as the executive and legislative branches of local government. They have the authority to:

1. Protect and promote the health, welfare, and safety of the people of their County.
2. Regulate land use, land planning, and quality and protection of natural resources,
3. Adopt regulations and policies to exercise such authorities, including the review and approval or denial of proposed activities and uses of land and natural resources.

The Box Elder County Master Plan - Public Lands and Resources makes the following statements relevant to wildlife and wildlife management in the County (Box Elder County 2006)

“This code is adopted to provide for the health, safety and welfare, and promote the prosperity, improve the morals, peace and good order, comfort, convenience, and aesthetics of Box Elder County and its present and future inhabitants and businesses, to protect the tax base, secure economy in governmental expenditures, foster the state's agricultural and other industries, protect both urban and non-urban development, and to protect property values. This Code accomplishes these purposes by governing uses, density, open spaces, structures, buildings, energy-efficiency, light and air, transportation, infrastructure, public facilities, vegetation, trees and landscaping.” The purposes of providing a multiple use district is to establish areas in mountain, hillside, canyon mountain valley, desert and other open and generally undeveloped lands where human habitation should be limited in order to protect land and other open space resources; to reduce unreasonable requirements for public utility and service expenditures through uneconomic and unwise dispersal and scattering of population; to encourage use of the land, where appropriate, for forestry, grazing, agriculture, mining, wildlife habitat, and recreation; to avoid excessive damage to watersheds, water pollution, soil erosion, danger from brushland fires, damage to grazing and livestock raising, and to wildlife values; to avoid the premature development of lands by discouraging intensive development until the ultimate best use of the land can be recommended by the Planning Commission to the County Commission; and to promote the health, safety, convenience, order, prosperity, and general welfare of the inhabitants of the community.

b. Status of Local Population

Plan Area

The BARM LWG Resource Area is located in Western Box Elder County in northwestern Utah (Figure 1). The Resource Area encompasses 1,702,251 acres and is divided into 3 subunits,

Grouse Creek, Raft River and Pilot Mountain, according to sage-grouse population distribution. The Resource Area is bounded on the south and east by the high water levels of the Great Salt Lake, on the north by the Utah-Idaho and on the west by the Utah-Nevada border. The Resource Area is managed primarily by Private landowners, Bureau of Land Management, and US Forest Service. The predominant land use in the area is grazing by domestic livestock. The West Box Elder is characterized by hot summers and cold winters. According to Utah State University Climate Center records, temperatures in Grouse Creek Utah range from highs in the 90's during the summer months and lows in the teens during the winter months. West Box Elder is a dry region of the state. Park Valley receives an average of only 11.5 inches of annual precipitation. Most precipitation comes in the form of snow during January.

Landownership

Most of the Resource Area is private land or BLM with small areas managed by the state of Utah, the USFS, and UDWR (Table 3).

Table 3. Landownership in Utah’s Box Elder County Adaptive Resources Sage-grouse Local Working Group Resource Area, 2006-2007.

Landowner*	Area (acres)	Area (Miles²)	% of Resource Area
Private	878,760	1,373	52
BLM	654,656	1023	38
State of Utah (SITLA)	102,726	161	6
State Wildlife Management Areas (WMA)	1,609		0.1%
USFS	64,393	550	4
* Water adds an additional 107 acres (.16 mi ²) and represents an insignificant % of the Resource Area			

Sage-grouse Population Status and Distribution

The UDWR began monitoring sage-grouse populations in the Resource Area by annually counting males on leks in 1959 when a total of 6 leks were counted totaling over 200 male grouse (Figure 2). Prior to the winter of 1982/83 a total a high of 37 leks were counted in 1981 with over 700 male grouse counted that year. The 22 year average was 392 male birds counted annually. Since intensive monitoring began in 2000, several new leks discovered and have resulted in a new all time high count in 2006 with over 1000 male birds being counted. Overall, since lek counts began the population appears to be relatively stable.

Population estimates based on lek counts should be treated cautiously due to variance in the methods used to collect lek count data, the assumptions built into the estimate, and other factors. However, as no other population estimation technique is currently available, BARM used this method. The number of males observed per lek is another index used to evaluate sage-grouse population trends (Figure 3). Because this index accounts for the number of leks counted it may more useful illustration of the population trend.

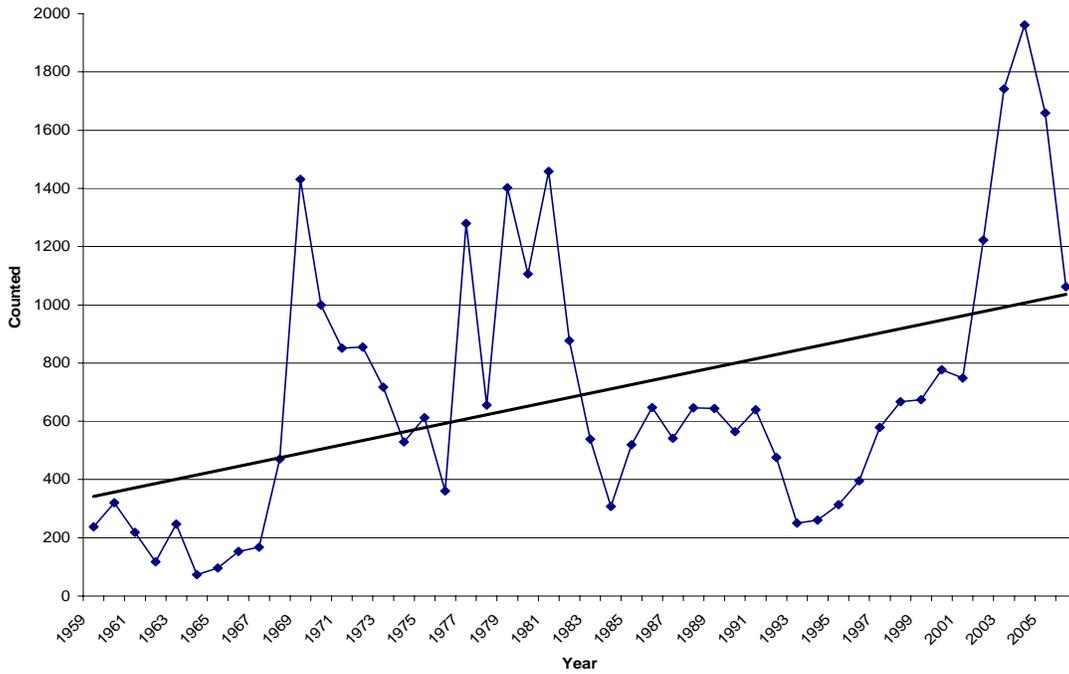


Figure 2. Maximum total number of males counted on all leks in the Box Elder County Adaptive Resources Sage-grouse Local Working Group Resource Area, 1959-2006.

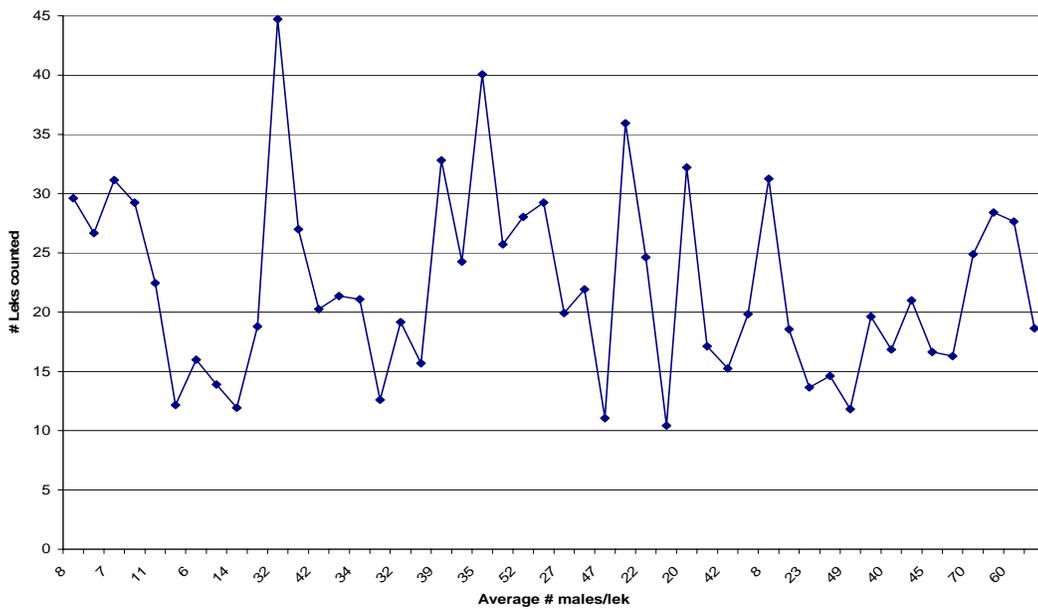


Figure 3. Number of leks counted and average number of males per lek, Box Elder County Adaptive Resources Sage-grouse Local Working Group Resource Area, 1959-2006.

c. Key Ecological Indicators and Threats

BARM participants identified key ecological aspects (KEAs) of sage-grouse ecology and biology and associated indicators (to measure KEAs), determined and ranked the range of variation for each KEA, and assessed the current and desired conditions for each KEA (Table 4). They then identified and ranked potential threats (Table 5).

Table 4. Greater sage-grouse key ecological aspects identified in Utah's Box Elder County, Box Elder County Adaptive Resources Management Sage-grouse Local Working Group, 2007. The 'Key Attribute' and 'Indicator' cells' are those defined by Greater Sage-grouse guidelines (Connelly et al 2000). The shaded cells represent the current condition as recorded by local working group members of a particular attribute and indicator as it relates to sage-grouse habitat and life history requirements.

Resource Area	Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Current Indicator Status	Current Rating	Desired Rating	Date of Current Rating	Date for re-evaluation
West Box Elder County	Landscape Context	Connectivity of key habitat types	Condition of surrounding natural vegetation	Used habitat patches are sparse and dispersed creating barriers between used habitat patches.	Used habitat patches are isolated and narrowly connected.	Habitat patches are of generally good quality and close proximity, but with some fragmenting features.	<i>All habitat patches are within a similar matrix and functionally connected.</i>	Sage-grouse year round habitat in the BARM AREA is generally well connected but has some fragmentation. Sage-grouse are able to move between seasonal habitats within the Resource Area	Very Good	Very Good	Dec-05	Dec-10
West Box Elder County	Landscape Context	Connectivity of Populations & Sub-populations	Distance to other occupied or potential habitat	Population does not interact with any other population(s).	Next adjacent population more than 20 miles away with few habitat patches exist in-between.	Next adjacent population 5-20 mi away with large habitat patches connecting the two; a few birds/generations known to move between populations.	<i>Next adjacent population less than 5 mi away with occasional to regular mixing of individuals through large patches with short separation distances between patches.</i>	Connectivity to other populations seems good based on radio-telemetry studies in the area. Lack knowledge of sage-grouse movement in the Pilot Mtns.	Very Good	Very Good	Dec-05	Dec-10
West Box Elder County	Condition	Lek habitat quality.	Proximity to sagebrush (or other cover) and openness on lek.	No appropriate cover w/in 300 m of most leks; significant encroachment of tall vegetation on leks.	Dispersed patches of sagebrush cover and little grass w/in 300 m of lek; density of tall vegetation on leks increasing.	Large patches of sagebrush or other cover w/in 300 m of lek with some encroachment of tall vegetation.	<i>Large patches of sagebrush or other cover w/in 300 m of lek with no encroachment of tall vegetation.</i>	There is variability across the entire Resource Area. Most leks are in good condition.	Good	Very Good	Dec-05	Oct-08
West Box Elder County	Condition	Nesting/early brood-rearing habitat quality.	Sagebrush canopy cover and density; understory composition; proximity to open patches dominated by herbaceous vegetation.	Inadequate sagebrush cover/density; little perennial grasses or forbs in dense sagebrush with no openings.	Inadequate or high sagebrush cover/density; poor perennial grass/forb cover in sagebrush with limited openings.	Adequate sagebrush cover/density; some perennial grasses/forbs in sagebrush with good perennial grass/forb content in openings.	<i>High stature grasses in shrublands; dense cover in riparian zone; high species richness; a matrix of open patches that includes mesic sites.</i>	Most areas are in good condition during a "normal" year and look better in wet years.	Good	Very Good	Jan-06	Oct-08
West Box Elder County	Condition	Winter Habitat Quality	Sagebrush canopy cover and height.	Majority sparse sagebrush cover or very small patches or majority very dense and tall (i.e. "decadent"); sagebrush frequently covered by snow.	Low stature and/or sparse sagebrush cover on westerly and southerly slopes and drainages or majority very dense and tall (i.e. "decadent"); sagebrush often covered by snow.	Less than 15% canopy cover of sagebrush on southerly and westerly aspects and few dense patches available; sagebrush rarely covered by snow.	Widely distributed winter habitat throughout the Resource Area; canopy cover >15% sagebrush on southerly and westerly aspects w/avg. of 10" above snow depth on >5% slopes; dense sagebrush cover in drainages.	Winter habitat in good condition	Good	Good	Jan-06	Oct-08

West Box Elder County	Condition	Summer/Late Brood-rearing Habitat Quality	Sagebrush canopy cover and density; understory composition; proximity to open patches and mesic sites dominated by herbaceous vegetation.	Little or no shrub land cover/density; little perennial grasses or forbs in dense sagebrush with no open patches or mesic sites.	Little or high shrub land cover/density; poor perennial grass/forb cover in sagebrush with limited openings and mesic sites or alfalfa fields.	Open shrub land (5-10%) with moderate stature grasses; some perennial grasses/forbs in sagebrush with good perennial grass/forb content in openings; some mesic sites.	<i>High stature grasses in open shrub lands (5-10%); dense cover in mesic sites; high species richness; a matrix of open patches and many mesic sites.</i>	In the high end of fair--most sites look pretty good.	Good	Very Good	Jan-06	Oct-08
West Box Elder County	Size	Population Distribution	Distribution and number of leks	Less than 30	31-59	60-80	<i>81-100</i>	100+	Good	Very Good	Nov-05	Jun-09
West Box Elder County	Population Size	3-year running average number of males counted on leks		< 350 total males counted and averaged on all active leks during a 3 year period	351-800 total males counted and averaged on all active leks during a 3 year period	801-1100 total males counted and averaged on all active leks during a 3 year period	<i>1100-1300 total males counted and averaged on all active leks during a 3 year period</i>	1300+	Good	Very Good	Nov-05	Jun-09

Table 5. Relative importance/contribution of threats to sage-grouse populations in Box Elder County, Box Elder County Adaptive Resources Management (BARM) Sage-grouse Local Working Group, 2007. Threats are described in the “Threat Analysis” section of this Plan. Rankings are as follows: L = low; M = medium; H = high; and VH = very high. Ranks are defined according to TNC (2005).

BARM							
Threat	Reduced Population Size	Population Distribution	Reduced Breeding Habitat Quality	Reduced Late Summer/Fall Habitat Quality	Reduced Winter Habitat Quality	Reduced Connectivity of Seasonal Habitat Types	Reduced Connectivity of Populations & Sub-populations
Altered Water Distribution	-	VH	VH	H	L	L	H
Drought and Weather	M	M	M	H	L	L	L
Existing and New Fences	-	M	M	M	-	M	-
Home and Cabin Development	-	M	M	M	M	M	M
Power lines and Other Tall Structures	-	M	M	M	-	M	-
Renewable and Non-renewable Energy Development	-	M	M	M	-	L	L
Roads	-	M	M	M	M	M	M
Vegetation Management	M	M	M	M	M	M	M
Hunting	M	M					
Fire	-	-	VH	VH	VH	H	M
Livestock Grazing	-	-	H	H	L	L	L
Recreation	VH	VH	H	M	VH	M	M
Invasive/Noxious Weeds	-	-	VH	VH	H	H	M
Parasites and Disease	M	M	-	-	-	-	-
Predation	VH	M	-	-	-	-	-
Pinyon-Juniper Encroachment	-	-	H	H	H	H	-
Conversion to Agriculture	-	-	L	L	-	-	-

d. Status of Conservation Strategies and Actions

BARM participants identified several conservation strategies and actions that could be implemented to enhance greater sage-grouse populations. Here BARM partners report on specific actions completed or addressed in 2006/2007 but also identified steps to be taken to implement additional actions into subsequent years of the plan. If a strategy or an action number is missing from this report; it means that no action(s) were taken during the reporting period towards completion. To access a copy of the BARM conservation plan visit the following web site address: <http://utahbcpc.org/files/uploads/BARM/BARMfml-10-06-web.pdf>. The BARM LWG will review and update their Plan in early 2009.

1. **Strategy:** By 2016, identify pinyon/juniper (P/J) stands within the resource area that encroaching in key sage-grouse habitat.
 - 1.1. **Action:** Revisit and make recommendations to retreat as needed P/J removal sites.
Status: BARM partners identified Cove Canyon drainage north and south of Highway 30 east of Park Valley as a sight where P/J will be removed. This is part of the Raft River subunit BLM identified Kimball Creek, Keg Springs, and Cook Canyon, North Grouse creek area, and Pole Creek in the Grouse Creek subunit as potential area to thin and reduce encroaching p/j. West Box Elder Soil Conservation District (SCD) identified Big Hollow drainage, Lynn Valley around Lynn Reservoir, Bally Mountain, George Creek Drainage (Raft River subunit), as a place to remove P/J. Raft River subunit.
 - 1.2. **Action:** Work with partners to ensure that any P/J removal projects are not detrimental to other wildlife species.
Status: Above projects were approved by BARM partners, Utah Partners for Conservation and Development (UPCD), and Utah Division of Wildlife Resources (UDWR).
2. **Strategy:** By 2011 make an assessment of cheat grass and other non-desirable species in sage-grouse habitats.
 - 2.1. **Action:** Review and monitor all vegetative sampling by all partners
Status: Range trend crew is conducting vegetation monitoring.
 - 2.2. **Action:** Avoid using fire in sage-grouse habitats prone to invasion by cheatgrass or other invasive weed species.
Status: 10 mile area (Raft River subunit—Mike Olsen’s place) was burned but then sprayed with Plateau and reseeded with seed mix (Kochia) that competes with cheatgrass.
 - 2.3. **Action:** Evaluate all wildfires and prescribed burns and reseed with appropriate species to prevent establishment of cheat grass and other invasive weed species.
Status: BLM seeded state and private lands around the Dairy valley fire with approximately 11500 acres with UDWR approved seed mix.
 - 2.4. **Action:** Work with and identify other partners (County UDOT Private Industry) to establish fire breaks in key areas to protect important sage-grouse habitat.
Status: BARM partners identified the 10 mile area (Raft River subunit—Mike Olsen’s place). Other areas where work is or will be completed to address encroaching cheat grass include Lower Dove Creek area, Russian Knoll, and Baker place.
3. **Strategy:** By 2011, complete an assessment and condition of available existing water/riparian sources and identify potential new water sources.

- 3.1 **Action:** Identify key elements of various water projects by developing partnerships to work cooperatively to maintain existing water sources.
Status: Solar pumps were put on existing wells on Cove Canyon drainage (private land). Dove Creek allotment area and developed a spring/well in the Dove Creek allotment.
- 3.2 **Action:** Identify key elements of various water projects by developing partnerships to work cooperatively to develop new water sources.
Status: A new trough, pond and Warms springs wash (private land). Two new ponds were put in above fisher canyon (private)
- 3.2 **Action:** Work with partners to identify projects to protect and make improvements upon existing water sources and making it more available/protected for wildlife uses.
Status: BLM dry canyon pipeline with water troughs and spill over pipelines (Grouse Creek subunit).
4. **Strategy:** By 2011, identify key public, private, and SITLA lands in the Resource Area (specific locations to be selected) that are protected and/or managed so as to conserve/improve sage-grouse nesting habitat.
- 4.1. **Action:** Encourage use of defined desired conditions (Connelly et al) for state, private, and federal lands and influence management actions in order to move toward those conditions.
Status: No action taken.
- 4.2. **Action:** Support partner efforts for special designations that protect sage-grouse nesting habitat on public, private, and SITLA lands.
Status: No action taken.
- 4.3. **Action:** Use available grouse and brood telemetry data to identify key nesting/brooding habitat areas within the Grouse Creek sub unit.
Status: Ongoing USU research more areas are being identified.
- 4.4. **Action:** Pursue habitat improvement projects (to meet Desired Conditions) on private and SITLA lands in areas used by sage-grouse for nesting habitat.
Status: All habitat improvement projects are approved and presented to UPCD and have BARM support.
5. **Strategy:** By 2011, identify key public, private, and SITLA lands in the Resource Area (specific locations to be selected) are protected and/or managed so as to conserve/improve sage-grouse leking areas/habitat.
- 5.1. **Action:** Seed Encourage use of defined desired conditions (Connelly et al) for state, private, and federal lands and influence management actions in order to move toward those conditions.
Status: No action taken.
- 5.2. **Action:** Support partner efforts for special designations that protect sage-grouse leking habitat on public, private, and SITLA lands.
Status: No action taken.
- 5.3. **Action:** Pursue habitat improvement projects (to meet Desired Conditions) on public, private, and SITLA lands in areas used by sage-grouse for nesting and brood-rearing.
6. **Strategy:** Minimize the impact of excessive predation.
- 6.1. **Action:** Begin site-specific predation management considering all predator species (especially common raven) where necessary and appropriate.
Status: No action taken.

6.2 **Action:** Support efforts of USDA-WS to remove red foxes and ravens in areas used by sage-grouse for nesting and brood-rearing during spring and early summer.

Status: No action taken.

7. **Strategy:** Through 2016, avoid natural resource development within important sage-grouse use areas. If development does occur, work with industry to minimize impacts. (El Paso gas line)

7.1. **Action:** Participate in county planning efforts for natural resource exploration and development to ensure that biodiversity impacts are minimized.

Status: No action taken.

7.2. **Action:** Cooperate with partners (BLM/USFS/SITLA/NRCS) planning efforts to minimize impacts on sage-grouse and sage-grouse habitat.

Status: No action taken.

8. **Strategy:** By 2016, identify measures to protect key wintering areas available to sage-grouse.

8.1. **Action:** Use available grouse telemetry data in the Grouse Creek sub unit and local knowledge in other sub units to map these areas.

Status: Ongoing USU research more areas are being identified.

8.2. **Action:** Work with public and private partners to identify areas through winter locations (Dry Basin, Montgomery Ranch, South Kilgore, Dakes Pass).

Status: Ongoing USU research more areas are being identified.

8.3. **Action:** Use UDWR fixed wing winter surveys for big game to identify areas.

Status: Ongoing USU research more areas are being identified.

9. **Strategy:** By 2009, maintain or increase populations of sage-grouse in the Resource Area.

9.1. **Action:** Support continued sport hunting within current UDWR models.

Status: Ongoing

9.2. **Action:** BARM group will consider support of any translocation of sage-grouse hens from the Resource Area.

Status: BARM group supported translocation of 35 hens from Dry Basin to support translocation efforts to Strawberry Valley area.

9.3. **Action:** Work with UDWR to explore other methods (Selected lek or lek complexes counts and statistical inferences, Group counting efforts, use of dedicated hunters) of counting sage-grouse leks.

Status: On-going. Dedicated hunters were trained to search for new leks. The UDWR is reviewing research needs with LWGs to determine highest priorities.

10. **Strategy:** Increase cooperation and coordination between GROUP and other public and private partners.

10.1. **Action:** Continue with quarterly BARM meetings. Review and assess our local plan and MOU.

Status: On-going

11. **Strategy:** Through the duration of the plan, continue looking at and evaluating current predator management strategies especially in areas used by sage-grouse for nesting and brood-rearing.

11.1. **Action:** Modify power lines and wood fence posts (to remove raptor perches) in

important sage-grouse areas, where feasible and where predator concerns have been identified.

Status: Pending per results of study being conducted in San Juan County to evaluate perch deterrents.

11.2.**Action:** Remove trees, remove/modify raptor perches, and maintain quality sagebrush habitat, where predation concerns on sage-grouse have been identified.

Status: No action taken.

11.3.**Action:** Maintain or increase site-specific predation management to consider all predator species (especially common ravens and red fox) where necessary and appropriate.

Status: No action taken.

11.4.**Action:** Initiate research on direct and indirect impacts of predation during each sage-grouse life history phase.

Status: No action taken.

11.5.**Action:** Coordinate management and research with USDA-WS.

Action: Support efforts of USDA-WS to remove mammalian predators and corvids in areas used by sage-grouse for nesting and brood-rearing during spring and early summer.

Status: USDA WS aerial gunned several areas in the Raft River and Grouse Creek subunit early spring 06 and 07.

11.6.**Action:** Identify additional sources of funding to continue current predator removal efforts.

Status: No action taken.

e. Habitat Improvements and Completed Conservation Actions.

Several habitat improvement projects in the Resource Area have been implemented by BARM partners and were targeted at restoring or enhancing sage-grouse habitat (Table 6, Figure 4). Treatments were designed to improve native grass/forb understory diversity while sustaining a sagebrush canopy cover. BARM members actively participate on UPCD state and regional teams to identify projects that focuses on the protection, management, and/or restoration of important sagebrush-steppe habitats. The UPCD is made up of a variety of partners including state and federal land management agencies, private landowners, universities and extension services, soil conservation districts, and county and local entities. The Northern Region UPCD team has delineated focus areas within the Resource Area based upon critical sage grouse habitats and are currently working on identifying projects and acquiring funding to implement restoration activities. Several Big Game Range Trend sites were established to monitor treatments. Most of these projects have been a combination of fence, water development, fuels reduction projects, and brush management.

Table 6. Habitat improvement projects completed to mitigate sage-grouse threats identified by the Box Elder County Adaptive Resources Management Sage-grouse Local Working Group, 2005-2007.

ID	Region	FY start	FY complete	Project Title	Treatment type	Threat code	Acres
995	NR	2007	0	Clear Creek burn rehab	re-seed drills	1,2,9,18,21	4841
992	NR	2007	0	Dairy Valley fire rehab	re-seed chain drill	1,2,9,18,21	0.000
745	NR	2007	2007	Hogup burn rehab	burn spray with plateau	2,9,18	2700
613	NR	2006	2006	Rose Ranch	sage thinning and re-seed	2,9,15	350
566	NR	2006	2006	SITLA burn seeding	aerial seed burn area	2,9,15	457
348	NR	2005	2005	Park Valley burn rehab	aerial seed burn area smooth chain	2,9,15	3151
276	NR	2005	2006	Lazy 8 land and livestock	sage thinning and re-seed	2,9,15	345
249	NR	2005	2007	Grouse Creek Grazing Association	Spike and aerator treatment of sagebrush	1,2,15	1986
205	NR	2005	2006	Basque Cross Ranch	Grass forb planting w/drill	1,2,15	552
162	NR	2005	2005	Arimo water project	rip in pipeline and trough system for livestock and w	1,2,3,22	2341
162	NR	2005	2005	Arimo water project	re-seed disturbed area	1,2,18	82
157	NR	2005	2005	Etna Mechum Canyon	bullhog p/j aerial re-seed	2,15,18,21	568
155	NR	2005	2005	Choke Cherry spring	bullhog p/j aerial re-seed	2,15,18,21	570

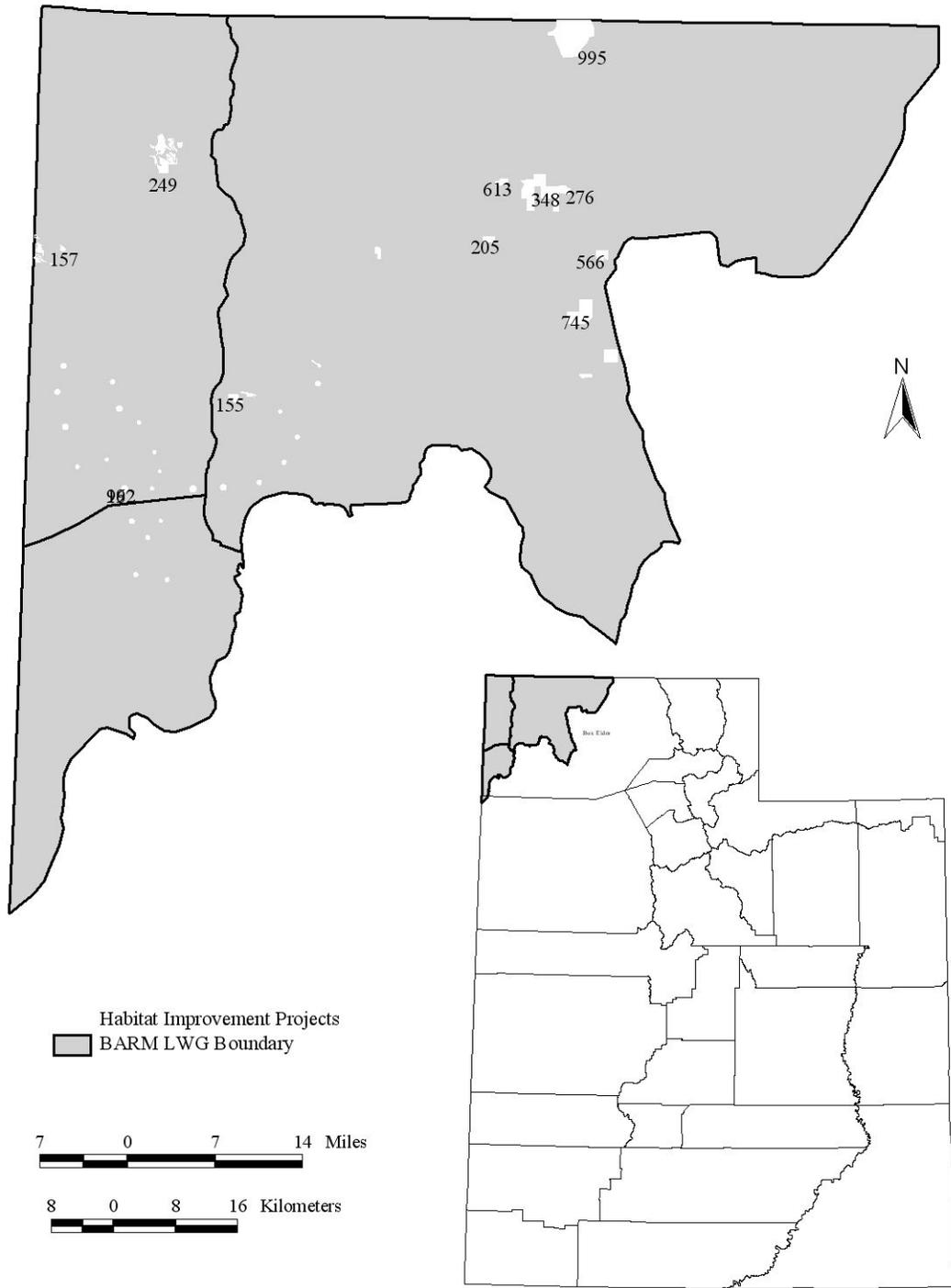


Figure 4. Location of habitat projects completed to mitigate sage-grouse threats identified by the Box Elder County Adaptive Resources Management Sage-grouse Local Working Group, 2005-2007.

2. Castle Country Adaptive Resources Management (CaCoARM) Sage-grouse Local Working Group

The Castle Country Adaptive Resources Management (CaCoARM) Sage-grouse Local Working Group was organized in 2005 by Todd A. Black and Sarah G. Lupis. Ms. Lupis served as the technical writer and compiler of the Plan. CaCoARM is comprised of state and federal agency personnel, representatives from local government, non-profit organizations, academic institutions, private industry, and private individuals.

a. Local Legal Authority

The Board of Commissions for Carbon, Emery, and Sanpete counties serve as the executive and legislative branches of local government. They have the authority to; 1) protect and promote the health, welfare, and safety of the people of these counties, 2) regulate land use, land planning, and quality and protection of natural resources, and 3) have duly adopted regulations and policies to exercise such authorities.

The Carbon County Master Plan - Public Lands and Resources Addendum makes the following statements relevant to wildlife and wildlife management in the County

1. Carbon County is home to numerous and abundant game and non-game animals and fish. We value fish and wildlife as a source of recreation and enjoyment, as well as one means to feed our families, and as a potential for tourism and recreation for visitors to hunt, fish and view wildlife.
2. Federal lands, woodlands and forests are key to maintaining a healthy population of fish and wildlife. Private land provides a substantial amount of wildlife habitat in Carbon County due to agriculture and water associated with private lands.
3. Opportunities for cooperation between the County, the UDWR, and federal agencies will be pursued. The County will assist agencies in disseminating information and implementing methods to increase the usability of public lands for fish and wildlife. Private land provides a substantial amount of wildlife habitat in Carbon County due to agriculture and water associated with private lands. Projects to improve game range on public land will benefit wildlife and livestock. Range and stream improvement projects using quality data and good science will be a priority.

The Emery County Plan (1999) contains the following provisions related to the natural environment in the County:

1. An important part of our rural lifestyle is the enjoyment of the outdoors, and the recreational and economic opportunities afforded by the wide open spaces of the public lands that surround us. In many ways our population is outdoor oriented. The use of surrounding public lands is an integral part of our economy, culture, and heritage.

2. The use of public lands is still crucial to the livestock industry, as well as to other sectors of our economy and culture, such as mining, logging, tourism, recreation, and other varied uses of public lands. The public lands are used for individual and family recreation activities, as well as for community-wide traditions such as "Easterin," and the rites of the annual deer hunt. We value the open spaces, the history, the accessibility, and nature related experiences that are part of our public lands heritage.

b. Status of Local Population

Plan Area

The Castle Country LWG Resource Area (Resource Area) is located in eastern Utah in Carbon, Emery, and parts of Sanpete counties (Figure 1). The Resource Area encompasses 1,906,443 acres (2978 mi²) managed by the USFS, BLM, SITLA, and private landowners. The Resource Area is defined by the Whitmore and Emma park area and state highway 191 to the north, Range Creek and the Nine Mile Canyon area to the East, the Manti Range and the Sanpete Valley to the west State Highway 6 to the South. The Resource Area has been subdivided into five subunits, corresponding to sage-grouse breeding complexes. These breeding complexes are based on geographic boundaries and groupings of leks. Most of these sites are located at an altitude greater than 7,000 feet. Although movement between complexes in some of the subunits is likely, the complexes represent discrete subpopulations of sage-grouse in the Resource Area.

The Resource Area is characterized by hot summers and cold winters. According to National Climate Data Center records collected at the Price Municipal Airport from 1968 to 2005, July is the hottest month with an average high temperature of 90.0°F; winter lows reach 13°F in January. The Resource Area is a primarily a dry area, receiving an average of only 9-10 inches of rain annually. The sites where the sage-grouse occur are wetter, with an average of 16-20 inches of rain annually.

Landownership

Approximately 90% of the Resource Area is public land. The remaining lands are private, Tribal, and state ownership (Table 7).

Table 7. Landownership in Utah’s Castle Country Adaptive Resources Sage-grouse Local Working Group Area Resource Area, 2007.

Landowner*	Area (acres)	Area (Miles²)	% of Resource Area
Bureau of Land Management	605031	945	32%
Private	740161	1156	39%
State of Utah	27674	43	1%
School Institutional Trust Lands Administration	160562	250	8%
US Forest Service	366754	573	19%
Tribal	345	0.5	<1%
* Water adds an additional 5646 acres (8 mi ²) and represents <1% of the Resource Area			

Sage-grouse Population Status and Distribution

The UDWR began using lek counts to monitor sage-grouse populations in the Resource Area in 1968 (Figure 5). That year, a total of 6 male sage-grouse were counted on 2 leks. During these initial counts, the locations of only a few leks were known. In 1977, eleven leks in the Resource Area were counted for a total of 175 males. The estimated spring population size in 1977 was 700 adult birds. Sage-grouse populations in the Resource Area hit an historic peak in 1989 when 209 males were counted on 10 leks. This represents a total estimated spring population of 841 adult birds.

In 1999, the UDWR increased lek monitoring and search efforts to ensure all leks within the resource area were counted. Since 2000, the total number of males counted on leks has fluctuated around the 13 males/year average (Figure 6). The number of males counted fell slightly below the average during 2002 and 2004, likely due to drought conditions, and was slightly above the average in 2000 and 2006. In 2006, more sage-grouse males were counted on leks in the Castle Country than ever recorded. A total of 285 males were counted on 16 leks for an estimated total spring population of 1140 adult birds.

The historical population high of 1977 is still apparent, however, recent increases do not appear as significant, and the population appears to be stable, rather than increasing. This indicates that while the number of males counted on leks in the Resource Area is increasing, increases in total males counted could be attributed to increased counting and lek-searching efforts. In fact, 16 leks were counted in 2006, more than were ever counted in the Resource Area (range = 1 - 16).

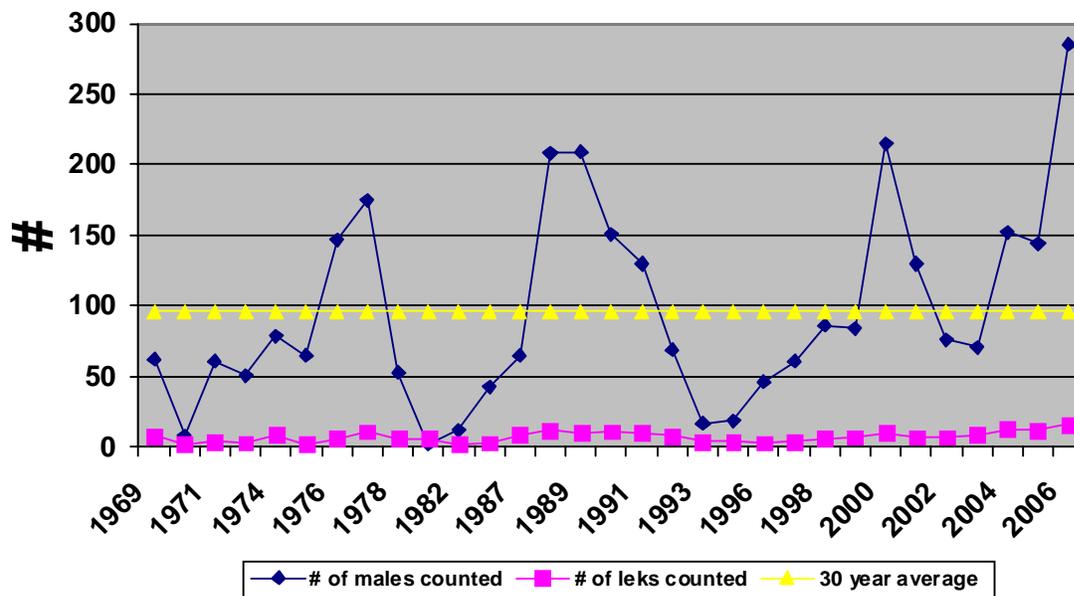


Figure 5. Maximum total number of males counted, number of leks counted, and 30-year average maximum total males counted on leks in the Castle Country Adaptive Resources Management Sage-grouse Local Working Group Resource Area, 1969-2006.

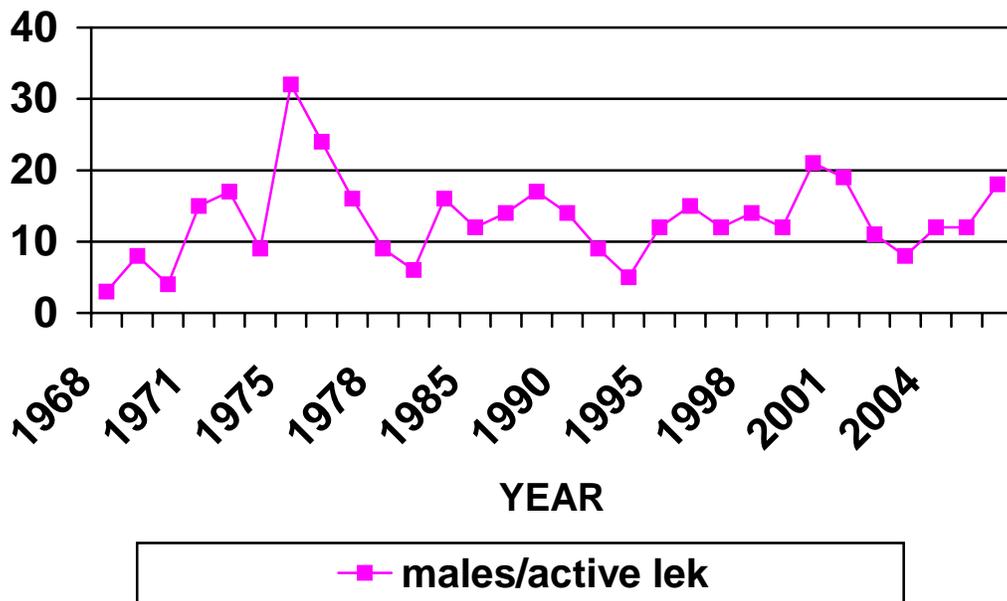


Figure 6. Average number of males counted per active lek in the Castle Country Adaptive Resources Management Sage-grouse Local Working Group Resource Area, 1968-2006.

c. Key Ecological Indicators and Threats

CoCaARM LWG participants identified key ecological aspects (KEAs) of sage-grouse ecology and biology and associated indicators (to measure KEAs), determined and ranked the range of variation for each KEA, and assessed the current and desired conditions for each KEA (Table 8). They then identified and ranked potential threats (Table 9).

Table 8. Greater sage-grouse key ecological aspects in Utah's Carbon, Emery, And Sanpete Counties, Castle County Adaptive Resources Management Sage-grouse Local Working Group, 2007. The 'Key Attribute' and 'Indicator' cells' are those defined by Greater Sage-grouse guidelines (Connelly et al 2000). The shaded cells represent the current condition as recorded by local working group members of a particular attribute and indicator as it relates to sage-grouse habitat and life history requirements.

Resource Area	Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Current Indicator Status	Current Rating	Desired Rating	Date of Current Rating	Date for re-evaluation
Castle Country	Landscape Context	Connectivity of key habitat types	Condition of surrounding natural vegetation	Used habitat patches within each sub unit are sparse and dispersed creating barriers between used habitat patches.	Used habitat patches within each sub unit are isolated and narrowly connected.	<i>Habitat patches within each sub unit are of generally good and close proximity, but with some fragmenting features.</i>	All habitat patches within each sub unit are within a similar matrix and functionally connected.	Sage-grouse year round habitat in the CaCoARM AREA is generally well connected but has some fragmentation. Sage-grouse are able to move between seasonal habitats within the Resource Area	Good	Good	Feb-06	Feb-11
Castle Country	Landscape Context	Connectivity of Populations & Sub-populations	Distance to other populations within individual subunits during the yearly movement patterns of the sage-grouse	Populations within sub units do not interact with each other and are greater than 15 miles apart	<i>Populations within sub units occasionally interact and are 8-14 miles away</i>	Populations within sub units frequently interact and are 4-7 miles away	Populations within sub units regularly interact and are less than 4 miles away with regularly to regular mixing of individuals.	Connectivity within most of the subunits is approaching good. However, the little is know about the Manti sub unit. While these populations seem to be a long ways apart there may be some interaction between individuals during certain times of the year.	Fair	Fair	Feb-06	Feb-11
Castle Country	Condition	Summer/Late Brood-rearing Habitat Quality	Sagebrush canopy cover and density; understory composition; proximity to open patches and mesic sites and aspen sites dominated by herbaceous vegetation.	Little or no shrub land cover/density; little perennial grasses or forbs in dense sagebrush with no open patches or mesic sites.	<i>Little or high shrub land cover/density; poor perennial grass/forb cover in sagebrush with limited openings and mesic sites.</i>	<i>Open shrub land some perennial grasses/forbs in sagebrush with good perennial grass/forb content in openings; some mesic and aspen sites.</i>	Open shrub lands greater than 50% grasses/forbs dense cover in mesic and aspen sites; high species richness; a matrix of open patches and many mesic sites.	Shrublands are in good condition but the lack of wet/mesic sites is a limiting factor for distribution of the grouse in most of the sub units.	Fair	Good	Feb-06	Feb-11
Castle Country	Condition	Lek habitat quality.	Proximity to adequate sagebrush and openness on lek.	No appropriate cover w/in 400 m of most leks; significant encroachment of vegetation that would obscure visibility of the grouse on the leks sites.	Dispersed patches of sagebrush cover w/in 399-200 m of lek; some encroachment of vegetation that would obscure visibility of the grouse on the leks sites.	Large patches of sagebrush or other cover w/in 199-100 m of lek; with little encroachment of vegetation that would obscure visibility of the grouse on the leks sites	<i>Large patches of sagebrush or other cover less than 100 m of lek with no encroachment of vegetation that would obscure visibility of the grouse on the leks sites</i>	There is variability across the entire Resource Area. Most leks are in very good condition.	Very Good	Very Good	Feb-06	Feb-11

Castle Country	Condition	Nesting and early brood-rearing habitat quality.	Sagebrush canopy cover and density; understory composition; proximity to open patches dominated by herbaceous vegetation.	Inadequate sagebrush cover/density; little perennial grasses or forbs in dense sagebrush with no openings.	Inadequate or high sagebrush cover/density; poor perennial grass/forb cover in sagebrush with limited openings.	Adequate sagebrush cover/density; some perennial grasses/forbs in sagebrush with good perennial grass/forb content in openings.	High stature grasses in shrublands; dense cover; high species richness; a matrix of open patches that includes mesic sites.	Most areas are in Good condition during a "normal" year and look better in wet years	Good	Good	Feb-06	Feb-11
Castle Country	Condition	Winter Habitat Quality	Sagebrush canopy cover and height.	Majority sparse sagebrush cover or very small patches or majority very dense and tall (i.e."decadent"); sagebrush frequently covered by snow.	Low stature and/or sparse sagebrush cover on westerly and southerly slopes and drainages or majority very dense and tall (i.e. "decadent"); sagebrush often covered by snow.	<i>Less than 30% canopy cover of sagebrush on southerly and westerly aspects and few dense patches available; sagebrush rarely covered by snow.</i>	Widely distributed winter habitat throughout the Resource Area; canopy cover 20-30% sagebrush on southerly and westerly aspects w/avg. of 30" above snow depth	Winter habitat in fair condition many of the stands are getting old and decadent and need improvement. Winter habitat is not well distributed throughout the sub units.	Fair	Good	Feb-06	Feb-11
Castle Country	Size	Population Distribution	Distribution of leks	Leking habitat is not well utilized and are highly fragmented	Some of the available leking habitat is occupied leks are distributed at about 4-6 mi radius	<i>Most of the available leking habitat is occupied leks are distributed at about 2-4 mi radius</i>	All know leks are distributed (2 mi radius) distributed across all known leking habitat	Leks should be distributed where habitat is available. There are some areas where good habitat exists but leks do not. Range wide guidelines indicate that leks should be distributed about every 2-4 miles in good sage-grouse habitat.	Fair	Good	Jan-06	Jun-09
Castle Country	Size	Population Size	3-year running average number of males counted on leks	Less 75 males counted on all know leks	76-125	<i>126-200</i>	200+	Range wide guidelines. Three year average of number of male birds counted on leks is a good indicator of population size and trend.	Fair	Good	Jan-06	Jun-09
Castle Country	Size	Population Size	Number of leks	Less than 10 total leks in the entire area.	10-13	<i>14-20</i>	21-29	Greater then 30	Fair	Good	Jan-06	Jun-09

Table 9. Relative importance/contribution of threats to sage-grouse populations in Utah’s Carbon, Emery, and Sanpete Counties, Castle County Adaptive Resources Management (CoCaARM) Sage-grouse Local Working Group, 2007. Threats are described in the “Threat Analysis” section of this Plan. Rankings are as follows: L = low; M = medium; H = high; and VH = very high. Ranks are defined according to TNC (2005).

Threat	CaCoARM Resource Area							
	Reduced Population Size	Population Distribution	Reduced Lek Habitat Quality	Reduced Nesting/Early Brood-rearing Habitat Quality	Reduced Summer/Late Brood-rearing Habitat Quality	Reduced Winter Habitat Quality	Reduced Connectivity of Seasonal Habitat Types	Reduced Connectivity of Populations & Sub-populations
Hindrance of ability to maintain local management	M	M	M	M	M	M	M	M
Power lines, Fences, & Other Tall Structures	M	M	H	M	M	M	M	M
Oil and Gas Development	M	M	M	M	M	M	M	M
Roads	L	M	M	M	L	M	H	H
Prolonged drought and or extreme Weather shifts	L	-	L	H	H	H	-	-
Lack of proper range management	L	L	M	M	M	M	M	M
Incompatible Fire Management Practices	-	H	H	H	H	H	H	M
Incompatible Livestock Grazing (domestic and wild ungulate)	-	L	L	H	H	L	-	-
OHV Recreation	-	M	H	M	M	L	L	L
Invasive/Noxious Weeds	-	M	M	VH	VH	H	M	L
Parasites and Disease	H	H	-	-	-	-	-	-
Predation	VH	H	-	-	-	-	-	-
Vegetation Management	-	-	H	H	H	H	H	M
Pinyon-Juniper and shrubby species	-	M	H	M	M	H	H	H

Encroachment								
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d. Status of Conservation Strategies and Actions

CoCaARM participants identified several conservation strategies and actions that could be implemented to enhance greater sage-grouse populations. Here CoCaARM partners report on specific actions completed or addressed in 2006/2007 but also identified steps to be taken to implement additional actions into subsequent years of the plan. If a strategy or an action number is missing from this report; it means that no action(s) were taken in 2006/2007 towards its completion. To access a copy of the CoCaARM conservation plan visit the following web site address: http://utahcbcp.org/files/uploads/carbon/CaCoARM_final-01-07.pdf The CoCaARM LWG will be reviewing and updating their Plan in early 2009

1. **Strategy** By 2011, make an assessment of pinyon/juniper stands in key sage-grouse habitat throughout the resource area.
 - 1.1. **Action** Revisit and make recommendations to treat or retreat as needed pinyon/juniper removal sites (west Tavaputs, Horn Mountain, Price airport (West) benches, Gordon Creek area, Sanpete County area).

Status: CaCoARM partners have made treatment plans and made assessments (lop and scatter, hand thinning) in West Tavaputs and Gordon Creek. These projects will be proposed and entered into the Utah Partners for Conservation and Development (UPCD) database.

2. **Strategy:** By 2011, make an assessment of non-desirable vegetative species in sage-grouse habitats.
 - 2.1. **Action** Review and monitor all vegetative sampling data collected by all partners and monitor as needed.

Status: Skyline (Cooperative Weed Management Association) CWMA surveyed musk thistle and hounds tongue in the Emma Park area to determine encroachment.
 - 2.2. **Action** Avoid using fire in sage-grouse habitats prone to invasion by cheatgrass or other invasive weed species.

Status: No fires were used as treatments in areas prone to invasive species.
 - 2.3. **Action** Evaluate all wildfires and prescribed burns and reseed with species that are adapted to the site and/or competitive with non-desirable plants.

Status: BLM evaluated subscribed fires specifically the Mathis Fire (wild fire) reseeded and re-seeding on private ground. All disturbed areas were reseeded.

3. **Strategy:** By 2011, assess mesic vegetation sites and identify potential new water projects.
 - 3.1. **Action** Identify key elements of various water/erosion projects by developing partnerships to work cooperatively to maintain existing water sources (natural and or man made) and control erosion.

Status: No action taken in 2007.
 - 3.2. **Action** Identify key elements of various water projects by developing partnerships to work cooperatively to develop new water sources.

Status: Canyon Fuel Company, LLC SUFCO Mine and USFS are developing water in the Wildcat area. USU will be evaluating the project.
 - 3.3. **Action:** Work with the NRCS and private partners to develop NRCS, WHIP, and EQIP projects that would increase mesic sites and brood-rearing habitat quality in the Resource Area.

Status: No action taken in 2007.

3.4. Action: Work with agency partners to develop projects that would increase mesic sites and brood-rearing habitat quality in the Resource Area.

Status: Canyon Fuel Company, LLC SUFCO Mine and USFS are developing water in the Wildcat area. USU will be evaluating the project.

3.5. Action: Work with private and public partners to monitor effects of water improvement projects on vegetation and sage-grouse habitat use.

Status: Initiated and ongoing.

3.6. Action: During times of drought, coordinate with public and private partners to maintain water available for sage-grouse during late summer and early fall in areas used by sage-grouse during this time.

Status: Initiated and ongoing.

4. Strategy Through 2016, identify key public/SITLA and private lands in the Resource Area (specific locations to be selected) that are recognized by the group as critical to be protected and/or managed to effectively conserve/improve sage-grouse nesting/brood rearing habitat.

4.1. Action: Encourage the use of group defined, desired conditions for state and federal lands and influence management actions in order to move toward those conditions.

Status: Ongoing.

4.2. Action: Support partner efforts for special designations that protect sage-grouse nesting/brood rearing habitat on public/SITLA and private lands.

Status: Ongoing.

4.3. Action: Use available grouse and brood telemetry data to identify key nesting/brood rearing habitat areas within the Emma Park subunit.

Status: UDWR has completed this information in Emma Park and West Tavaputs.

4.4. Action: Support partner efforts to rehabilitate historical nesting/brood rearing habitat within Sanpete subunit.

Status: No action taken in 2007.

4.5. Action: Pursue habitat improvement projects (to meet desired conditions) on public/SITLA and private lands in areas used by sage-grouse for nesting/brood rearing habitat.

Status: Ongoing.

4.6. Action: Identify research needs to address sagebrush treatments at 'lower' elevations where the majority of the nesting/brood rearing activity occurs.

Status: No action taken in 2007.

4.7. Action: Work with the NRCS and private partners to develop NRCS, WHIP, and EQIP projects that would increase nesting/brood rearing habitat quality in the Resource Area.

Status: Ongoing process with all partners in West Tavaputs and other UPCD projects Scofield areas.

4.8. Action: Work with agency partners to develop projects that would increase brood-rearing habitat quality in the Resource Area.

Status: On-going.

4.9. Action Work with private and public partners to monitor effects of habitat improvement projects on vegetation and sage-grouse nesting/brood rearing habitat use.

Status: UDWR has monitored vegetation in some (Nutter Ranch) areas of projects implemented in 2007.

5. Strategy: Through 2016, identify key public/SITLA and private lands in the Resource Area

(specific locations to be selected) that are recognized by the group to be protected and managed to conserve and improve sage-grouse lek areas and habitat.

5.1. Action: Encourage the use of group defined desired conditions for state and federal lands and influence management actions in order to move toward those conditions

Status: On-going.

5.2. Action: Support partner efforts for special designations that protect sage-grouse lek habitat on public/SITLA and private lands.

Status: Ongoing.

5.3. Action: Use available grouse and brood telemetry data to identify key lek habitat areas within the Emma Park subunit.

Status: UDWR has completed(2007) this information in Emma Park, Scofield, and West Tavaputs.

5.4. Action: Support partner efforts to rehabilitate historical lek habitat within Sanpete subunit.

Status: No action taken in 2007.

5.5. Action: Pursue habitat improvement projects (to meet desired conditions) on public/SITLA and private lands in areas used by sage-grouse for lek habitat.

Status: Ongoing.

5.6. Action: Identify research needs to address sagebrush treatments at 'lower' elevations where the majority of the lek activity occurs.

Status: No action taken in 2007.

5.7. Action: Work with the NRCS and private partners to develop NRCS, WHIP, and EQIP projects that would increase lek habitat quality in the Resource Area.

Status: No action taken in 2007.

5.8. Action: Work with agency partners to develop projects that would increase lek habitat quality in the Resource Area.

Status: No action taken in 2007.

5.9. Action: Work with private and public partners to monitor effects of these habitat improvement projects on vegetation and sage-grouse lek habitat.

Status: No action taken in 2007.

6. Strategy: Change lek vegetation conditions to allow for predator recognition and visibility.

6.1. Action: Open lek areas that have been invaded by sagebrush and other shrubs.

Status: Emma Park landowner (Butchers) cleared brush in and around a historical leking area.

6.2. Action: Map and inventory leks with potential for restoration.

Status: On-going. On the Horn Mountain there are historical leks where leking does not occur anymore that need to be evaluated.

6.3. Action: Maintain and enhance desired conditions for leks.

Status: No action taken in 2007.

7. Strategy Increase cooperation and coordination between CaCoARM and public and private partners.

7.1. Action: Work with the NRCS to review and potentially endorse NRCS WHIP and EQIP projects that would benefit sage-grouse in the Resource Area.

Status: Ongoing.

7.2. Action: Continue to work with and identify key landowners within the Resource Area that have sage-grouse or sage-grouse habitat.

Status: Ongoing.

- 8. Strategy:** Increase informational and educational opportunities with local community and CaCoARM partners.
 - 8.1. Action:** By 2008, develop informational handouts about sage-grouse ecology and CaCoARM activities.

Status: Pending. The Community Based Conservation Program (CBCP) newsletter “The Communicator” is currently fulfilling this role.
 - 8.2. Action:** Through 2016, include information about CaCoARM activities in County Extension newsletter.

Status: Ongoing. Meetings are announced in the newsletter.
 - 8.3. Action:** Work with NRCS, UDWR and SCD to schedule spring field tour of habitat management projects on private lands.

Status: Ongoing. The UDWR holds a spring lek viewing opportunities on the Emma Park Road.
 - 8.4. Action:** Coordinate workshops for private partners to share information about habitat enhancement, funding opportunities, and other relevant topics to be identified as needed.

Status: No action taken in 2007.

- 9. Strategy:** Through 2011, work with industries involved in natural resource development within important sage-grouse use areas to minimize impacts.
 - 9.1. Action:** Participate in county planning efforts for natural resource exploration and development to ensure that impacts to biodiversity are minimized.

Status: Ongoing.
 - 9.2. Action:** Evaluate the interest and possibly develop a demonstration garden for the common vegetative species used in restoration.

Status: Ongoing.
 - 9.3. Action:** Cooperate with partners’ planning efforts to minimize impacts on sage-grouse and sage-grouse habitat.

Status: Ongoing. The BLM EIS for West Tavaputs identifies actions to minimize energy development activities on sage-grouse. The LWG has provided input into the process..

- 10. Strategy:** Through 2016, increase population and habitat monitoring efforts for sage-grouse in the Resource Area.
 - 10.1. Action:** Encourage public and private partners to use techniques from Connelly et al. (2003a) “Monitoring of Greater Sage-grouse Habitats and Populations.”

Status: Ongoing.
 - 10.2. Action:** Through 2009, search additional areas (TBD by the group) for new active lek sites.

Status: UDWR biologists surveyed Ford Ridge and the West Tavaputs Wildcat and Horn Mtn. areas.
 - 10.3. Action:** Work with UDWR to enlist and coordinate private volunteers and/or other agency biologists to search for new leks and conduct lek counts on active leks.

Status: Volunteers from the public to search for leks in Ford Ridge and the West Tavaputs.
 - 10.4. Action:** Coordinate with UDWR, public, and private partners to conduct terrestrial lek searches in areas suspected to contain undiscovered active leks. These sites include the area around Scofield Reservoir, portions of the Tavaputs Plateau, and portions of the South Manti populations.

Status: Volunteers from the public to search for leks in Ford Ridge and the West Tavaputs

10.5. Action: Through 2016, test dead sage-grouse for West Nile Virus and any other parasites/pathogens of importance.

Status: On-going. LWG members continue to monitor for dead birds. The UDWR will test birds encountered. No action taken in 2007 because no dead birds were found.

10.6. Action Coordinate with UDWR to conduct aerial surveys in areas (Tavaputs and Scofield areas) suspected to contain undiscovered active leks.

Status: No action taken in 2007.

11. Strategy: By 2016, minimize effects of roads and utilities in areas used by sage-grouse.

11.1. Action: Re-vegetate utility corridors with sage-grouse seed mixes.

Status: Quest Star pipe line was reseeded West Tavaputs. Emma Park roads were reseeded in and around Jensen's Simmons, and Critchlow property. Reclamation and reseeded Emma Park Soldier Creek side.

11.2. Action: Avoid placement of new roads and utilities near (0.25 miles Connelly et al.) lek sites (specific distances should be site specific).

Status: No new well sites were placed in 2007. This will be an on-going process.

11.3. Action: Where possible, install perch deterrents on tall structures located in areas used by sage-grouse.

Status: No perch deterrents were placed in 2007. The decision to use perch deterrents will be made pending review of on-going research in San Juan County.

11.4 Action: Where practical, install low-profile tanks in areas used by sage-grouse.

Status: No tanks were installed in 2007.

12. Strategy: Through 2016, avoid locating homes or cabins within important sage-grouse use areas, within limits of private property rights. When necessary development does occur, work to minimize impacts to biodiversity.

12.1. Action: Participate in county planning efforts for home and cabin development to ensure that biodiversity impacts are minimized.

Status: Ongoing. CaCoARM members participate on planning boards in Carbon and Emery County.

12.2. Action: Educate County planning departments about where important sage-grouse use areas are located.

Status: Ongoing. CaCoARM members work for various planning departments within the county and brief them on sage-grouse and CaCoARM activities and concerns.

12.3. Action: Establish easements or other land protection in crucial habitat.

Status: Ongoing. CaCoARM members work for various planning departments within the county and brief them regarding sage-grouse and CaCoARM activities and concerns.

12.4. Action: Work with county planners and county council to establish zoning ordinances for crucial habitat that protect those areas from inappropriate development.

Status: Ongoing. CaCoARM members work for various planning departments within the county and brief them regarding sage-grouse and CaCoARM activities and concerns.

13. Strategy: Through 2016, avoid locating oil and gas roads or pads near lek sites. Where impacts do occur, implement interim reclamation to well sites as soon as practical.

13.1. Action: Participate in county planning efforts for oil and gas exploration and development to ensure that sage-grouse impacts are minimized.

Status: On-going. See Strategy 12.

13.2. Action: Influence BLM/USFS/SITLA/private enterprise planning efforts to minimize impacts to sage-grouse.

Status: Ongoing process with all partners. BLM EIS for West Tavaputs

14. Strategy: Provide for a use level and management system of domestic livestock grazing that maintains and improves both the long-term stability of sage-grouse populations and habitats and the livestock industry in the Resource Area.

14.1. Action: Coordinate grazing management with livestock operators to reduce negative resource and timing conflicts on leks and prime nesting habitat when possible.

Status: Ongoing process with all partners.

14.2. Action: Apply grazing management practices to achieve desired conditions including maintenance of residual herbaceous vegetation appropriate for the site.

Status: Ongoing process with all partners.

14.3. Action: Encourage implementation of grazing systems that provide for areas and times of deferment, while taking into consideration the resource capabilities and needs of the livestock operator.

Status: Ongoing process with all partners.

15. Strategy: Maintain and, where possible, improve the perennial forb component in the understory.

15.1. Action: Reclaim and/or reseed areas disturbed by treatments using seed mixtures high in native bunch grasses and desirable forbs.

Status: On-going. For example UDWR and USFS reseed P/J push on Wildcat bench,

15.2. Action: Restore understory vegetation in areas lacking desirable quality and quantity of herbaceous vegetation where economically feasible.

Status: See Action 15.1

15.3 Action: Conduct vegetation treatments to improve forb diversity, (e.g., harrowing, aerating, chaining) and reclaim or reseed disturbed area, where appropriate.

Status: BLM treated 10 acres in West Tavaputs by Bill Barrett Corp. (hand removal of encroaching p/j) as part of a mitigation requirement by BLM.

15.4. Action: Develop management techniques to increase forb diversity and density in sagebrush steppe, within limits of ecological sites and annual variations.

Status: Ongoing with all partners.

16. Strategy: Minimize the amount of quality sage-grouse habitat eliminated by residential and commercial land development consistent with private property rights.

16.1. Action: Participate with County land-use decision makers in identifying key sage-grouse habitats.

Status: No action taken in 2007

16.2. Action: Maintain sagebrush environments of sufficient size and shape around developments in sage-grouse habitat.

Status: No action taken in 2007.

16.3. Action: Encourage the voluntary use of conservation easements and other land protection vehicles with willing sellers in sage-grouse habitats.

Status: No action taken in 2007.

16.4. Action: Educate rural residents about the importance of good grazing management in keeping small tracts weed free and capable of providing habitat for wildlife.

Status: No action taken in 2007.

- 17. Strategy:** Minimize the impact of excessive predation, especially in areas used by sage-grouse for nesting and brood-rearing.
- 17.1. Action:** Plan and conduct research to determine the population-level effects of predation on sage-grouse.
Status: No action taken in 2007.
- 17.2. Action:** Where sage-grouse population-level effects from predation are clearly identified, plan and implement site-specific predation management as necessary. Incorporate a monitoring plan to determine success.
Status: USDA Wildlife Services conducts predator control in areas determined by the UDWR.
- 17.3. Action:** Support efforts of USDA-WS to remove coyotes, red foxes, and ravens in areas used by sage-grouse for nesting and brood-rearing during spring and early summer.
Status: On-going.
- 17.4. Action:** Modify power lines and wood fence posts (to remove raptor perches) in important sage-grouse areas where feasible and where predator concerns have been identified.
Status: No action taken in 2007.
- 17.5. Action:** Remove trees, remove/modify raptor perches, and maintain quality sagebrush habitat where predation concerns on sage-grouse have been identified.
Status: No action taken in 2007.
- 17.6. Action:** Begin site-specific predation management considering all predator species (especially common ravens and red fox) where necessary and appropriate.
Status: USDA Wildlife Services has implemented raven work in Emma Park. Predator control actions are coordinated with the UDWR.
- 17.7. Action:** Work with partners to identify additional sources of funding to continue current predator removal efforts.
Status: No action taken in 2007.
- 18. Strategy** By 2011, make an assessment of pinyon/juniper stands in key sage-grouse habitat throughout the resource area.
- 18.1 Action** Revisit and make recommendations to treat or retreat as needed pinyon/juniper removal sites (West Tavaputs, Horn Mountain, Price airport (West) benches, Gordon Creek area, Sanpete County area).
Status: CaCoARM partners have made treatment plans and made assessments (lop and scatter, hand thinning) in West Tavaputs and Gordon Creek. These projects will be proposed and entered into the Utah Partners for Conservation and Development (UPCD) database.
- 19. Strategy:** By 2011, make an assessment of non-desirable vegetative species in sage-grouse habitats.
- 19.1 Action** Review and monitor all vegetative sampling data collected by all partners and monitor as needed.
Status: Skyline (Cooperative Weed Management Association) CWMA surveyed musk thistle and hounds tongue in the Emma Park area to determine encroachment.
- 19.2 Action** Avoid using fire in sage-grouse habitats prone to invasion by cheatgrass or other invasive weed species.
Status: No fires were used as treatments in areas prone to invasive species.
- 19.3 Action** Evaluate all wildfires and prescribed burns and reseed with species that are

adapted to the site and/or competitive with non-desirable plants.

Status: BLM evaluated subscribed fires specifically the Mathis Fire (wild fire) reseeded and re-seeding on private ground. All disturbed areas were reseeded.

20. Strategy: By 2011, assess mesic vegetation sites and identify potential new water projects.

20.1 Action Identify key elements of various water/erosion projects by developing partnerships to work cooperatively to maintain existing water sources (natural and or man made) and control erosion.

Status: No action taken in 2007.

20.2. Action Identify key elements of various water projects by developing partnerships to work cooperatively to develop new water sources.

Status: Suffco and USFS are developing water in the Wildcat area.

20.3. Action: Work with the NRCS and private partners to develop NRCS, WHIP, and EQIP projects that would increase mesic sites and brood-rearing habitat quality in the Resource Area.

Status: No action taken in 2007.

20.4. Action: Work with agency partners to develop projects that would increase mesic sites and brood-rearing habitat quality in the Resource Area.

Status: Suffco and USFS are developing water in the Wildcat area.

20.5. Action: Work with private and public partners to monitor effects of water improvement projects on vegetation and sage-grouse habitat use.

Status: No action taken in 2007.

20.6. Action: During times of drought, coordinate with public and private partners to maintain water available for sage-grouse during late summer and early fall in areas used by sage-grouse during this time.

Status: No action taken in 2007.

21. Strategy Through 2016, identify key public/SITLA and private lands in the Resource Area (specific locations to be selected) that are recognized by the group as critical to be protected and/or managed to effectively conserve/improve sage-grouse nesting/brood rearing habitat.

21.1. Action: Encourage the use of group defined, desired conditions for state and federal lands and influence management actions in order to move toward those conditions.

Status: Ongoing process with all partners.

21.2. Action: Support partner efforts for special designations that protect sage-grouse nesting/brood rearing habitat on public/SITLA and private lands.

Status: Ongoing process with all partners.

21.3. Action: Use available grouse and brood telemetry data to identify key nesting/brood rearing habitat areas within the Emma Park subunit.

Status: UDWR has completed this information in Emma Park and West Tavaputs.

21.4. Action: Support partner efforts to rehabilitate historical nesting/brood rearing habitat within Sanpete subunit.

Status: Ongoing.

21.5. Action: Pursue habitat improvement projects (to meet desired conditions) on public/SITLA and private lands in areas used by sage-grouse for nesting/brood rearing habitat.

Status: Ongoing process with all partners.

21.6. Action: Identify research needs to address sagebrush treatments at 'lower' elevations where the majority of the nesting/brood rearing activity occurs.

Status: No action taken in 2007.

21.7. Action: Work with the NRCS and private partners to develop NRCS, WHIP, and EQIP projects that would increase nesting/brood rearing habitat quality in the Resource Area.

Status: Ongoing process with all partners in West Tavaputs and other UPCD projects Scofield areas.

21.8. Action: Work with agency partners to develop projects that would increase brood-rearing habitat quality in the Resource Area.

Status: Ongoing process with all partners.

21.9. Action: Work with private and public partners to monitor effects of habitat improvement projects on vegetation and sage-grouse nesting/brood rearing habitat use.

Status: UDWR has monitored vegetation in some (Nutter Ranch) areas of projects implemented in 2007.

22. Strategy: Through 2016, identify key public/SITLA and private lands in the Resource Area (specific locations to be selected) that are recognized by the group to be protected and managed to conserve and improve sage-grouse lek areas and habitat.

22.1. Action: Encourage the use of group defined desired conditions for state and federal lands and influence management actions in order to move toward those conditions

Status: Ongoing process with all partners.

22.2. Action: Support partner efforts for special designations that protect sage-grouse lek habitat on public/SITLA and private lands.

Status: Ongoing process with all partners.

22.3. Action: Use available grouse and brood telemetry data to identify key lek habitat areas within the Emma Park subunit.

Status: UDWR has completed (2007) this information in Emma Park, Scofield, and West Tavaputs.

22.4. Action: Support partner efforts to rehabilitate historical lek habitat within Sanpete subunit.

Status: Pending.

22.5. Action: Pursue habitat improvement projects (to meet desired conditions) on public/SITLA and private lands in areas used by sage-grouse for lek habitat.

Status: On going process with all partners.

22.6. Action: Identify research needs to address sagebrush treatments at 'lower' elevations where the majority of the lek activity occurs.

Status: No action taken in 2007.

22.7. Action: Work with the NRCS and private partners to develop NRCS, WHIP, and EQIP projects that would increase lek habitat quality in the Resource Area.

Status: No action taken in 2007.

22.8. Action: Work with agency partners to develop projects that would increase lek habitat quality in the Resource Area.

Status: No action taken in 2007.

22.9. Action: Work with private and public partners to monitor effects of these habitat improvement projects on vegetation and sage-grouse lek habitat.

Status: No action taken in 2007.

23. Strategy: Change lek vegetation conditions to allow for predator recognition and visibility.

- 23.1. Action:** Open lek areas that have been invaded by sagebrush and other shrubs.
Status: Emma Park landowner (Butchers) cleared brush in and around a historical leking area.
- 23.2. Action:** Map and inventory leks with potential for restoration.
Status: On the Horn Mtn. there are historical leks where leking does not occur anymore that need to be evaluated.
- 23.3. Action:** Maintain and enhance desired conditions for leks.
Status: No action taken in 2007.
- 24. Strategy** Increase cooperation and coordination between CaCoARM and public and private partners.
- 24.1. Action:** Work with the NRCS to review and potentially endorse NRCS WHIP and EQIP projects that would benefit sage-grouse in the Resource Area.
Status: Ongoing process with all partners.
- 24.2. Action:** Continue to work with and identify key landowners within the Resource Area that have sage-grouse or sage-grouse habitat.
Status: Ongoing process with all partners.
- 25. Strategy:** Increase informational and educational opportunities with local community and CaCoARM partners.
- 25.1. Action:** By 2008, develop informational handouts about sage-grouse ecology and CaCoARM activities.
Status: Community Based Conservation Program (CBCP) newsletter.
- 25.2. Action:** Through 2016, include information about CaCoARM activities in County Extension newsletter.
Status: No action taken in 2007.
- 25.3. Action:** Work with NRCS, UDWR and SCD to schedule spring field tour of habitat management projects on private lands.
Status: UDWR holds a spring lek viewing opportunities on the Emma Park Road.
- 25.4. Action:** Coordinate workshops for private partners to share information about habitat enhancement, funding opportunities, and other relevant topics to be identified as needed.
Status: No action taken in 2007.
- 26. Strategy:** Through 2011, work with industries involved in natural resource development within important sage-grouse use areas to minimize impacts.
- 26.1. Action:** Participate in county planning efforts for natural resource exploration and development to ensure that impacts to biodiversity are minimized.
Status: Ongoing process with all partners.
- 26.2. Action:** Evaluate the interest and possibly develop a demonstration garden for the common vegetative species used in restoration.
Status: Ongoing process with all partners.
- 26.3. Action:** Cooperate with partners' planning efforts to minimize impacts on sage-grouse and sage-grouse habitat.
Status: Ongoing process with all partners. BLM EIS for West Tavaputs
- 27. Strategy:** Through 2016, increase population and habitat monitoring efforts for sage-grouse in the Resource Area.
- 27.1. Action:** Encourage public and private partners to use techniques from Connelly et al.

(2003a) “Monitoring of Greater Sage-grouse Habitats and Populations.”

Status: On going process with all partners

27.2. Action: Through 2009, search additional areas (TBD by the group) for new active lek sites.

Status: UDWR surveyed Ford Ridge and the West Tavaputs Wildcat and Horn Mtn. areas.

27.3. Action: Work with UDWR to enlist and coordinate private volunteers and/or other agency biologists to search for new leks and conduct lek counts on active leks.

Status: Volunteers from the public to search for leks in Ford Ridge and the West Tavaputs.

27.4. Action: Coordinate with UDWR, public, and private partners to conduct terrestrial lek searches in areas suspected to contain undiscovered active leks. These sites include the area around Scofield Reservoir, portions of the Tavaputs Plateau, and portions of the South Manti populations.

Status: Volunteers from the public to search for leks in Ford Ridge and the West Tavaputs

27.5. Action: Through 2016, test dead sage-grouse for West Nile Virus and any other parasites/pathogens of importance.

Status: No action taken in 2007 because no dead birds were found.

27.6. Action Coordinate with UDWR to conduct aerial surveys in areas (Tavaputs and Scofield areas) suspected to contain undiscovered active leks.

Status: No action taken in 2007.

28. Strategy: By 2016, minimize effects of roads and utilities in areas used by sage-grouse.

28.1. Action: Re-vegetate utility corridors with sage-grouse seed mixes.

Status: Quest Star pipe line was reseeded West Tavaputs. Emma Park roads were reseeded in and around Jensen’s Simmons, and Critchlow property. Reclamation and reseeded Emma Park Soldier creek side.

28.2. Action: Avoid placement of new roads and utilities near (0.25 miles Connelly et al.) lek sites (specific distances should be site specific).

Status: No new well sites in 2007 ongoing process.

28.3. Action: Where possible, install perch deterrents on tall structures located in areas used by sage-grouse.

Status: No perch deterrents were installed in 2007.

28.4 Action: Where practical, install low-profile tanks in areas used by sage-grouse.

Status: No tanks installed in 2007

29. Strategy: Through 2016, avoid locating homes or cabins within important sage-grouse use areas, within limits of private property rights. When necessary development does occur, work to minimize impacts to biodiversity.

29.1. Action: Participate in county planning efforts for home and cabin development to ensure that biodiversity impacts are minimized.

Status: Ongoing

29.2. Action: Educate County planning departments about where important sage-grouse use areas are located.

Status: Ongoing.

29.3. Action: Establish easements or other land protection in crucial habitat.

Status: Ongoing

29.4. Action: Work with county planners and county council to establish zoning ordinances for crucial habitat that protect those areas from inappropriate development.

Status: Ongoing

- 30. Strategy:** Through 2016, avoid locating oil and gas roads or pads near lek sites. Where impacts do occur, implement interim reclamation to well sites as soon as practical.
- 30.1. Action:** Participate in county planning efforts for oil and gas exploration and development to ensure that sage-grouse impacts are minimized.
Status: Ongoing
- 30.2. Action:** Influence BLM/USFS/SITLA/private enterprise planning efforts to minimize impacts to sage-grouse.
Status: Ongoing process with all partners. BLM EIS for West Tavaputs
- 31. Strategy:** Provide for a use level and management system of domestic livestock grazing that maintains and improves both the long-term stability of sage-grouse populations and habitats and the livestock industry in the Resource Area.
- 31.1. Action:** Coordinate grazing management with livestock operators to reduce negative resource and timing conflicts on leks and prime nesting habitat when possible.
Status: Ongoing process with all partners.
- 31.2. Action:** Apply grazing management practices to achieve desired conditions including maintenance of residual herbaceous vegetation appropriate for the site.
Status: Ongoing process with all partners.
- 31.3. Action:** Encourage implementation of grazing systems that provide for areas and times of deferment, while taking into consideration the resource capabilities and needs of the livestock operator.
Status: Ongoing process with all partners.
- 32. Strategy:** Maintain and, where possible, improve the perennial forb component in the understory.
- 32.1. Action:** Reclaim and/or reseed areas disturbed by treatments using seed mixtures high in native bunch grasses and desirable forbs.
Status: P/J push reseeded Wildcat bench
- 32.2. Action:** Restore understory vegetation in areas lacking desirable quality and quantity of herbaceous vegetation where economically feasible.
Status: P/J push reseeded Wildcat bench
- 32.3. Action:** Conduct vegetation treatments to improve forb diversity, (e.g., harrowing, aerating, chaining) and reclaim or reseed disturbed area, where appropriate.
Status: BLM treated 10 acres in West Tavaputs by Bill Barrett Corp. (hand removal of encroaching p/j) as part of a mitigation requirement by BLM.
- 32.4. Action:** Develop management techniques to increase forb diversity and density in sagebrush steppe, within limits of ecological sites and annual variations.
Status: Ongoing with all partners.
- 33. Strategy:** Minimize the amount of quality sage-grouse habitat eliminated by residential and commercial land development consistent with private property rights.
- 33.1. Action:** Participate with County land-use decision makers in identifying key sage-grouse habitats.
Status: Ongoing
- 33.2. Action:** Maintain sagebrush environments of sufficient size and shape around developments in sage-grouse habitat.

Status: Ongoing

33.3. Action: Encourage the voluntary use of conservation easements and other land protection vehicles with willing sellers in sage-grouse habitats.

Status: Ongoing

33.4. Action: Educate rural residents about the importance of good grazing management in keeping small tracts weed free and capable of providing habitat for wildlife.

Status: Ongoing

34. Strategy: Minimize the impact of excessive predation, especially in areas used by sage-grouse for nesting and brood-rearing.

34.1. Action: Plan and conduct research to determine the population-level effects of predation on sage-grouse.

Status: No action taken in 2007.

34.2. Action: Where sage-grouse population-level effects from predation are clearly identified, plan and implement site-specific predation management as necessary. Incorporate a monitoring plan to determine success.

Status: Wildlife Services Actions within the Resource area (Brad Crompton to summarize 07/08).

34.3. Action: Support efforts of USDA-WS to remove coyotes, red foxes, and ravens in areas used by sage-grouse for nesting and brood-rearing during spring and early summer.

Status: Ongoing support by partners.

34.4. Action: Modify power lines and wood fence posts (to remove raptor perches) in important sage-grouse areas where feasible and where predator concerns have been identified.

Status: No action taken in 2007.

34.5. Action: Remove trees, remove/modify raptor perches, and maintain quality sagebrush habitat where predation concerns on sage-grouse have been identified.

Status: No action taken in 2007.

34.6. Action: Begin site-specific predation management considering all predator species (especially common ravens and red fox) where necessary and appropriate.

Status: Wildlife Services Actions within the Resource area (Brad Crompton to summarize 07/08). Some raven work in Emma Park.

34.7. Action: Work with partners to identify additional sources of funding to continue current predator removal efforts.

Status: No action taken in 2007.

e. Habitat Improvements and Completed Conservation Actions

The UDWR, in conjunction with UPCD, has implemented several habitat improvement projects in the Resource Area targeted at restoring or enhancing sage-grouse habitat. Prior to Plan completion, in 2004, approximately 1200 acres of habitat in the Resource Area were treated and 3760 acres were treated in 2005. Treatments were designed to enhance native grass/forb cover in the understory or restoring areas where big sagebrush had died off because of an extended drought. Additional habitat improvement projects were planned in 2006-2007. The UDWR anticipated treating 6532 acres in the Resource Area in 2006. The acreage and general location of habitat improvement projects completed by the end of 2007 in the CoCaARM can be found in Table 10. The location of habitat improvement projects completed in the CoCaARM LWG area is provided in Figure 7.

Table 10. Habitat improvement projects completed to mitigate sage-grouse threats identified by the Castle Country Adaptive Resources Management Sage-grouse Local Working Group 2005-2007.

ID	Region	FY start	FY complete	Project Title	Treatment type	Threat code	Acres
513	SER	2006	2006	Gordon Creek Roller Chopping	mechanically treat encroaching PY	21	199
229	SER	2004	2005	Price West Benches Porphyry Bench	re-seed and aerate dead sagebrush	5 ,18	1096
228	SER	2004	2005	Price West Benches Consumers/airport	re-seed and aerate dead sagebrush	2,5,18	2657
17	SER	2005	2006	Lower Fish Creek sagr habitat improvement	prescribed burn dixie harrow	1,2,9,15,18	417
762	SER	2007		Cedar Bench P/J Pushover Maintenance	apply velpar to individual trees	21	537

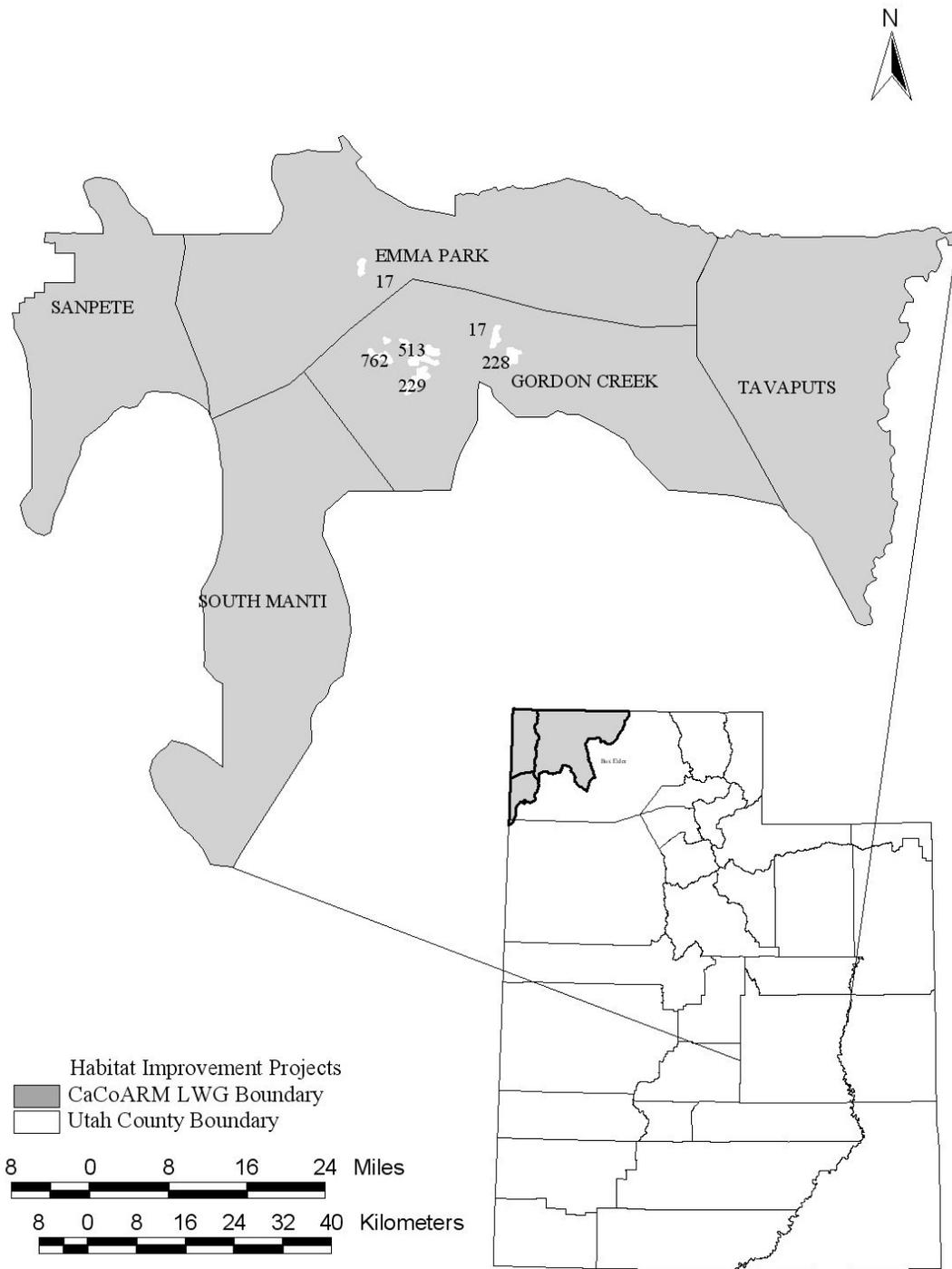


Figure 7. Location of habitat improvement projects completed to mitigate sage-grouse threats identified by the Castle Country Adaptive Resources Management Sage-grouse Local Working Group, 2004-2007.

3. Color Country Adaptive Resources Management (CCARM) Sage-grouse Local Working Group

The Color Country Adaptive Resources Management (CCARM) Sage-grouse Local Working Group was organized in 2004 by Mr. Todd A. Black and Dr. S. Nicole Frey. Dr. Frey and Sarah G. Lupis served as the technical writers of the Plan itself. CCARM is comprised of state and federal agency personnel, representatives from local government, non-profit organizations, academic institutions, private industry, and private individuals.

a. Local Legal Authority

The Board of Commissions for counties in the Resource Area serves as the executive and legislative branches of local government. They have the authority to: 1) protect and promote the health, welfare, and safety of the people; 2) regulate land use, land planning, and quality and protection of natural resources; and 3) has duly adopted regulations and policies to exercise such authorities including the review and approval or denial of proposed activities and uses of land and natural resources. Currently, Garfield and Kane County Commissioners are rewriting their resource management plan. The following information was excerpted from Garfield County's Draft Resource Management Plan:

1. Garfield County desires to have effective coordination, formal participation and cooperation with agencies in planning endeavors as well as site-specific project implementation.
2. Garfield County will maintain a Public Lands/Natural Resources Committee, appointed by the County Commission. Public Land/Natural Resources Committee membership will provide information and expertise to the County Commissioners.
3. Garfield County desires to have professional, regular, and productive communication with all land management agencies. It is the County's desire to continue with improving the productivity of agency/county communication.
4. Garfield County desires to be provided the opportunity to enter into formal partnerships and agreements with land management agencies on all proposed projects that would affect the County.
5. Garfield County desires that traditional resource-based industries and activities return to a more balanced sustained-yield/multiple-use philosophy as described in specific resource chapters.
6. Garfield County desires to partner with land management agencies to maximize opportunities for traditional natural resource based industries as described in resource-specific chapters addressing traditional industries.

b. Status of Local Population

Plan Area

The Color Country Resource Area (Resource Area) is located in south-central Utah in Piute, Garfield, Sevier, and Kane counties (Figure 1). The Resource Area encompasses 4,956,258.7 acres. The majority of the Resource Area is managed by the USFS, BLM, the state of Utah, and private landowners. The Resource Area is defined by regional land features and habitat to the north and northeast, the Colorado River to the east, the Arizona to the south, and regional land features to the west. The Resource Area has been subdivided into three subunits, corresponding to sage-grouse breeding complexes. These breeding complexes are based on geographic boundaries and groupings of leks. Although movement between complexes is likely, the complexes represent discrete subpopulations of sage-grouse in the Resource Area. Precipitation ranges from 5-10 inches across the Resource Area, most of it falling during the winter months. Temperatures also vary greatly across the region. Piute County, in the northern portion of the Resource Area, has an average temperature in July of 85°F, while in Garfield County, to the south, the average temperature in July is 66°F.

Landownership

Much of the Resource Area is managed by the federal government (Table 11). For example, in Garfield County 43% of the land is managed by the BLM and 31% by the USFS, with only 4% of the counties land owned by private residents. In Kane County, over 80% of the land is federally owned while approximately 10% is privately owned. Much of the eastern portion of the Resource Area includes national parks and monuments, and has little sage-grouse habitat.

Table 11. Landownership in Utah's Color Country Adaptive Management Sage-grouse Local Working Group Resource Area, 2007.

Landowner	Area (acres)	% of Resource Area
Bureau of Land Management	2,410,369	50
BLM Wilderness	21410.3	< 1
National Recreation Areas	514719.2	11
Native American Tribes	543.99	< 1
National Park Service	76,124	2
Private	406,477.9	8
State of Utah	185,941	4
US Forest Service	1,160,209	24
Water	75836	2

Sage-grouse Population Status and Distribution

Sage-grouse populations in the Color County area have been variable in recent history. In the study area, a review of three lek clusters defined by the region of their location, illuminates the fluctuations evident in sage-grouse populations (Figure 8). However, it is clear that two of the three illustrated lek clusters have experienced an obvious downward trend over the last 20 years. Alton Sink Valley has historically never had a large number of males in attendance. With

steadily lower numbers, there is concern that this lek could blink out of existence if current trends persist. All three lek groups experienced a decline in attendance in 2002 and 2003 presumably due to extreme drought conditions in the region.

Many of the leks are located in Panguitch Valley in the center of the Resource Area. Their distribution in the Resource Area is limited by natural habitat conditions that are unsuitable for sage-grouse. In 1999, the UDWR mapped the extent of seasonal habitat types present in the Resource Area. These maps can be found in the LWG Plan.

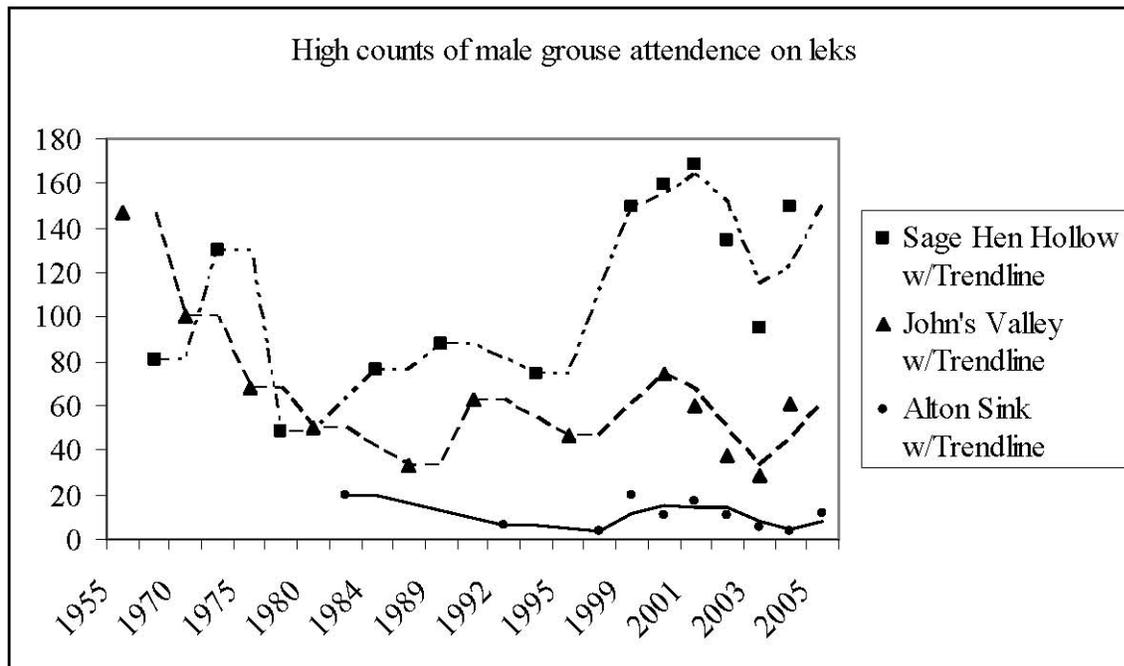


Figure 8. Male grouse attendance counts at each lek cluster in the Color Country Adaptive Resources Management Sage-grouse Local Working Group Resource Area, 1955-2005. The trend line represents a 5-year moving average.

c. Key Ecological Indicators and Threats

In a step-wise fashion, CCARM participants identified key ecological aspects (KEAs) of sage-grouse ecology and biology and associated indicators (to measure KEAs), determined and ranked the range of variation for each KEA, and assessed the current and desired conditions for each KEA (Table 12). They then identified and ranked potential threats (Table 13).

Table 12. Greater sage-grouse key ecological aspects identified in Utah's Kane, Garfield, Sevier, and Piute Counties, Color County Adaptive Resources Management Sage-grouse Local Working Group, 2007. The 'Key Attribute' and 'Indicator' cells' are those defined by Greater Sage-grouse guidelines (Connelly et al 2000). The shaded cells represent the current condition as recorded by local working group members of a particular attribute and indicator as it relates to sage-grouse habitat and life history requirements.

Resource	Area Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Current Indicator Status	Current Rating	Desired Rating	Date of Current rating	Date for re-evaluation
Color Country	Landscape Context	Connectivity of key habitat types	Condition of surrounding natural vegetation	isolated patches of sage-grouse habitat; encroachment by invasive species and/or development; or area heavily disturbed	<i>healthy habitat patchily distributed; adjustment of disturbance regimes may restore most of the communities to a desired quality</i>	healthy sagebrush community fairly distributed throughout the study area and/or disturbance regimes not in place in all areas to maintain a healthy community	healthy sagebrush community well distributed with disturbance regimes in place to maintain this community	Good	Fair	Good	Feb-06	TBD
Color Country	Landscape Context	Connectivity of Sagebrush Communities	Distance to other suitable or potential habitat	Disjointed small patches of habitat isolated from other patches and many barriers to grouse movements between communities.	Small patches of habitat isolated from other patches or there are many barriers to grouse movements between communities	<i>Large patches of habitat are becoming fragmented, barriers to grouse movements are increasing</i>	<i>Communities consist of large tracts of unbroken habitat and few barriers limiting sage-grouse movements between communities</i>	Good	Good	Very Good	Feb-06	TBD
Color Country	Landscape Context	Landscape pattern and structure	Diverse age class distribution of sagebrush-steppe habitat and understory. Full range of sagebrush community species across landscape.	Majority of sagebrush is mature and decadent with little to no understory	Large tracts of sagebrush of a single age-class with limited community diversity	<i>Large tracts of sagebrush of a few age-classes or has a wide distribution of age-classes with limited understory and vegetative diversity</i>	Wide distribution of sagebrush age-classes with productive understory and wide diversity of sagebrush community plant species	Good	Good	Good	Feb-06	TBD
Color Country	Condition	Breeding Quality (Leks and nesting)	Proximity to sagebrush/cover and openness on lek; nesting/early brood rearing habitat quality	lek locations and breeding habitat are highly disturbed; immediately adjacent habitat not acceptable for nesting/breeding	lek locations and breeding habitat have some disturbance and brood-rearing habitat not adjacent to lek location.	<i>Lek locations and breeding habitat are in adequate condition; brood-rearing habitat not adjacent to lek location.</i>	Active lek locations are in close proximity to nesting and brood-rearing habitat; brood-rearing habitat has diverse composition with access to water/moisture; brood-rearing habitat adjacent to lek location	Good	Good	Good	Feb-06	TBD
Color Country	Condition	Summer/Late brood-rearing habitat quality	Sage canopy cover; height, and composition	High predation mortality; little to no grass/forbs; sagebrush and shrubs sparse.	<i>Average predation mortality (by research reports); grass/forbs <10% of habitat</i>	<i>Average predation mortality (by research reports); grass/forb 10 - 15% of habitat</i>	Low predation mortality; grass/forb >15% of habitat.	Good	Fair	Good	Feb-06	TBD

Color Country	Condition	Winter Habitat Quality	Sagebrush canopy cover and height	canopy cover <10%; sagebrush decadent	canopy cover 10 - 15%; sagebrush in poor condition or under 12"	canopy cover 15 - 20%; age stand diversity includes many patches of decadent sagebrush	canopy cover >20%; mosaic age stand diversity	Good	Good	Very Good	Feb-06	TBD
Color Country	Size	Population Distribution	Distribution of leks	few leks within 1 focus area or clumped in one portion of the focus area	active leks well distributed in 1 or 2 of the focus areas but other focus areas are in poor condition	active leks well distributed throughout all focus areas	active leks well distributed throughout all focus areas; new leks found/ historic leks re-established	Good	Good	Very Good	Feb-06	TBD
Color Country	Size	Population Size	number of known active leks	<50% of all known leks are active	50 - 70% of all known leks are active	70 - 90% of all known leks are active	90% of all known leks are active	Good	Good	Very Good	Feb-06	TBD
Color Country	Size	Population Size	Number of males counted on active leks	<150 males total among all leks	150 - 225 males total among all leks	226 - 300 males total among all leks	>300 males total among all leks	Good	Fair	Good	Feb-06	TBD

Table 13. Relative importance/contribution of threats to sage-grouse populations in Utah’s Kane, Garfield, Sevier, and Piute Counties, Color Country Adaptive Resources Management (CCARM) Sage-grouse Local Working Group, 2007. Threats are described in the “Threat Analysis” section of this Plan. Ranks are defined according to TNC (2005).

Threat	Reduced Population Size	Population Distribution	Reduced Lek Habitat Quality	Reduced Nesting/Early Brood-rearing Habitat Quality	Reduced Summer/Late Brood-rearing Habitat Quality	Reduced Winter Habitat Quality	Reduced Connectivity of Seasonal Habitat Types	Reduced Connectivity of Populations & Sub-populations
Enhanced native and domestic predators	Medium	Low	Low	High	High	Medium	High	High
Recreational use	Medium	Medium	Medium	High	High	High	Medium	Medium
Invasive/alien vegetation species	High	High	Medium	Very High	High	Medium	High	High
Concentrated wildlife and/or livestock use	High	Medium	Medium	High	High	Medium	Medium	Medium
Fire and Vegetation Management	High	Medium	Medium	High	High	High	High	High
Development of roads or utilities	High	Medium	Low	Very High	High	High	High	High
Lack of communication among public parties	Medium	Medium	Low	High	Medium	Medium	Medium	Medium
Diseases and parasites	Medium	Medium	Low	Medium	Medium	Medium	High	High
Alternative Land Uses (mining, wind power, water development)	High	High	Medium	High	High	High	High	High
Dramatic Weather Events	High	Medium	Medium	High	High	High	High	High

d. Status of Conservation Strategies and Actions

CCARM participants identified several conservation strategies and actions that could be implemented to enhance greater sage-grouse populations. Here CCARM partners report on specific actions completed or addressed in 2006/2007 but also identified steps to be taken to implement additional actions into subsequent years of the plan. If a strategy or an action number is missing from this report; it means that no action(s) were taken in 2006/2007 towards its completion. To access a copy of the CCARM conservation plan visit the following web site address: <http://utahcbcp.org/files/uploads/color/CoCARM-finalplan.pdf>. The CCARM LWG will be reviewing and updating their Plan in early 2009

1. **Strategy:** Reduce threat of predators on sage-grouse over ten-year period.
 - 1.1 **Action:** Determine predator community composition and depredation rate.
Status: A study to determine the predator community in Sink Valley was initiated in 2007.
 - 1.2 **Action:** Determine brood-rearing success in each focus area annually.
Status: A radio-telemetry project was initiated in 2005. Within this project we are studying brood-rearing success of collared females. Additionally, we are recording any sighting of broods during the course of conducting telemetry data.
 - 1.3 **Action:** Support current predator management efforts by other groups or agencies in the focus areas

Status: The group supports predator management efforts conducted by USDA/APHIS/WS in the focus areas. Addition management has been requested.

2. **Strategy:** Improve age distribution of plants within sagebrush-steppe communities by 2016.
 - 2.1 **Action:** Identify and prioritize target areas needing improvement.

Status: The group has determined that Sink Valley and Hoyt’s Ranch are the 2 priority areas for sagegrouse conservation.
 - 2.2 **Action:** Coordinate among agencies and landowners to fund implementation of projects and monitoring.

Status: Interagency efforts have resulted in several projects in the Sink Valley area. The BLM initiated a large project which USU Extension has studied. Additionally, NRCS has overseen a landowner project conducted to improve sagebrush.
 - 2.3 **Action:** Monitor the response of sage-grouse to changing habitat conditions.

Status: A radio-telemetry project was initiated in 2005. Inpart, this research project monitors the response of grouse to habitat treatment projects.

3. **Strategy:** Improve water availability and riparian habitat in brood-rearing habitat by 2016.
 - 3.1 **Action:** Survey and evaluate current water sources and needs.

Status: Throughout the CCARM area, DWR and BLM have identified several areas that need habitat improvement to improve water sources.
 - 3.2 **Action:** Consider new water developments that are multi-use and multi-purpose.

Status: NRCS, BLM and UDWR consider new or improved water conditions with each appropriate project. BLM land use permit renewals in this region considered grouse water use.

4. **Strategy:** Increase participation of public and private landowners within the Resource Area.
 - 4.1 **Action:** Develop partnerships with landowners and interest groups to increase visibility of sage-grouse management.

Status: On-going
 - 4.2 **Action step:** Identify regional groups and their contact person.

Status: A list of regional groups was created during a meeting. Several group members assisted in contacting a representative from each group. These people also get emails announcing the next meeting.
 - 4.3 **Action:** Develop fact sheet to distribute to special interest groups.

Status: A fact sheet has been created and is distributed at every “event”, such as the County Fair, Audubon Society Field Day, Upper Sevier Watershed Day, etc. Furthermore, this sheet is provided at any interagency meeting, RC&D meetings, and agency field trips.
 - 4.4. **Action:** Host open houses, field tours, and presentations.

Status: Field tours, organized and initiated by the group, have been conducted several times each year to investigate potential projects or investigate the status of an ongoing project.
 - 4.4 **Action:** Distribute annual reports to local management agencies, county commissioners, and other interested parties.

Status: Annual reports of agency projects are distributed among our group. Additionally, annual reports of research are disseminated at the group meeting as well as post-mailed to county commissioners and other parties.
 - 4.6 **Action:** Proactively seek partnerships when developing new projects.

Status: New projects are presented at each meeting, where discussion and collaboration to assist or improve the project occur.

- 5 Strategy:** Locate and monitor new active lek sites within the Resource Area.
- 5.1 Action:** Survey landowners and land users to determine extent of sage-grouse distribution.
- Status:** Via NRCS employees and county Extension employees, landowners are continuously surveyed to gather sage-grouse locations and habitat use information. This information is gathered at the local working group meetings and entered into the DWR database as well as USU Extensions records.
- 5.2 Action:** Investigate possible new lek sites based on local reports.
- Status:** Independently, group members investigate local reports. This has expanded our information regarding habitat use and distribution, but has not resulted in new lek sites.
- 5.3 Action:** Survey for new lek sites during lek counts and survey historic sites for new activity.
- Status:** Each spring, UDWR employees survey historic sites and possible sites that were reported by landowners for new leks.
- 6. Strategy:** Increase sage-grouse populations using direct management in Resource Area by 2016.
- 6.1 Action:** Evaluate potential of translocation to supplement local populations.
- Status:** This is an active discussion in our group. The group has discussed possibilities of translocation after the Alton Mine has been installed, if necessary, to improve the Sink Valley grouse population.
- 7. Strategy:** Minimize affects of new land developments and/or recreational uses on sage-grouse populations.
- 7.1 Action:** Provide consultations and recommendations for new land developments and/or recreational uses.
- Status:** NRCS is actively engaged in the working group process and utilizes the grouse management plan when assisting with landowner project development.
- 7.2 Action:** Regularly discuss new developments and alternative land uses in management agencies at local working group meetings.
- Status:** The group reports on new developments at each meeting and determines what actions the group should take to support the development or provide comments.
- 7.3. Action:** Involve local county and city planning commissions in meetings.
- Status:** Ongoing.
- 8. Strategy:** Reduce impacts of concentrated wildlife or livestock use of sage-grouse winter and brood-rearing habitat by 2016.
- 8.1 Action:** Identify and prioritize target areas needing improvement.
- Status:** Within the local working group area, BLM, UDWR, NRCS has identified several areas that could respond well to improvements in grazing distribution. These projects have been initiated in 2007.
- 9. Strategy:** Reduce threat of invasive/unwanted plant species in sage-grouse habitat by 2016.
- 9.1 Action:** Remove juniper and pinyon pines from brood-rearing habitat.
- Status:** The BLM initiated a large multi-year project in Sink Valley and Mill Creek to remove invasive juniper and pinyon pines from grouse habitat. Additionally, a landowner has begun a similar project on his property just north of the town of Alton.
- 9.2 Action:** Reduce abundance of unwanted and/or invasive plant species.

9.2.1 **Action step:** Re-seed area after land disturbance such as mechanical treatments, fire, and human development.

Status: UDWR and BLM have grouped together to be more efficient with reseeding efforts post-treatment.

e. Habitat Improvements and Completed Conservation Actions

Over the past several years, the BLM and UDWR participated in several projects to improve degraded areas in an effort to improve sagebrush habitat. Future endeavors will continue to improve sagebrush-steppe habitat conditions, including reducing encroachment by pinyon and juniper trees, improving sagebrush age-class distribution, and improving landscape connectivity (Table 14, Figure 9).

Table 14. Habitat improvement projects implemented to mitigate sage-grouse threats identified by the Color Country Adaptive Resources Management Sage-grouse Local Working Group, 2005-2007.

ID	REGION	FY Start	FY Complete	Project Title	Treatment Type	Threat Code	Acres
53	SR	2006	2006	SITLA Asay Creek Stream enhance	plantings and stream bank stabilization	1, 16	227
458	SR	2007	2007	Tebbs Hollow/Mud spring PJ removal	bobcat brush saw	1, 2, 7	456
340	SR	2006	2006	Bramall Seed Contribution	disk and drill seed	9	114
305	SR	2006	2006	Bunting discretionary seeding	PJ push and re seed	7, 9	122
189	SR	2007	2007	5 mile Hollow sagebrush restoration Y-2	thin lop and scatter PJ with hand crew	1,2, 18	1369
189	SR	2006	2006	5 mile Hollow sagebrush restoration Y-1	thin lop and scatter PJ with hand crew	1,2, 18	1541
188	SR	2006	2006	Alton/Mill Creek sagebrush restoration	thin lop and scatter PJ with hand crew	1, 2, 3, 7, 18	991
121	SR	2007	2007	Sanford Sage-grouse 2	one way harrow broadcast seed	1, 2, 3, 7	488
120	SR	2006	2007	Alton Sink Valley	Bullhog broadcast seeder	1, 2, 3, 7, 18	821
119	SR	2006	2006	P-Hill one-way harrow	two way harrow broadcast seed	1, 2, 7	1784
445	SR	2007	2007	Bramall sage-grouse Year 1	one way harrow broadcast seed	1, 2, 7	2146
882	SR	2005	Pending	Tebbs Hollow P/J project	Bullhog to eliminate encroaching P/J	1, 18	1288
575	SR	2007	Pending	Limekiln drainage	2-way Dixie harrow	1, 2, 7	494

				NE Panguitch	and seeding of black sage		
400	SR	2007	Pending	Deer Creek P/J removal	hand cutting lop and scatter	7	9697
901	SR	2007	Pending	Five Mile Hollow sagebrush restoration Year 3	thin/lop and scatter or bullhog	1,2, 18	6464
900	SR	2007	Pending	Alton/Mill Creek sagebrush Restoration Year 3	thin/lop and scatter or bullhog	1, 2, 3, 7, 18	4248
900	SR	2007	Pending	Alton/Mill Creek sagebrush Restoration Year 3	thin/lop and scatter or bullhog	1, 2, 3, 7, 18	161
883	SR	2007	Pending	Five Mile Habitat Restoration Complex	Dixie harrow, anchor chain, bullhog, thin/lop and	1,2, 18	33925

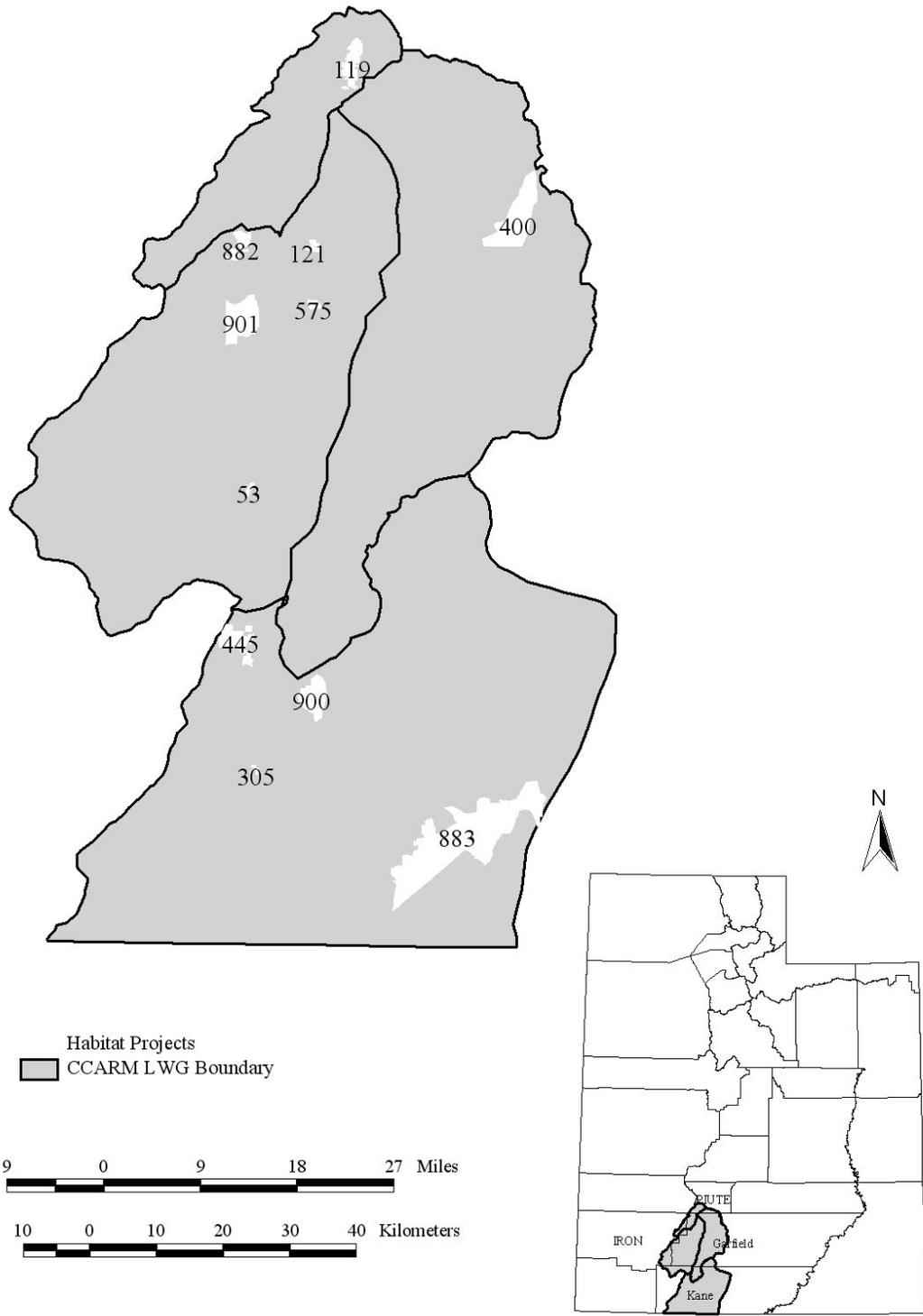


Figure 9. Location of habitat improvement projects completed to mitigate sage-grouse threats, Color Country Adaptive Resources Management Sage-grouse Local Working Group, 2004-2007.

4. Morgan-Summit Adaptive Resources Management (MSARM) Local Sage-grouse Working Group

The Morgan-Summit Adaptive Resources Management Sage-grouse Local Working Group was organized 2005 and facilitated by Sarah G. Lupis. Ms. Lupis also served as the technical writer and compiler of the Plan itself. MSARM is comprised of state and federal agency personnel, representatives from local government, non-profit organizations, academic institutions, private industry, and private individuals.

a. Local Legal Authority

The Morgan and Summit County Commissions serve as the executive and legislative branches of local government. They have the authority to; 1) protect and promote the health, welfare, and safety of the people of Morgan and Summit counties, 2) regulate land use, land planning, and quality and protection of natural resources; and 3) has duly adopted regulations and policies to exercise such authorities including the review and approval or denial of proposed activities and uses of land and natural resources (Summit County Code 2005). The Summit County Code (2005, as amended) makes the following statements relevant to protection of wildlife in the county (Summit County Code 2005, 11-2-4-G):

1. Wildlife, Range Areas, Migration Corridors: Care shall be taken to ensure that development shall not significantly affect wildlife birthing areas, critical winter range areas and migration corridors.

b. Status of Local Population

Plan Area

Morgan and Summit Counties are located in northern Utah. For planning purposes, MSARM combined Morgan and Summit Counties into one Resource Area, geographically defined by the existing county borders (Figure 1). The Resource Area encompasses 2,513 square miles (1,608,659 acres) managed primarily by private landowners and also the USFS, BLM, State of Utah, and private land owners. Elevation in the Resource Area ranges from 1,800-2,600 m.

Summit County is characterized by hot summers and cold winters. According to National Climate Data Center records collected in Coalville from 1961 to 1995, July is the hottest month with an average high temperature of 86.0° F; winter lows reach 10.8° F in January. Morgan and Summit counties are wetter than much of Utah. Summit County receives an average of 15.4 inches of rain per year and the weather station in East Canyon in Morgan County reports an average of 19.9 inches per year from 1952-1971.

Landownership

Most of the Resource Area is private land with small areas managed by the state of Utah, the USFS, and the BLM (Table 15).

Table 15. Landownership in the Morgan-Summit Adaptive Resources Management Sage-grouse Local Working Group Resource Area, 2007.

Landowner	Area (acres)	Area (Miles ²)	% of Resource Area
Private	12,884,653	20,132	97
BLM	99,885	156	0.75
State of Utah	2,163	3	0.02
USFS	352,262	550	3

Sage-grouse Population Status and Distribution

The UDWR began monitoring sage-grouse populations in the Resource Area by annually counting males on leks in 1962 and 1969, respectively (Figure 10). Based on lek count information, sage-grouse populations in Summit County reached an all-time high in 1971 when 223 males were counted on 5 leks. This count represents a total estimated spring population of 496 adult birds. Since 1971, lek counts in Summit County have declined, as have the number of males per lek, a trend that better incorporates a measure of counting effort. Currently, based on a high count of 23 males on 5 leks, the population is estimated to be approximately 51 adult birds.

At the start of lek monitoring in Morgan County, a total of 85 males were counted on 2 leks. This count generates a population estimate of approximately 189 adult birds in the spring population. Based on lek count information, the Morgan County population reached an all-time high in 1980 when 131 males were counted on 3 leks. The 1980 spring population estimate, based on lek count information, was approximately 291 adult birds.

Observations of the number of males per lek is another index used to evaluate sage-grouse population trends. In Summit County, the number of males per lek has still reflects a decline in sage-grouse numbers since the early 1970s. In Morgan County, the number of males per lek is quite variable, likely reflecting varying degrees of counting effort (Figure 11).

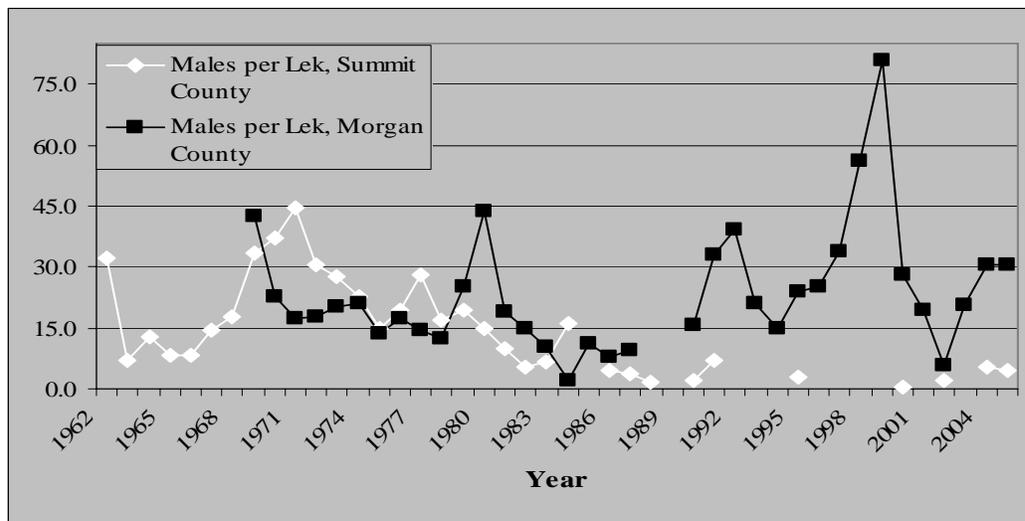


Figure 10. Maximum total number of males counted on all leks in the Resource Area, 1962-2005 in Summit County and 1969-2005 for Morgan County.

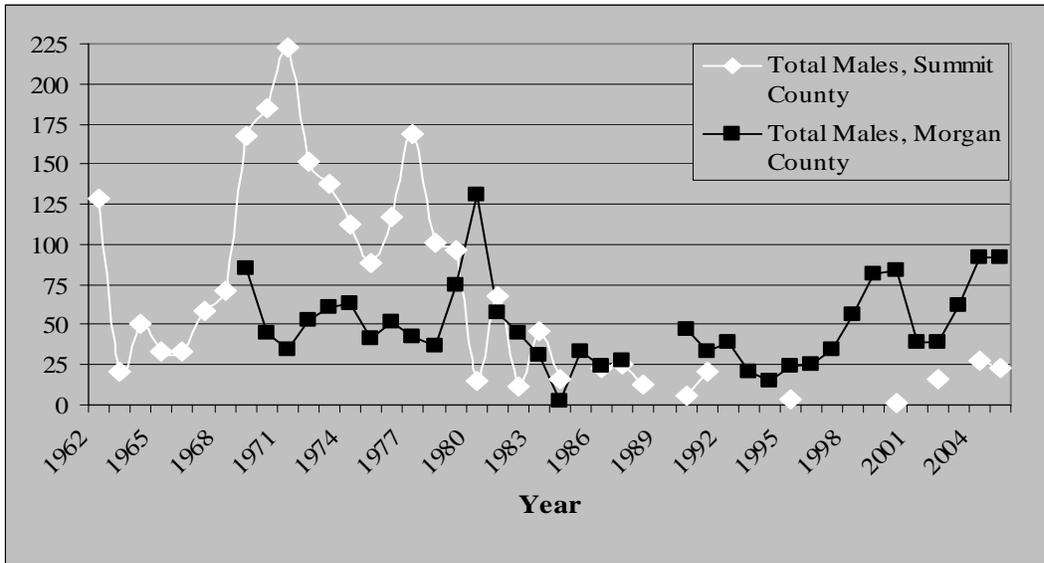


Figure 11. The number of males per lek observed in Summit County, 1962-2005, and Morgan County, 1969-2005.

c. Key Ecological Indicators and Threats

MSARM participants identified key ecological aspects (KEAs) of sage-grouse ecology and biology and associated indicators (to measure KEAs), determined and ranked the range of variation for each KEA, and assessed the current and desired conditions for each KEA (Table 16). They then identified and ranked potential threats (Table 17).

Table 16. Greater sage-grouse key ecological aspects in Utah's Morgan and Summit Counties, Morgan-Summit Adaptive Resources Management (MSARM) Sage-grouse Local Working Group, 2007. The 'Key Attribute' and 'Indicator' cells' are those defined by Greater Sage-grouse guidelines (Connelly et al 2000). The shaded cells represent the current condition as recorded by local working group members of a particular attribute and indicator as it relates to sage-grouse habitat and life history requirements.

Resource	Area Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Current Indicator Status	Current Rating	Desired Rating	Date of Current Rating	Date for Desired Rating
Morgan-Summit	Landscape Context	Connectivity of Populations & Sub-populations	Interactions with other populations.	Population does not interact with any other population or occupied or potential habitat.	Population occasionally interacts with other populations or occupied or potential habitat.	Population frequently interacts with other populations or occupied or potential habitat.	Population frequently interacts with other populations or occupied or potential habitat.		Good		6-Feb	
Morgan-Summit	Condition	Breeding Habitat Quality (leks, nesting, early brood-rearing)	Proximity to sagebrush (or other heavy cover) and vegetation composition and structure on and around lek complex.	Sagebrush covers sparse w/in 2 miles of most leks; significant sagebrush or "weed" encroachment onto lek complex.	Dispersed patches of sagebrush cover and little perennial grass w/in 2 miles of most leks.	Large patches of sagebrush or other cover w/in 2 miles of lek of suitable height; good perennial grass and forb cover.	Sagebrush steppe surrounding most lek complexes; most sagebrush cover w/in 2 miles of lek 15-25% with dense perennial grass and forb cover.		Good		6-Feb	
Morgan-Summit	Condition	Summer/Late Brood-rearing Habitat Quality	Shrub cover, understory grass/forb cover, availability of mesic/wet areas.	Shrub over too dense or too sparse; short, sparse grasses/forbs in understory; no mesic/wet areas available.	Shrub cover suitable but poor perennial grass/forb cover in sagebrush, few mesic/wet sites available.	Good sagebrush cover and good grass/forb cover in understory; mesic/wet areas available.	Good shrub cover; dense forbs/grasses in the understory; many mesic/wet areas available.		Good		6-Feb	
Morgan-Summit	Condition	Winter Habitat Quality	Sagebrush canopy cover; height above snow.	Sagebrush sparse and always covered by snow.	Low stature sagebrush and/or sparse sagebrush cover; frequently covered by snow.	10-30% canopy cover of sagebrush; rarely covered by snow.	10-30% canopy cover of sagebrush; never covered by snow.		Good		6-Feb	
Morgan-Summit	Size	Population Distribution	Distribution of leks	Decrease from current distribution.	Current distribution	Current distribution plus additional leks within the northern part of Summit and NE part of Morgan counties.	"Good" distribution plus additional leks in the Snyder ville Basin.	See map in Plan	Fair		6-Jan	

Morgan-Summit	Size	Population Size	3-year running average maximum number of males counted on leks	<100	100-175	176-299	300+		Fair		6-Jan	
Morgan-Summit	Size	Population Size	Number of active leks	<4	38813	38910	12+		Fair		6-Jan	

Table 17. Relative importance/contribution of sage-grouse threats Utah’s Morgan and Summit Counties, Morgan-Summit Adaptive Resources Management (MSARM) Sage-grouse Local Working Group, 2007. Rankings are as follows: L = low; M = medium; H = high; and VH = very high. Threats are described in the “Threat Analysis” section of this Plan. Ranks are defined according to TNC (2005).

Threat	Aspects of Sage-grouse population in the MSARM Resource Area							
	Reduced Population Size	Population Distribution	Reduced Nesting Habitat Quality	Reduced Brood-rearing Habitat Quality	Reduced Summer/Fall Habitat Quality	Reduced Winter Habitat Quality	Reduced Connectivity of Seasonal Habitat Types	Reduced Connectivity of Populations & Sub-populations
Drought and Weather	M	M	H	H	H	L	M	L
Existing and New Fences	L	L	L	L	L	L	L	L
Home and Cabin Development	H	H	M	M	M	M	H	VH
Power lines and Other Tall Structures	M	H	H	H	H	M	H	H
Renewable and Non-renewable Energy Development	M	M	M	M	M	M	M	M
Roads	M	H	H	H	H	M	H	H
Vegetation Management	M	H	M	M	M	H	M	L
Hunting	L	L	-	-	-	-	-	-
Fire	L	L	L	L	L	L	L	L
Livestock Grazing	L	L	L	L	L	L	L	L
OHV Recreation	M	M	H	H	H	VH	M	M
Invasive/Noxious Weeds	-	-	L	L	L	L	L	-
Parasites and Disease	M	M	-	-	-	-	-	-
Predation	VH	VH	H	H	M	M	M	M
Pinyon-Juniper Encroachment	M	M	M	L	L	M	M	M

d. Status of Conservation Strategies and Actions

MSARM participants identified several conservation strategies and actions that could be implemented to enhance greater sage-grouse populations. Here MSARM partners report on specific actions completed or addressed in 2006/2007 but also identified steps to be taken to implement additional actions into subsequent years of the plan. If a strategy or an action number is missing from this report; it means that no action(s) were taken in 2006/2007 towards its completion. To access a copy of the MSARM conservation plan visit the following web site address: <http://utahcbcp.org/files/uploads/morgan/msarmsagrplan.pdf>. The MSARM LWG will be reviewing and updating their Plan in early 2009

1. Strategy: Through 2016, prevent establishment of cheat grass and other non-native vegetation species in sage-grouse habitats.

1.1. Action: Seed treated areas, where appropriate, with ecologically suitable seed mixes
Status: The Echo Canyon fire area was reseeded using suitable seed mixtures. This fire occurred in 2006.

1.2. Action: Avoid using fire in sage-grouse habitats prone to invasion by cheatgrass or other invasive weed species.

Status: Echo Canyon wildfire area reseeded – landowners did reseeded in cooperation with agencies

1.3. Action: Evaluate all wildfires and proscribed burns and reseed with ecologically suitable seed, where appropriate, to prevent establishment of cheat grass and other invasive weed species.

Status: Wildfire areas were reseeded – cost share was provided through NRCS -DWR

2. Strategy: By 2016, increase grass/forb understory in sagebrush stands.

2.1 Action: Use sagebrush thinning techniques (Lawson aerator, spike, etc) in a mosaic pattern, where possible, to thin sagebrush stands.

Status: Joseph Fawcett and Sons – Inc. treated 600 ac in 2005 using the Lawson aerator. The area was reseeded with a seed mixture provided by DWR.

2.2 Action: Seed, when possible, treated areas with ecologically suitable seeds.

Status: See action 2.1

2.3 Action: Reclaim and/or reseed areas disturbed by treatments when necessary, using seed mixtures with appropriate grasses and desirable forbs

Status: See action 2.1.

2.4 Action: Restore understory vegetation in areas lacking desirable quality and quantity of herbaceous vegetation where economically feasible.

Status: See action 2.1

2.5 Action: Conduct vegetation treatments to improve forb diversity (e.g., harrowing, aerating, chaining) and reclaim or reseed disturbed area, if needed

Status: See action 2.1

2.6 Action: Develop management techniques to increase forb diversity and density in sagebrush steppe, within limits of ecological sites and annual variations

Status: On-going through Utah Partners for Conservation and Development and Quality Resource Management (QRM).

2.7 Action: Work with public and private partners to implement rest-rotation grazing systems, where possible

Status: On-going - private rangeland is fenced off in sections and livestock rotation – deferred grazing is common in the LWG area.

3. Strategy: By 2016, all new water projects will take into account MSARM recommendations to prevent conditions for extraordinary mosquito populations and potential persistence and spread of West Nile Virus in the Resource Area.

3.1. Action: Identify key elements of various water projects that are needed to prevent existence of standing water and minimize mosquito populations.

Status: Morgan and Summit Counties has mosquito abatement program that treats potential problems sites

3.2. Action: Develop partnerships with key water management agencies to work cooperatively to both maintain necessary flow regime and prevent conditions for extraordinary mosquito populations

Status: See action 3.1

3.3. Action: Cooperate with Summit County Mosquito Abatement District.

Status: See action 3.1

3.4. Action: Assess any new water projects for contributions toward conditions that may enhance mosquito populations

Status: See action 3.1

4. Strategy: By 2016, search additional areas (TBD) for new active lek sites.

- 4.1. Action:** Coordinate with UDWR to conduct aerial surveys in areas suspected to contain undiscovered active leks.
Status: Ongoing – LWG partners participate in spring lek search activities
- 4.2. Action:** Coordinate with public and private partners to conduct terrestrial lek searches in areas suspected to contain undiscovered active leks
Status: Ongoing – LWG partners participate in spring lek search activities. This effort is coordinated by the DWR.
- 4.3. Action:** Coordinate with public and private partners to conduct count surveys of known active leks.
Status: Ongoing – LWG partners participate in spring lek search activities
- 4.4. Action:** UDWR to enlist and coordinate private volunteers and/or other agency biologists search for new leks and conduct lek counts on active leks.
Status: Ongoing – LWG partners participate in spring lek search activities. The DWR and USU Extension have implemented a training program to train individuals that participate in Utah’s Dedicated Hunter Program to assist in this effort
- 4.5. Action:** Through 2016, test dead sage-grouse for West Nile Virus and any other parasites/pathogens of importance
Status: On-going. The DWR operates this program
- 5. Strategy:** By 2016 decrease populations of sage-grouse predators, especially in areas used by sage-grouse for nesting and brood-rearing.
- 5.1. Action:** Support efforts of USDA-WS to remove red foxes, coyotes, and ravens in areas used by sage-grouse for nesting and brood-rearing during spring and early summer
Status: On-going. USDA Wildlife Services conducts programs to manage predation on sage-grouse and other wildlife populations in the area.
- 5.2. Action:** Develop educational materials and distribute to recreationists that provide information on the impact to non-native predator species from littering
Status: Pending. USU Extension will develop a brochure for LWG review. This brochure will be completed by July 08.
- 6. Strategy:** Monitor impacts of lek viewing opportunities on lek behavior and lek attendance.
- 6.1. Action:** Provide educational material (brochures, presentations, etc.) to interested birding groups about the ecology of sage-grouse and threats they face in the Resource Area.
Status: Pending. To be completed in 2008
- 6.2. Action:** Increase law enforcement patrols in and around crucial lek sites
Status: On-going
- 6.3. Action:** Through 2016, include information about MSARM activities in County Extension newsletter
Status: On-going
- 7. Strategy:** By 2016, increase funding opportunities for private partners interested in improving sage-grouse habitat on private land.
- 7.1. Action:** Participate in SCD and UPCD northern region team; share Plan Strategies with these groups and encourage funding of Plan Strategies
Status: On-going. LWG members participate in SCD and Utah Partners meetings
- 7.2. Action:** Increase information dissemination about funding opportunities to private partners
Status: On-going. Utah partners and LWG members regularly meet with landowners and other

- groups to discuss this information.
- 7.3. Action:** Develop educational material about habitat improvement techniques appropriate for sage-grouse habitat improvement and distribute to private partners
Status: On-going. LWG Partner engage in these activities. Examples of this type of information can be found on the LWG web site (www.utahcbcp.org)
- 7.4. Action:** Coordinate habitat projects on private land that meet the needs outlined in Plan and the needs of private partners
Status: Ongoing.
- 8. Strategy:** By 2016 increase amount breeding habitat in “good” condition.
- 8.1. Action:** Work with public and private partners to implement rest-rotation/time controlled grazing management strategies, where appropriate
Status: Ongoing
- 8.2. Action:** Work with NRCS and private partners to implement Farm Bill programs beneficial to sage-grouse
Status: Ongoing. LWG partner work with Travis Thomason, NRCS District Conservationist, Coalville Utah to develop projects that qualify for Farm Bill funding
- 8.3. Action:** Coordinate with county weed board to implement noxious weed program to reduce impacts on sage-grouse
Status: On-going – The Summit County Area Spray Program Noxious weed program has identified and treated approximately 3,778 acres in 2005 and 4,000 acres in 2006 and 2007 to eliminate the spread of musk thistle on native rangeland using 2-4D dicamba
- 8.4. Action:** Work with NRCS and private partners to monitor effects of treatments on sage-grouse populations and habitat
Status: Ongoing
- 9. Strategy:** Coordinate fire management practices with public and private partners to prevent loss of crucial sage-grouse habitat and enhance/improve sage-grouse habitat, where appropriate.
- 9.1. Action:** Comment on BLM/USFS fire plans
Status: No action
- 9.2. Action:** Re-seed sites, post-burn, with ecologically suitable seed mixture to prevent the establishment of cheat-grass
Status: Ongoing
- 9.3. Action:** Use fire management to reduce sagebrush canopy cover and create diverse sagebrush stands in brood-rearing and summer use areas
Status: Some work has been done on Ensign Ranch. Approximately 8,000-10,000 acres have been burned to create a mosaic. Sage-grouse populations are being monitored on the ranch. The burns were conducted by Chris Robinson, Jeff and Kitty Young
- 10. Strategy:** Improve lek vegetation conditions to allow for predator recognition and visibility.
- 10.1. Action:** Open lek areas that have been invaded by sagebrush and other shrubs
Status: USFS has handcut openings in sagebrush to create lek sites
- 10.2. Action:** Map and inventory leks with potential for restoration
Status: Ongoing. LWG partners are cooperating with DWR personnel to inventory and map areas.
- 10.3. Action:** Maintain and enhance desired habitat conditions for leks
Status: Ongoing. See Action 10.1.

- 11. Strategy:** Improve mesic and riparian areas for sage-grouse and watershed health.
- 11.1. Action:** Identify opportunities or needs to create small wet areas, implement such projects where economically feasible
Status: Ongoing
- 11.2. Action:** Design and implement livestock grazing management practices to benefit riparian areas
Status: Ongoing.
- 11.3. Action:** Modify or adapt pipelines or developed springs to create small wet areas
Status: No action
- 11.4. Action:** Locate projects to minimize potential loss of water table associated with wet meadow
Status: Ongoing
- 11.5. Action:** Protect existing wet meadows and riparian areas where necessary
Status: Ongoing. Projects have been completed in Chalk Creek, Echo Canyon, and Weber Grass Creek.
- 11.6. Action:** Manage vegetation and artificial structures to increase water-holding capability of areas.
Status: Ongoing. See action 11.5.
- 12. Strategy:** Minimize the amount of quality sage-grouse habitat eliminated by residential and commercial land development consistent with private property rights.
- 12.1. Action:** Participate with County land use decision makers in identifying key sage-grouse habitats
Status: Development activities have been reviewed by the Agricultural Easement Committee through County. Both Morgan and Summit Counties have provisions that require developers to consider impacts wildlife in planning developments.
- 12.2. Action:** Maintain sagebrush environments of sufficient size and shape around developments in sage-grouse habitat.
Status: Ongoing. Both Morgan and Summit Counties have open space zoning requirements.
- 12.3. Action:** Encourage the voluntary use of conservation easements and other land protection vehicles with willing sellers in sage-grouse habitats
Status: Ongoing. The Summit Land Trust works with developers to guide development in to protect natural areas. This process is regulated through a system of development fees.
- 12.4. Action:** Educate rural residents about the importance of good grazing management in keeping small tracts weed free and capable of providing wildlife habitat
Status: Ongoing through NRCS and Utah partners.
- 13. Strategy:** Encourage monitoring programs that are consistent with NRCS practices and Connelly et al. (2003).
- 13.1. Action:** Coordinate with MSARM partners to facilitate data collection
Status: Ongoing through Utah Partners and Range Trends studies
- 13.2. Action:** Schedule and/or advertise educational opportunities, disseminate printed materials
Status: Ongoing through Utah Partners
- 13.3. Action:** Coordinate with academic institutions to utilize students in monitoring efforts
Status: Pending
- 13.4. Action:** Hold annual field tours of habitat improvement projects

Status: Ongoing. Field tours are scheduled through UACD.

14. Strategy: Improve efforts to increase size of sage-grouse population in the Resource Area.

14.1. Action: Explore possibility of initiating translocations of hen sage-grouse from other areas within Utah with stable or increasing populations

Status: Ongoing. Sage-grouse populations status are being monitoring relative to conservation actions implemented.

14.2. Action: Continue existing predator management activities as called for by UDWR, USDA-WS, and other participating agencies and organizations

Status: Ongoing. Work is conducted by USDA Wildlife Services in cooperation with the DWR.

15. Strategy: Provide for a level and system of domestic livestock grazing that maintains and improves both the long-term stability of sage-grouse populations and habitats and the livestock industry in the Resource Area.

15.1. Action: Coordinate grazing management with livestock operators to reduce resource and timing conflicts on leks and prime nesting habitat when possible

Status: Ongoing.

15.2. Action: Apply grazing management practices to achieve desired conditions including maintenance of residual herbaceous vegetation appropriate for the site

Status: Ongoing.

15.3. Action: Encourage implementation of grazing systems that provide for areas and times of deferment while taking into consideration the resource capabilities and needs of the livestock operator

Status: Ongoing.

e. Habitat Improvements and Completed Conservation Actions

The UDWR has implemented several habitat improvement projects in the Resource Area targeted at restoring or enhancing sage-grouse habitat. In 2004, approximately 4,100 acres of habitat in the Resource Area were treated and 7,000 acres were treated in 2005. Treatments were aimed at reducing sagebrush canopy and enhancing native grass/forb cover in the understory. Additional habitat improvement projects are planned for 2006. Several Big Game Range Trend sites were established in 2006 to monitor treatments. The UDWR anticipates treating 15,425 acres in the Resource Area in 2006. In Morgan County, the NRCS has provided or is providing technical assistance on 18,900 acres of rangeland. Most of these projects have been a combination of fence, water development and brush management. The acreage and general location of habitat improvement projects implemented in 2004 and 2005 and proposed for 2006 by the UDWR is listed Table 18. No map was generated to identify project locations because only one project was completed in 2007.

Table 18. Habitat improvement projects implemented to address sage-grouse threats identified by the Morgan-Summit Adaptive Resource Management Sage-grouse Local Working Group, 2004-2006.

Year	Project Name	Acres
2004	Red Fleet	1,600
	Deadman Bench	500
	Bare Top	1,100
	Horse Point	900
2005	Taylor Flat	1,000
	Red Creek Flat	1,000
	Monument Ridge	1,000
	Wolf Point	1,000
	Ruple Cabin	1,800
	V Canyon Ridges	1,000
	Snake John	200
2006 (proposed)	Blue Knoll	1,000
	Winter Ridge	2,000
	North King's Point	1,000
	King's Point	1,000
	Wolf Point Phase 2	1,350
	Little Asphalt Ridge	1,000
	Goslin Mountain	1,000
	Chew-Blue Mountain	500
	West Stuntz	180
	Brush Creek Bench	300
	Red Creek Flat Phase 2	500
	Clay Basin	1,225
	Anthro Mountain	1,000
	Siddoway	700

5. Parker Mountain Adaptive Resource Management (PARM) Local Sage-grouse Working Group

The Parker Mountain Adaptive Resource Management Local Working Group was organized in 1998 by Terry A. Messmer in 1998. Todd A. Black took over facilitation duties in 2003. Sarah Lupis has served as the technical writer and compiler of the Plan. PARM is comprised of state and federal agency personnel, representatives from local government, non-profit organizations, academic institutions, private industry, and private individuals. Please refer to the PARM Plan (<http://utahcbcp.org/files/uploads/parm/PARMfml-10-06-web.pdf>) for a complete list of LWG participants.

a. Local Legal Authority

Commissions for Wayne, Piute, and Sevier counties serve as the executive and legislative branches of local government. They have the authority to; 1) protect and promote the health, welfare, and safety of the people of these counties, 2) regulate land use, land planning, and quality and protection of natural resources, and 3) has duly adopted regulations and policies to exercise such authorities including the review and approval or denial of proposed activities and uses of land and natural resources. In addition, these counties promote County-to-community, community-to-community and agency-to-County coordination, cooperation, and communication.

b. Status of Local Population

Plan Area

The Parker Mountain Resource Area is located in South/Central Utah in Wayne, Piute, and Sevier counties (Figure 1). The Resource Area encompasses 1,789,644 acres (3,226.3 miles²) managed by the USFS, BLM, SITLA, and private landowners. The Resource Area is defined by the Aquarius Plateau to the south, the Fish Lake area to the north, and the Grass Valley Koosharem Valley area to the west. The Resource Area has been subdivided into 3 subunits, corresponding to sage-grouse breeding complexes. These breeding complexes are based on geographic boundaries and groupings of leks. Although movement between complexes is likely, the complexes represent discrete subpopulations of sage-grouse in the Resource Area.

The Resource Area is characterized by hot summers and cold winters. According to National Climate Data Center records collected Loa from 1948 to 2005, July is the hottest month with an average high temperature of 82.5° F; winter lows reach 7.5° F in January. The Resource Area is a primarily a dry area, receiving an average of only 7.5 inches of precipitation annually.

Landownership

Most of the Resource Area is public land; less is in private ownership (Table 19). The majority of the private land is located primarily in the Parker Mountain sub unit of the Resource Area and owned by SITLA. Land managed by the USFS are located in Fish Lake and Parker Mountain sub units of the Resource Area, encompassing the Fish Lake National. The BLM manages land

throughout the Resource Area and additional small parcels of land managed by SITLA are scattered throughout the Resource Area.

Table 19. Landownership in the Parker Mountain Adaptive Resources Management Sage-grouse Local Working Group Resource Area, 2007.

Landowner*	Area (acres)	Area (Miles²)	% of Resource Area
Bureau of Land Management	644,996.2	1007.8	36.1
Native American Tribes	668.6	1.0	<1
National Park Service	123,401.3	192.8	6.9
Private	130,182.9	203.4	7.3
State Parks/Wildlife	1,539.1	2.4	<1
State Trust Lands Administration	194,170.2	303.4	10.9
US Forest Service	687,337	1,704	38.4
Total	1,789,644	3,427.2	
* Water adds and additional 7,349.9 acres (11.5 mi ²) and represents 0.4% of the Resource Area.			

Sage-grouse Population Status and Distribution

Accounts from pioneers, trappers, and explorers of the Resource Area indicate that sage-grouse were historically abundant in the area. Stories of sage-grouse darkening the sky to stories of grouse numbers getting fewer and fewer are fairly common when talking to the local residents depending on their age and how long they have lived in the area. One common thread among the locals is that during the winter of 1982-83 many of the sage-grouse died due to starvation or were easily predated upon by eagles due to the significant snow fall during that winter.

The UDWR began using lek counts to monitor sage-grouse populations in the Resource Area in 1967 (Figure 12). That year, a total of 302 male sage-grouse were counted on 8 leks. During these early census years, the locations of only a few leks were known to UDWR biologist. In 1972, 12 leks in the Resource Area were counted for a total of 311 males. The estimated spring population size in 1972 was 3415 adult birds. Sage-grouse population data varied from year to year for the next 25 years mainly due to man power and snow levels. Due to these inconsistencies and the need for data collection, since 1998, a more concerted effort was put forth by participants of the PARM group. This effort has lead to the discovery of several new leks in the Resource Area and much better consistency in counting all known leks. Since 2004, the PARM group as a unit has conducted lek surveys over a 2 day period counting all known leks each of the 2 census days. The total number of males counted on leks during the past 4 years has averaged 830 total males (Figure 13).

The number of active leks can also be used to index sage-grouse population trends. In an attempt to avoid bias due to monitoring effort, only years when >12 leks were counted were included in this analysis (Figure 14). The historical population high of 2006 is still apparent and the current population trend appears to be in an upward cycle. This indicates that while the number of males

counted on leks in the Resource Area is increasing, more leks have been found. In fact, 24 total leks were counted in 2006, more than were ever counted in the Resource Area (range of data below= 12-17).

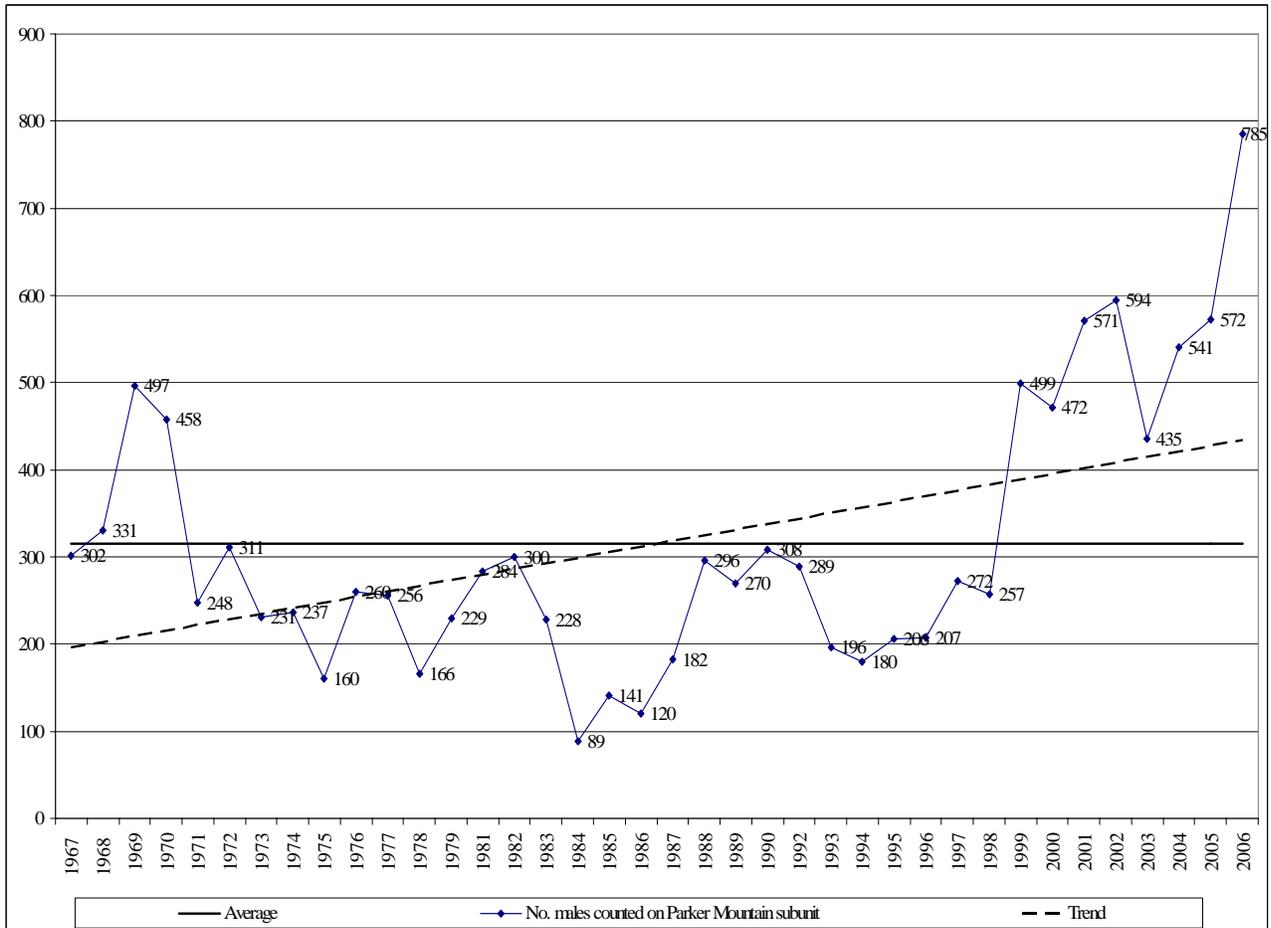


Figure 12. Maximum total number of males counted on the Parker Mountain sub unit and the average number of males attending leks in the Parker Mountain Adaptive Resources Local Sage-grouse Working Group Resource Area, 1972-2006.

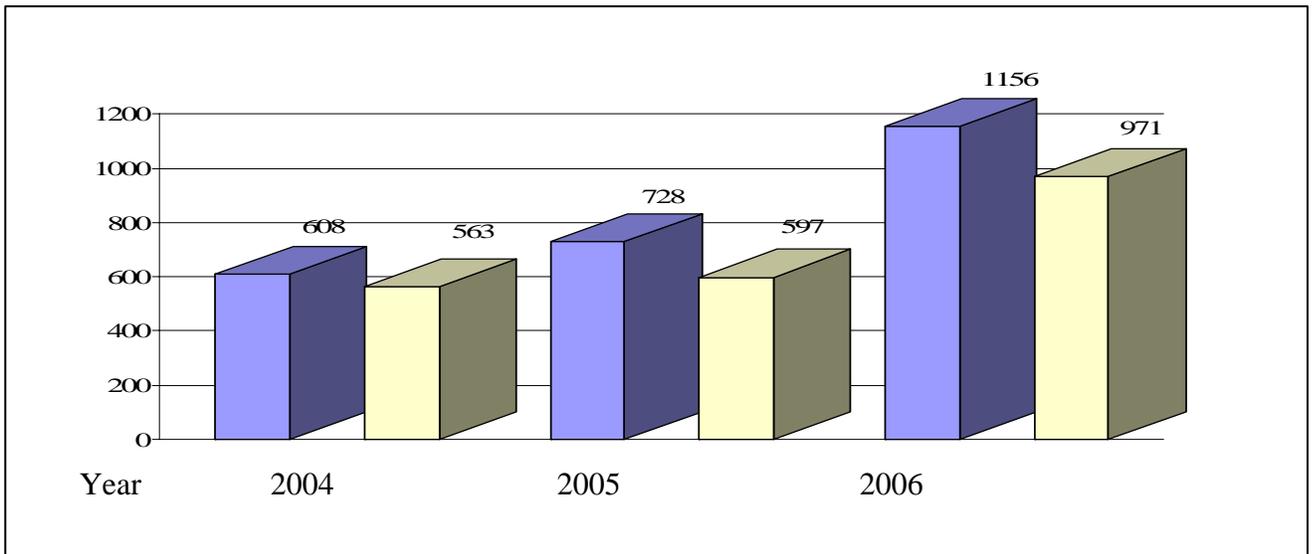


Figure 13. The total number of males counted on all known leks since the Parker Mountain Adaptive Resources Management Local Sage-grouse Working Group started a combined counting effort. The light color shows the number of males on leks counted in the Parker Mountain subunit, the darker color shows the total number of males counted on all leks.

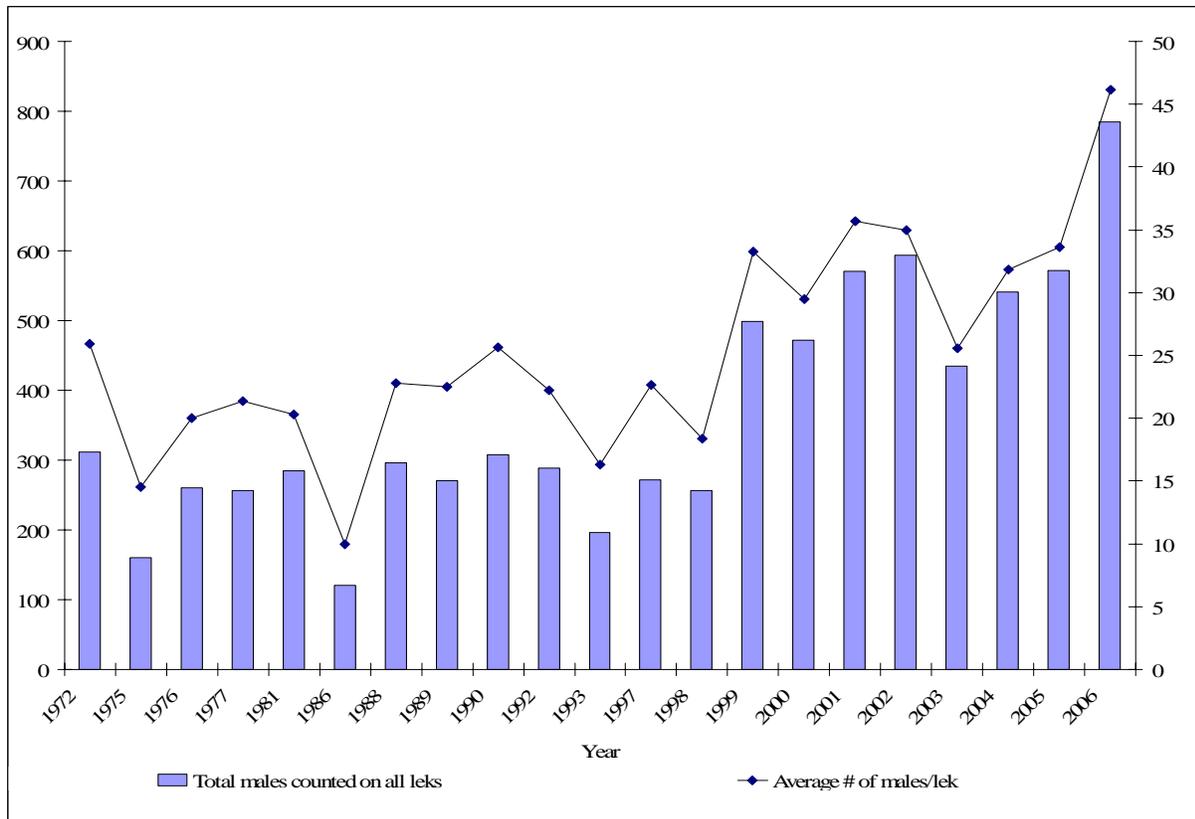


Figure 14. The number of males per lek in the Parker Mountain Adaptive Resources Management Greater Sage-grouse Local Working Group area, 1972-2005. In years where >11 leks were counted. Also show are the average number of males attending these leks.

Sage-grouse seasonal habitat types in the Resource Area were mapped by the UDWR in 1999. The UDWR Big Game Range Trend project has been monitoring sites throughout the Resource Area to track changes in vegetation composition, structure, and diversity. Although these sites were placed in areas used by big game, where they overlap with seasonal habitat use by sage-grouse, they can provide information about vegetation and habitat conditions in those areas in a general sense. Data collected at these sites are summarized and available at: <http://www.wildlife.utah.gov/range/>.

c. Key Ecological Indicators and Threats

PARM participants identified key ecological aspects (KEAs) of sage-grouse ecology and biology and associated indicators (to measure KEAs), determined and ranked the range of variation for each KEA, and assessed the current and desired conditions for each KEA (Table 20). They then identified and ranked potential threats (Table 21).

Table 20. Greater sage-grouse key ecological aspects identified in Utah's Wayne, Piute, and Sevier Counties, Parker Mountain Adaptive Resources Management Sage-grouse Local Working Group, 2007. The 'Key Attribute' and 'Indicator' cells are those defined by Greater Sage-grouse guidelines (Connelly et al 2000). The shaded cells represent the current condition as recorded by local working group members of a particular attribute and indicator as it relates to sage-grouse habitat and life history requirements.

Resource Area	Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Current Indicator Status	Current Rating	Desired Rating	Date of Current Rating	Date for re-evaluation
Parker Mountain	Landscape Context	Connectivity of key habitat types	Condition of surrounding natural vegetation	Used habitat patches are sparse and dispersed creating barriers between used habitat patches.	Used habitat patches are isolated and narrowly connected.	Habitat patches are of generally good and close proximity, but with some fragmenting features.	<i>All habitat patches are within a similar matrix and functionally connected.</i>	Sage-grouse year round habitat in the PARM AREA is generally well connected but has some fragmentation. Sage-grouse are able to move between seasonal habitats within the Resource Area	Very Good	Very Good	Jan-06	Jan-11
Parker Mountain	Landscape Context	Connectivity of Populations & Sub-populations	Distance to other populations or subpopulations during the yearly movement patterns of the sage-grouse	Population does not interact with any other population(s).	Next adjacent population/subpopulation are between 20-35 miles away.	Next adjacent population 12-20 mi away.	<i>Next adjacent population less than 12 miles away with occasional to regular mixing of individuals.</i>	Connectivity to other populations seems good based on radio-telemetry studies in the area.	Very Good	Very Good	Jan-06	Jan-11
Parker Mountain	Condition	Lek habitat quality.	Proximity to adequate sagebrush and openness on lek.	No appropriate cover w/in 400 m of most leks; significant encroachment of vegetation that would obscure visibility of the grouse on the leks sites.	Dispersed patches of sagebrush cover w/in 300 m of lek; some encroachment of vegetation that would obscure visibility of the grouse on the leks sites.	Large patches of sagebrush or other cover w/in 200 m of lek; with little encroachment of vegetation that would obscure visibility of the grouse on the leks sites	<i>Large patches of sagebrush or other cover less than 100 m of lek with no encroachment of vegetation that would obscure visibility of the grouse on the leks sites</i>	There is variability across the entire Resource Area. Most leks are in good condition.	Very Good	Very Good	Jan-06	Jul-11
Parker Mountain	Condition	Nesting and early brood-rearing habitat quality.	Sagebrush canopy cover and density; understory composition; proximity to open patches dominated by herbaceous vegetation.	Inadequate sagebrush cover/density; little perennial grasses or forbs in dense sagebrush with no openings.	Inadequate or high sagebrush cover/density; poor perennial grass/forb cover in sagebrush with limited openings.	<i>Adequate sagebrush cover/density; some perennial grasses/forbs in sagebrush with good perennial grass/forb content in openings.</i>	High stature grasses in shrublands; dense cover; high species richness; a matrix of open patches that includes mesic sites.	Most areas are in Good condition during a "normal" year and look better in wet years	Good	Good	Jan-06	Jul-11
Parker Mountain	Condition	Summer/Late Brood-rearing Habitat Quality	Sagebrush canopy cover and density; understory composition; proximity to open patches and mesic sites and aspen sites	Little or no shrub land cover/density; little perennial grasses or forbs in dense sagebrush with no open patches or mesic sites.	Little or high shrub land cover/density; poor perennial grass/forb cover in sagebrush with limited openings and mesic sites or alfalfa fields.	<i>Open shrub land (5-10%) some perennial grasses/forbs in sagebrush with good perennial grass/forb content in openings; some mesic and aspen sites.</i>	Open shrub lands greater than 50% grasses/forbs dense cover in mesic and aspen sites; high species richness; a matrix of open patches and many mesic sites.	In the high end of fair--most sites look pretty good. As you get higher elevation on the mountain the potential exists to be very good.	Good	Good	Jan-06	Jul-11

			dominated by herbaceous vegetation.									
Parker Mountain	Condition	Winter Habitat Quality	Sagebrush canopy cover and height.	Majority sparse sagebrush cover or very small patches or majority very dense and tall (i.e. "decadent"); sagebrush frequently covered by snow.	Low stature and/or sparse sagebrush cover on westerly and southerly slopes and drainages or majority very dense and tall (i.e. "decadent"); sagebrush often covered by snow.	Less than 10% canopy cover of sagebrush on southerly and westerly aspects and few dense patches available; sagebrush rarely covered by snow.	<i>Widely distributed winter habitat throughout the Resource Area; canopy cover 10-30% sagebrush on southerly and westerly aspects w/avg. of 10" above snow depth on >5% slopes; dense sagebrush cover in drainages.</i>	Winter habitat in very good condition.	Very Good	Very Good	Jan-06	Jul-11
Parker Mountain	Size	Population Distribution	Distribution and number of leks	Allow no Less than 15 active leks on the parker subunit and no less than 80% of the total and no less then 5 of the Fish Lake subunit and no less then 2 on the Grass Valley subunit	16-17 active leks on the parker subunit 5-9 on the Fish Lake subunit and 3-5 on the Grass Valley subunit	18-19 active leks on the parker subunit. 10-15 on the Fish Lake subunit and 6-8 on the Grass Valley subunit	<i>20 + Active leks and at least 50% of the total number of leks in the PARM Resource Area. 16+ leks on the Fish Lake subunit and 9+ on the Grass Valley subunit</i>	Currently there are 19 active leks and one pending in the Parker Mtn. subunit with one pending with a count in 2006.	Good	Very Good	Dec-05	May-08
Parker Mountain	Size	Population Size	3-year running average maximum number of males counted on leks	<300	301-625	626-1,000	1,000+	The lek counts appear to be on an incline. Group participation in lek counts is key and critical to good reliable information.	Very Good	Very Good	Sep-05	May-08
Parker Mountain	Size	Population Size	Number of active leks	<23	24-35	36-60	60+	New leks are being located each year--based on 3 consecutive years of counting lek numbers will likely go up	Good	Very Good	Sep-05	May-08

Table 21. Relative importance/contribution of threats to sage-grouse populations in Wayne, Piute, and Sevier Counties, Parker Mountain Adaptive Resources Management (PARM) Sage-grouse Local Working Group Resource Area. Threats are described in the “Threat Analysis” section of this Plan. Rankings are as follows: L=low; M=medium; H=high; and VH=very high. Ranks are defined according to TNC (2005).

Threat	Aspects of Sage-grouse population in the PARM Resource Area						
	Reduced Population Size	Population Distribution	Reduced Lek Habitat Quality	Reduced Brood-rearing Habitat Quality	Reduced Winter Habitat Quality	Reduced Connectivity of Seasonal Habitat Types	Reduced Connectivity of Populations & Sub-populations
Powerlines, Fences, & Other Tall Structures	M	M	M	L	M	H	H
Natural resource exploration and development	H	H	M	H	H	VH	VH
Grazing practices the are detrimental to the habitat (domestic/wild)	H	H	L	H	H	M	M
Drought & Weather	H	H	L	H	M	M	M
Lack of proper range management	L	M	L	H	M	M	M
Hunting Pressure	L	L	L	L	L	L	L
Altered Fire Regimes	L	L	M	M	L	H	M
Livestock Grazing	L	L	L	H	L	L	L
Incompatible OHV Recreation	L	M	L	L	L	M	M
Invasive/Noxious Weeds	M	M	M	VH	H	M	L
Parasites & Disease	VH	VH	L	L	L	L	H
Extraordinary Predation	VH	H	L	L	L	L	M
Vegetation Management	H	M	H	H	H	H	M
Pinyon-Juniper Encroachment	M	M	M	M	M	M	M
Inability to maintain local control and input	H	H	H	H	H	H	H

d. Status of Conservation Strategies and Threats

This report summarizes the status of the efforts made by individual and partners to address threats and strategic actions identified in the PARM Greater Sage-grouse Local Conservation Plan October 2006. This adaptive plan is in effect until the year 2016. PARM partners not only reported on specific actions completed or addressed in 2006/2007 but also identified steps to be taken to implement addition actions into subsequent years of the plan. Please not that ff a Strategy or an action number is missing from this report; it means that no action(s) were taken in 2006/2007 towards its completion. For the complete list of threats identified by the PARM group, see page 64 of the conservation plan located on line at <http://utahcbcp.org/files/uploads/parm/PARMfml-10-06-web.pdf>

1. Strategy: By 2011, assess pinyon-juniper stands in the Fish Lake subunit.

1.1. Action: As a PARM group revisit and make recommendations to treat as needed pinyon/juniper sites (North Mytoge Mountain and North of the Fish Lake turn off).

Status: Dixie harrow to treat 5000 acres (7 mile allotment) north and east of North Mytoge Mountain. The Praetor Slope (south of Koosharem Reservoir) area was identified and small p/j trees treated using hand thinning by Dedicated Hunter Volunteers and Utah UDWR habitat managers.

2. Strategy: By 2011, make an assessment of non-desirable/invasive vegetation in sage-grouse habitats.

2.1. Action: Review and monitor all vegetative sampling by all partners and more specifically with UDWR range trend data.

Status: In 2006/2007 UDWR and Utah State University Extension placed vegetation study plots in Terza Flats and Tommy Hollow to assess the effectiveness of re-seeding these areas.

2.2. Action: Avoid using fire in sage-grouse habitats prone to invasion by cheatgrass or other non-desirable species.

Status: No prescribed or control burns in the PARM area in 2006/2007

2.3. Action: Evaluate all wildfires and prescribed burns and reseed with forage kochia or other fire-resistant species where appropriate to prevent establishment of cheatgrass.

Status: No prescribed or control burns were conducted in the PARM area in 2006/2007.

2.4. Action: Identify areas where undesirable vegetation is encroaching on sage-grouse habitat.

Status: PARM members have identified halogeton presence along county maintained roads at lower elevations as a major threat and concern. Additional efforts have identified cheatgrass in localized camp sites and disturbed areas. PARM partners will identify specific areas during the next 3 years.

2.5. Action: Treat areas where undesirable vegetation has become, or is at risk of becoming, a factor in sage-grouse habitat loss or fragmentation.

Status: See action 2.1. PARM partners are working towards this action through study with PARM members with study plots in Terza Flats and Tommy Hollow.

2.6. Action: Work with existing weed management programs to control noxious weeds in the Resource Area.

Status: PARM members have identified halogeton presence along county maintained roads at lower elevations as a major threat and concern. Additional efforts have identified cheatgrass in localized camp sites and disturbed areas. PARM partners will identify specific areas during the next 3 years. PARM partners hand treated musk thistle on Parker Knoll. BLM treated Russian Knap weed the main Black Point road.

Monitoring shows no return of the species in the area. Wayne County weed crew is spraying Black henbane on BLM lands on smooth Knoll allotment north timbered knoll.

2.7. Action: Identify large areas of introduced plant species that are not meeting sage-grouse habitat needs and reseed with native species where appropriate.

Status: In 2006/2007 UDWR in conjunction with Utah State University Extension placed vegetation study plots in Terza Flats and Tommy Hollow to assess the effectiveness of re-seeding these areas.

2.8. Action: Identify areas where pinyon or juniper trees are encroaching on good quality

sagebrush habitat and treat as needed.

Status: Identified Cedar Gove allotment to be hand thinned using Dedicated Hunters with BLM and UDWR representatives to identify specific areas and trees. North Boulder area (Forest Service lands) has been identified to treat with a control burn or mechanical methods pending NEPA approval. Implementation in 2008/09

2.9. Action: Manage fire, transportation, and vegetation treatments to minimize undesirable vegetation where possible.

Status: No prescribed or wildfires in the PARM area in 2006/2007.

3. Strategy: By 2011, complete an assessment on the condition of available water sources and identify potential new water improvement/development projects.

3.1. Action: Manage vegetation and artificial structures to increase water-holding capabilities of likely habitat.

Status: PARM identified bush spring pond to be improved. Parker Mountain Grazers built one new pond south of Jakes Knoll, repaired breach on Ottys Pond (Ottos Reservoir sage-grouse leking area) on the Cedar Peak allotment and cleaned out sediments in dog lake pond on the dog lake allotment (USFS lands).

Action: Locate/identify projects to minimize potential loss of water table associated with wet meadows.

Status: PARM partners identified a need to rip existing pipe from the Antelope pipeline to Hare Lake and Ottys Pond on SITLA and BLM lands. Presently the pipe sits on the surface and is subjected to wear and tare and costly yearly maintenance. PARM partners to treat encroaching conifer species into wet meadows at higher elevations on USFS lands. PARM identified a need to assess all ponds on BLM and FS and to develop a scheduled program to address over silting or loosing clay/bentonite seal.

Action: Identify key elements of various water projects by developing partners to work cooperatively to maintain existing water sources.

Status: Identify and treat encroaching conifer species into wet meadows at higher elevations on USFS lands. Assess all ponds on BLM and USFS lands to develop a scheduled program to address over silting or loosing clay/ bentonite seal.

4. Strategy: By 2011, identify key public, SITLA, and private lands in the Resource Area (specific locations to be selected) that are managed so as to conserve/improve sage-grouse nesting habitat.

4.1. Action: Encourage use of PARM defined conditions for state and federal lands to influence management actions to move toward improved conditions for sage-grouse.

Status: Summarize USU graduate student work to identify acres treated, treatment sites, and evaluation of these areas. It would be ideal to have document/guidelines that indicates this is what we have done and what we know and management recommendations here. Also look at NRCS WHIP plan.

4.2. Action: Support partner efforts that manage sage-grouse nesting habitat on public, SITLA, and private lands.

Status: Ongoing, PARM partners support and encourage efforts to improve grouse nesting habitat.

4.3. Action: Use available grouse and brood telemetry data to identify key nesting habitat areas within the Parker Mountain subunit.

Status: Determined that USU graduate work needs to be summarized to identify acres treated, treatment sites, and evaluation of these areas. Use existing GIS data and nesting/brood rearing locations to address these issues.

4.4. Action: Pursue habitat improvement projects (to meet PARM defined conditions) on SITLA lands in areas used by sage-grouse for nesting habitat.

Status: NRCS/WHIP/SITLA treated 500 acres using SPIKE on the Cedar Grove allotment and 500 acres on the South Pasture allotment.

4.5. Action: Identify research needs to address sagebrush treatments at 'lower' elevations where the majority of these nesting activities occur.

Status: In 2006/2007 UDWR in conjunction with Utah State University Extension placed vegetation study plots in Terza Flats and Tommy Hollow to assess the effectiveness of re-seeding these areas.

4.6. Action: Use mechanical or chemical treatments to reclaim and/or reseed areas (when necessary) using suitable seed mixtures.

Status: BLM used Dixie harrow to treat 5000 acres (7 mile allotment) north and east of North Mytoge Mountain and additional acreage on the Praetor Slope (south of Koosharem Reservoir). Reseeded and Dixie Harrow (north of Koosharem town and North of Greenwich to Burrville. USFS Pollywog lake treated 80 acres in '07 and will do more in '08. Brush was treated by mowing with and additional sites Fish Lake Basin of approximately 400 acres.

4.7. Action: Where economically feasible, restore understory vegetation in areas lacking desirable quality and quantity of herbaceous vegetation.

Status: BLM used Dixie harrow to treat 5000 acres (7 mile allotment) north and east of North Mytoge Mountain and additional acreage on the Praetor Slope(south of Koosharem Reservoir). Reseeded and Dixie Harrow north of Koosharem town and North of Greenwich to Burrville.

4.8. Action: Conduct vegetation treatments to improve forb diversity (e.g., harrowing, aerating, chaining) and reclaim or reseed disturbed area, if needed.

Status: BLM used Dixie harrow to treat 5000 acres (7 mile allotment) north and east of North Mytoge Mountain and additional acreage on the Praetor Slope(south of Koosharem Reservoir). Reseeded and Dixie Harrow (north of Koosharem town) and North of Greenwich to Burrville. USFS Pollywog lake treated 80 acres in '07 and will do more in '08. Brush was treated by mowing with and additional sites Fish Lake Basin of approximately 400 acres.

4.9. Action: Develop management techniques to increase forb diversity and density in sagebrush steppe, within limits of ecological sites and annual variations.

Status: USU graduate work needs to be summarized to identify acres treated, treatment sites, and evaluation of these areas. Use existing GIS data and nesting/brood rearing locations to address these issues.

5. Strategy: By 2011, identify key public, SITLA, and private lands in the Resource Area (specific locations to be selected) that are managed so as to conserve/improve sage-grouse leking habitat.

5.1. Action: Open lek areas that have been invaded by sagebrush and other shrubs.

Status: PARM partners identified areas in and around black point lek complex that need to address increasing shrub numbers and density.

- 5.2. Action:** Encourage use of PARM defined conditions for state and federal lands to influence management actions to move toward improved conditions for sage-grouse.
Status: USU graduate work needs to be summarized to identify acres treated, treatment sites, and evaluation of these areas. Use existing GIS data and nesting/brood rearing locations to address these issues.
- 5.3. Action:** Support partner efforts that manage sage-grouse leking habitat on key public, SITLA, and private lands
Status: PARM partners encouraged the use supplement to increase winter grazing efforts by sheep in the Black point lek complex.
- 5.4. Action:** Pursue habitat improvement projects (to meet PARM defined conditions) on SITLA lands in areas used by sage-grouse for leking habitat.
Status: SITLA put sage-grouse discouragers on the fence in and around Morrell pond lek where sage-grouse were colliding/striking into this fence.
- 6. Strategy:** Through 2011, avoid natural resource development (oil/gas exploration and development) within important sage-grouse use areas. If development does occur, work with private industry to minimize impacts and follow recommended actions.
Status: No action was taken on Strategy 6 because no natural resource development took place within the resource area during 2006/2007.
- 7. Strategy:** Through 2011, identify high use areas available to sage-grouse during the late summer and early fall brood rearing time period.
7.1. Action: Use available grouse and brood telemetry data and remote sensing data to identify key brood rearing habitat areas within the Parker Mountain subunit.
Status: USU graduate work needs to be summarized to identify acres treated, treatment sites, and evaluation of these areas. Use existing GIS data and nesting/brood rearing locations to address these issues.
- 8. Strategy:** Through 2016, identify measures to manage key wintering areas available for sage-grouse.
8.1. Action: Use available winter grouse telemetry data and local knowledge to map these areas.
Status: In order to achieve this action PARM partners determined that USU graduate work needs to be summarized to identify winter locations. Additionally, more winter flights and locations need to be made to better access wintering areas.
8.2. Action: Work with public and private partners to identify winter locations.
Status: UWDR/USU EXT to get more wintering locations on birds and have a mapping day where PARMs expert knowledge would be used to identify areas.
- 9. Strategy:** By 2009, maintain or increase populations of sage-grouse in the Resource Area.
9.1. Action: Support and encourage the prevention of illegal harvest of sage-grouse on public lands throughout the year.
Status: PARM partners will work with UDWR to develop and implemented an action plan to address this issue.
9.2. Action: Support continued sport hunting within current UDWR models.
Status: PARM partners supported UDWR recommendations for 2006/2007 sage-grouse

permit allocation numbers.

9.3. Action: Continue with annual PARM group counting/classification efforts with sage-grouse lek surveys.

Status: In conjunction with UDWR, PARM partners conducted their annual 2 day lek counting efforts on Parker Mountain in April 2006/2007. These efforts will be ongoing.

10. Strategy: Through 2009, search additional areas (TBD by PARM) for new/previously undiscovered sage-grouse leking sites

10.1. Action: Coordinate with UDWR, public and private partners to conduct terrestrial lek searches in areas (Bear Valley, north of Koosharem Reservoir, north/Mytoge Mountain, Greenwich) suspected to be undiscovered leking areas.

Status: In the spring of 2006 USU researchers spent 2 different mornings searching areas north of Koosharem Reservoir and found no leking activity or any evidence of sage-grouse.

10.3. Action: Continue with and expand annual PARM group counting/classification efforts to include the entire Resource Area.

Status: In conjunction with UDWR, PARM partners conducted their annual 2 day lek counting efforts on Parker Mountain in April 2006/2007. These efforts will continue in 2008.

11. Strategy: Increase cooperation and coordination between PARM members and other public and private partners.

11.1. Action: Continue with quarterly PARM meetings.

Status: Through quarterly meetings PARM partners did, and will continue to meet this action item.

11.2. Action: Annual review and assessment of PARM plan.

Status: Through quarterly meetings PARM partners did, and will continue to meet this action item.

11.3. Action: Develop means to inform, involve, and educate the local communities as to the efforts of PARM and sage-grouse.

Status: USU/EXT publishes quarterly newsletters highlight PARM activities.

Additionally, the Utah Farm Bureau published an article of a recent PARM range tour in their 2006/2007 newsletter.

12. Strategy: By 2016, work to decrease the populations of sage-grouse predators, especially in areas used for nesting and/or brood-rearing.

12.1. Action: Begin site-specific predation management considering all predator species (especially common ravens and red fox) where necessary and appropriate.

Status: Report written and put up 60 M44 guns in wintering sage-grouse areas.

12.2. Action: Support efforts of USDA-WS to remove red foxes and ravens in areas used by sage-grouse for nesting and brood-rearing during spring and early summer.

Status: Through quarterly meetings PARM partners did, and will continue to meet this action item.

13. Strategy: Provide an appropriate level and system for domestic livestock grazing that maintains and improves both the long-term stability of sage-grouse populations and habitats and the livestock industry in the Resource Area.

13.1. Action: Apply grazing management practices to achieve desired conditions including maintenance of residual herbaceous vegetation appropriate for the site.

Status: Research is continuing with USU PhD candidate Mike Guttery and will continue through 2008.

13.3. Action: Encourage implementation of grazing systems that provide for areas and times of deferment while taking into consideration the resource capabilities and needs of the livestock operator.

Status: Quarterly meetings ongoing.

14. Strategy: Minimize impacts of utilities lines in sage-grouse habitat.

Status: Action 14.1—14.3. No action due to no development taking place within the resource area.

15. Strategy: Improve knowledge of disease in sage-grouse populations.

15.1. Action: Monitor radio-collared and other sage-grouse for West Nile Virus and other disease outbreaks.

Status: Task was completed by USU graduate students and will continue in subsequent years. No disease birds were identified in 2006/2007.

16. Strategy: By 2016 work to begin to improve understanding of the relationship between livestock grazing and sage-grouse in the Resource Area.

16.1. Action: Conduct study on the affects of different types of livestock use, time of use, and intensity of use on sage-grouse populations.

Status: Research is continuing with USU PhD candidate Mike Guttery.

e. Habitat Improvements and Completed Conservation Actions

All of the land management partners have been implementing and completing large habitat projects across the Resource Area. SITLA has implemented several habitat improvement projects in the Parker Mountain sub unit targeting dense stands of big sagebrush in sage-grouse brood rearing habitat. In 2001, with a NRCS grant and as part of a research project with Utah State University, 300 acres were Dixie harrowed, 300 acres received a Lawson Aerator treatment and 300 acres were treated chemically. Through 2002-2004, approximately 1,000 acres of habitat were treated with a Dixie harrow and tebuthiron (spike). In 2005, in partners with the NRCS, 750 acres were spiked in Nicks pasture. Treatments were aimed at reducing sagebrush canopy and enhancing native grass/forb cover in the understory. Additionally, the NRCS thinned approximately 30 acres of aspen stands as part of a research project with Utah State University. In 2006, SITLA anticipates treating 1,500 acres of brush with spike in the Parker knoll and cedar grove areas. Table 22 lists the acreage and general location of habitat improvement projects implemented and proposed by the PARM partners. The location of some habitat improvement projects recently or scheduled are found in Figure 15.

Table 22. Habitat improvement projects implemented to address sage-grouse threats by the Parker Mountain Adaptive Resources Management Sage-grouse Local Working Group Resource Area, 2006-2007.

ID	Region	FY start	FY complete	Project Title	Treatment type	Threat code	Acres
9999	SR	2006	2007	Seven Mile	two pass dixie harrow broadcast seed	1,21	6377
9998	SR	2007	2007	Parker Spike 2	aerial spike treatment 60- 80% kill	1	720
9997	SR	2006	2006	Parker Spike 1	aerial spike treatment 60- 80% kill	1	543
9996	SR	2006	2007	Burville Box	two pass dixie harrow broadcast seed	1,21	4531
118	SR	2006	2006	Bagley LIP	one way harrow broadcast seed	1	199

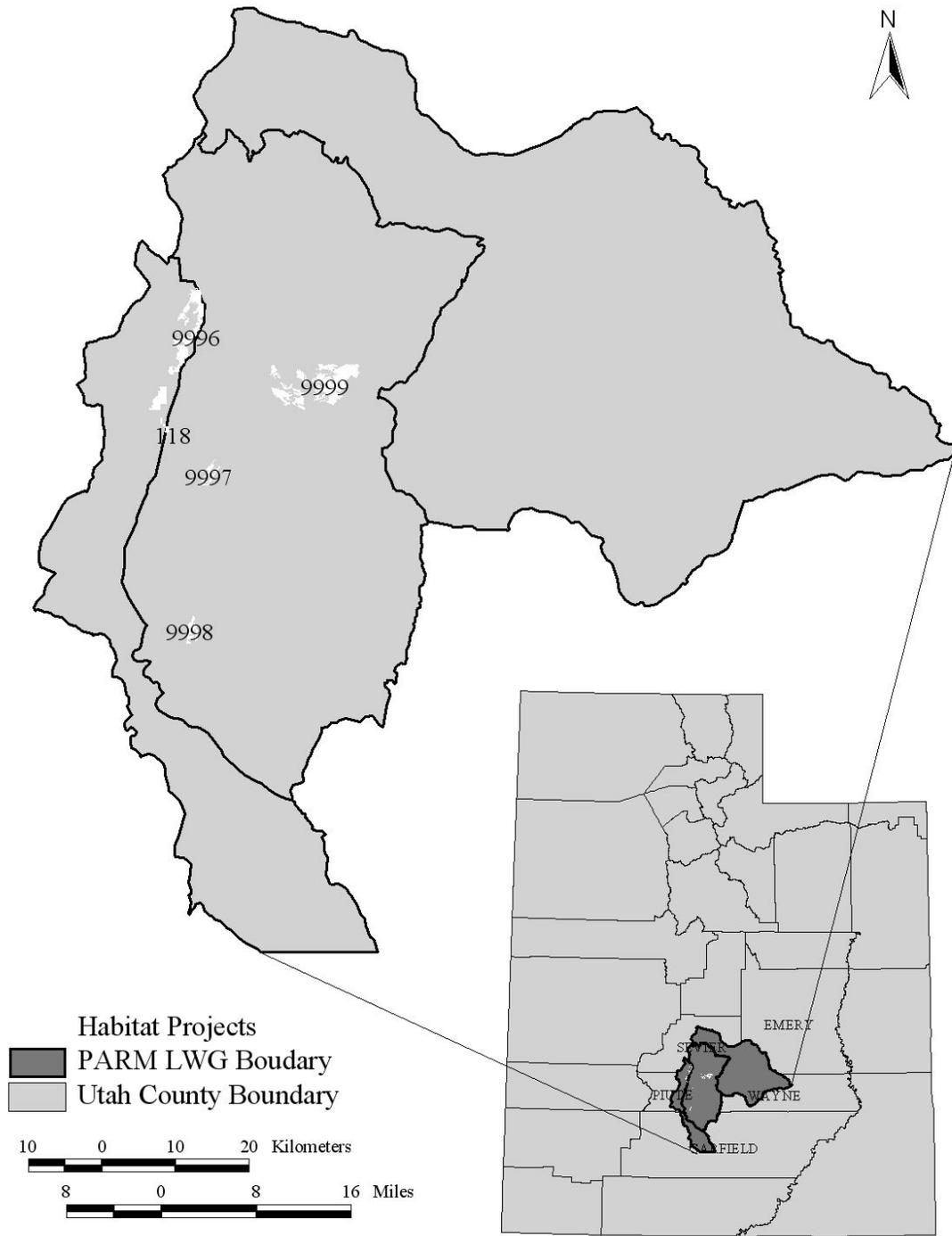


Figure 15. Location of habitat improvement projects completed in the Parker Mountain Adaptive Resources (PARM) Sage-grouse Local Working Group Resource Area, 2006-2007.

6. Rich County Coordinated Resource Management Sage-grouse Subcommittee

In June of 2002 the Rich County Commission determined that the county should take a cooperative and proactive role in the future health of the public lands and sustainability of livestock operations within the county. The Rich County Coordinated Resource Management (CRM) Committee was formed under the direction of the commission involving a wide diversity of interest groups and agency representatives from inside and outside the county. By building trust, leadership, and respect, the group provided a vision for the resources in Rich County: A rich, healthy ecosystem, with sustainable agriculture industry and wildlife populations, containing diverse recreational opportunities and a vibrant rural community.

The CRM Committee organized a subcommittee in 2005 that would deal specifically with issues related to sage-grouse. The CRM Sage-grouse (SAGR) Subcommittee was facilitated by Sarah G. Lupis. Ms. Lupis also served as the technical writer and compiler of the Plan. The CRM SAGR Subcommittee is comprised of state and federal agency personnel, non-profit organizations, academic institutions, and private individuals. A complete list of participants can be found in the CRM SAGR Plan.

a. Local Legal Authority

The Board of Commission for Rich County serves as the executive and legislative branch of local government. The Board has the authority to; 1) protect and promote the health, welfare, and safety of the people of Rich County, 2) regulate land use, land planning, and quality and protection of natural resources, and 3) has duly adopted regulations and policies to exercise such authorities including the review and approval or denial of proposed activities and uses of land and natural resources (Rich County Coordinated Resource Management Draft Strategic Plan 2005).

b. Status of Local Population

Plan Area

Rich County is located in northeastern Utah (Figure 1). Rich County encompasses 661,760 acres managed by the USFS, BLM, SITLA, and private land owners. Rich County is defined by the Utah-Wyoming border to the east, the Utah-Idaho border to the north, the Rich-Summit County border to the south, and is bordered by several Utah counties to the west (Figure 1). The southern half of Bear Lake and the Bear Lake Valley are located in the northern portion of Rich County. Elevation in Rich ranges from 1,800-2,600 m.

Rich County is characterized by hot summers and cold winters. The high elevation conditions of much of the County make it one of the coldest areas in the state. Winter temperatures (measured in the town of Woodruff) often fall below -29° C (-20° F); summer temperatures often exceed 32° C (90° F). Annual precipitation is variable but averages approximately 50 cm at high elevations and 23 cm at low elevations; September, May, and June are the wettest months.

Landownership

Most of Rich County is private land (Table 23). Landownership patterns differ between subunit

Table 23. Landownership in the Rich County Coordinated Resource Management Sage-grouse Local Working Group Resource Area, 2007.

Landowner	Subunit	Acres	MILES²	% of Total
Private	Northeast	57,435	90	8.75
Private	Central	99,408	155	15.14
Private	Southern	169,010	264	25.74
Private	Crawford	54,693	85	8.33
US Forest Service	Central	37,000	58	5.64
US Forest Service	Southern	13,022	20	1.98
Bureau of Land Management	Northeast	24,715	39	3.76
Bureau of Land Management	Central	90,850	142	13.84
Bureau of Land Management	Southern	29,325	46	4.47
Bureau of Land Management	Crawford	26,593	42	4.05
State of Utah	Northeast	27,689	43	4.22
State of Utah	Central	13,314	21	2.03
State of Utah	Southern	4,318	7	0.66
State of Utah	Crawford	7,259	11	1.11

*Water comprises 1,953 acres (3 mi²) and represents 0.30% of Rich County's total area.

Sage-grouse Population Status and Distribution

Rich County is among the largest populations of sage-grouse in Utah. There are eight lek complexes in Rich County with a total of 46 active and historic lek sites. The UDWR has been monitoring sage-grouse lek sites and the number of strutting males in Rich County since 1959. Early counts often included less than 10 lek sites and were likely under-representative of the total number of leks and, therefore, the total breeding population. In the last five years, over 30 leks have been monitored and previously unknown lek sites are discovered regularly. Although sage-grouse populations in Rich County seem to be experiencing an increasing trend since 1959 (Figure 16), this could simply be due to increased monitoring efforts and an increase in the number of leks monitored.

Observations of the number of males per lek is another index used to evaluate sage-grouse population trends. Because this index accounts for the number of leks counted, i.e. the amount of effort, this index may, in cases where effort is variable, be a more useful illustration of the population trend. In Rich County, the number of males per lek has fluctuated around approximately 40 males/lek since the early 1970s (Figure 17).

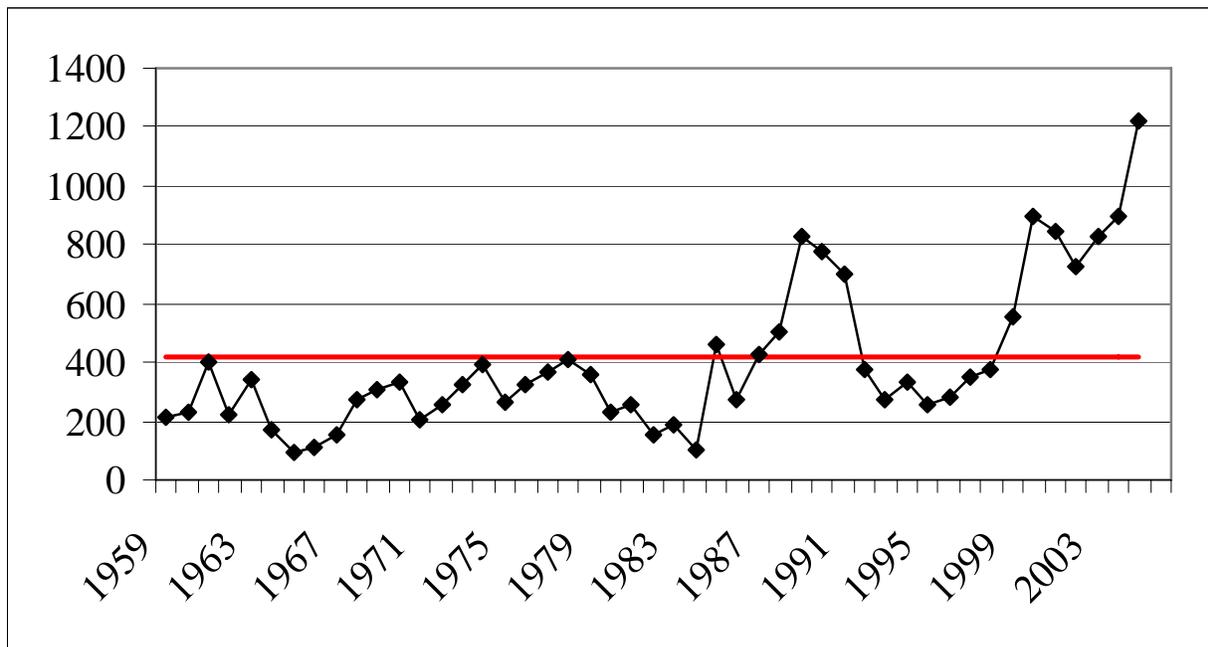


Figure 16. Maximum total number of males counted and 40-year average maximum total males counted on leks in Rich County, 1959-2005.

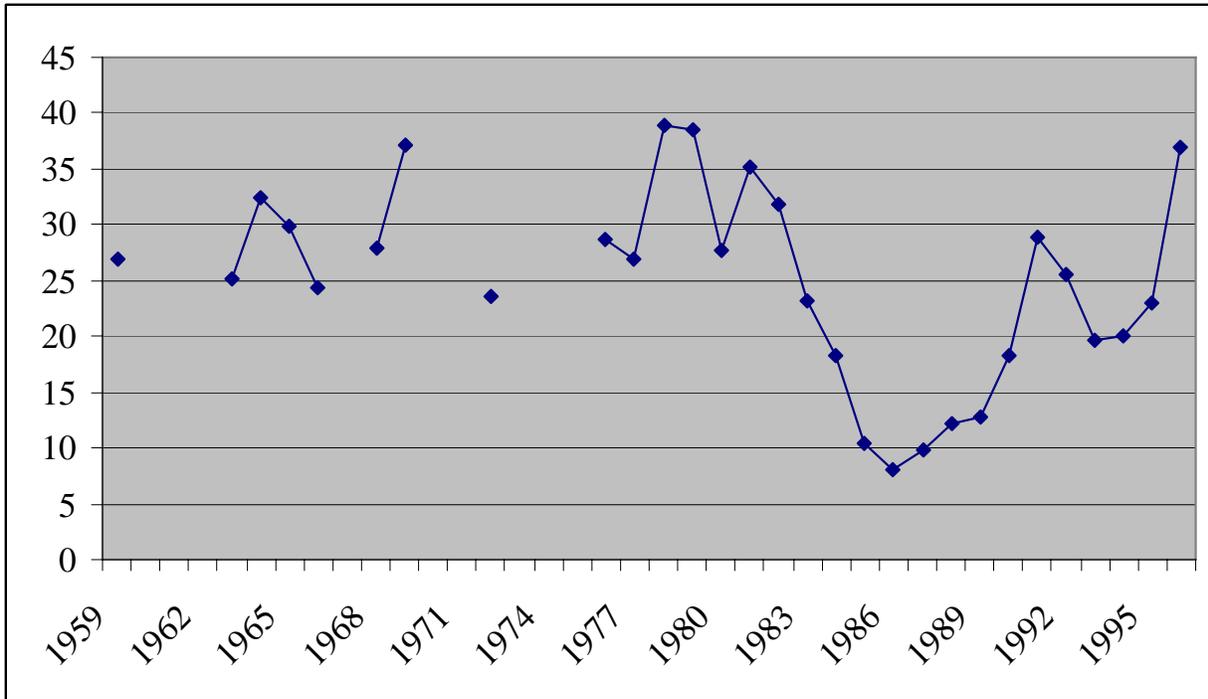


Figure 17. The number of males per lek in Rich County, 1959-2005. Only years when >10 leks were counted were included.

Sage-grouse seasonal habitat types in Rich County were mapped by the UDWR in 1999. Nearly the entire county has been designated as brood rearing and winter habitat and there is nearly 100% overlap of these seasonal habitat types. The Rich CRM SAGR believes this mapping should be revisited to better identify seasonal habitat types and use areas in Rich County to facilitate better management of sage-grouse and their habitats.

The UDWR Big Game Range Trend project has been monitoring sites throughout Rich County to track changes in vegetation composition, structure, and diversity. Although these sites were placed in areas used by big game, where they overlap with sage-grouse seasonal habitat types they can provide information about vegetation and habitat conditions in those areas in a general sense. Data collected at these sites are summarized and available at <http://www.wildlife.utah.gov/range/>.

c. Key Ecological Indicators and Threats

In a step-wise fashion, Rich CRM SAGR participants identified key ecological aspects (KEAs) of sage-grouse ecology and biology and associated indicators (to measure KEAs), determined and ranked the range of variation for each KEA, and assessed the current and desired conditions for each KEA (Table 24). They then identified and ranked potential threats (Table 25).

Table 24. Greater sage-grouse key ecological aspects in Rich County, Rich County Coordinated Resources Management Sage-grouse Local Working Group, 2007. The ‘Key Attribute’ and ‘Indicator’ cells’ are those defined by Greater Sage-grouse guidelines (Connelly et al 2000). The shaded cells represent the current condition as recorded by local working group members of a particular attribute and indicator as it relates to sage-grouse habitat and life history requirements.

Resource	Area Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Current Indicator Status	Current Rating	Desired Rating	Date of Current Rating	Date for Desired Rating
Rich County	Condition	Breeding Habitat Quality (leks, nesting, early brood-rearing)	Proximity to sagebrush (or other heavy cover) and vegetation composition and structure on and around lek complex.	Sagebrush cover sparse w/in 2 mi of most leks; significant sagebrush or “weed” encroachment onto lek complex.	Dispersed patches of sagebrush cover and little perennial grass w/in 2 mi of lek; density of tall vegetation on leks increasing.	Large patches of sagebrush or other cover w/in 2 miles of lek; at least 25% perennial grass and forb cover.	<i>Sagebrush steppe surrounding most lek complexes; most sagebrush cover w/in 2 mi of lek > 20% with dense perennial grass and forb cover, high vegetative species richness.</i>	Most lek sites and surrounding habitat in Rich County in good condition.	Good	Very Good	5-Nov	16-Jul
Rich County	Condition	Summer/Late Brood-rearing Habitat Quality	Cover and forb/shrub composition and proximity to open patches	Few perennial grasses & forbs in dense sagebrush or openings.	Poor perennial grass & forb cover in sagebrush and limited in openings	<i>Some grasses & forbs in sagebrush and good grass/forb content in openings.</i>	High stature grasses in shrub lands; dense cover in riparian zone; high species richness; including a matrix of open patches (uplands and riparian).	Late summer brood-rearing habitat is in fair condition; riparian habitat is somewhat lacking and is largely responsible for the current rating.	Fair	Good	5-Nov	16-Jul
Rich County	Condition	Winter Habitat Quality	Sagebrush canopy cover, height, and composition on traditional/preferred winter range (<5% slopes, <6800 feet).	<25% of preferred height (12-25 in) and cover (12-25%) classes. Sagebrush is predominantly short-sparse (0-12 in, <12% CC) and tall-dense (>25 in, >25% CC) OR <5% short-sparse, <3% tall-dense	25-40% is of preferred height (12-25 in) and cover (12-25%) classes. 60-74% of sagebrush is short-sparse or tall dense OR only 6-10 % short-sparse, only 4-6% tall-dense.	<i>41-55% is of preferred height (12-25 in) and cover (12-25%) classes. 45-59% of sagebrush is short-sparse or tall dense OR only 11-15% short-sparse, only 7-10% tall-dense.</i>	56-70% is of preferred height (12-25in) and cover (12-25%) classes. 30-44% of sagebrush is short-sparse or tall-dense OR >15% short-sparse, >10% tall-dense.	Winter habitat is in fair condition.	Fair	Good	5-Nov	16-Jul

Rich County	Size	Population Distribution	Distribution of leks	>75% in Southern Subunit	74-65% in Southern Subunit	64-50% in Southern Subunit	<50% in Southern Subunit	Most leks are located on Desert Land and Livestock and surrounding areas.	Fair	Good	5-Sep	16-Jul
Rich County	Size	Population Size	3-year running average maximum number of males counted on leks	<300	301-1,199	1,200-2,000	2,000+	The 2003-2005 average is 980 males	Fair	Good	5-Sep	16-Jul
Rich County	Size	Population Size	Number of active leks	<15	16-30	31-45	45+	There are currently 33 active leks in Rich Co.	Good	Very Good	5-Sep	16-Jul

Table 25. Relative importance/contribution of threats to sage-grouse populations in Rich County. Rich County Coordinated Resources Management Sage-grouse Local Working Group, 2007. Threats are described in the “Threat Analysis” section of this Plan. Rankings are as follows: L=low; M=medium; H=high; and VH=very high. Ranks are defined according to TNC (2005).

Threat	Reduced Population Size	Population Distribution	Reduced Breeding Habitat Quality	Reduced Summer/Late Brood-rearing Habitat Quality	Reduced Winter Habitat Quality	Reduced Connectivity of Seasonal Habitat Types	Reduced Connectivity of Populations & Sub-populations
Home & Cabin Development	M	M	M	M	L	M	M
Powerlines, Fences, & Other Tall Structures	H	L	M	L	L	M	M
Renewable & Non-renewable Energy Development	M	M	H	H	M	L	L
Roads	H	L	M	L	L	M	M
Drought & Weather	H	H	M	H	L	H	H
Hunting Pressure	L	M	-	-	-	-	H
Incompatible Fire Management Practices	H	H	H	H	H	H	H
Incompatible Livestock Grazing	H	H	H	H	M	H	H
Incompatible OHV Recreation	H	M	M	M	M	H	H
Invasive/Noxious Weeds	M	H	M	L	L	M	M
Parasites & Disease	M	M	-	-	-	-	H
Predation	M	M	L	-	-	-	M
Vegetation Management							
Pinyon-Juniper Encroachment							

d. Status of Conservation Actions and Strategies

This report summarizes the status of the efforts made by individual and partners to address threats and strategic actions identified in the Rich CRM SAGR Greater Sage-grouse Local Conservation Plan. This adaptive plan is in effect until the year 2016. Rich CRM SAGR partners not only reported on specific actions completed or addressed in 2006/2007 but also identified steps to be taken to implement additional actions into subsequent years of the plan. Please note that if a Strategy or an action number is missing from this report; it means that no action(s) were taken in 2006/2007 towards its completion. For the complete list of threats identified by the Rich CRM SAGR group, see conservation plan located on line at http://utahcbcp.org/files/uploads/rich/RICOSAGRPlan_Draft1.pdf.

1. Strategy: By 2016 increase amount of breeding habitat in “good” condition the northern two-thirds of the County.

1.1. Action: Work with public and private partners to implement rest-rotation/time controlled grazing management strategies, where appropriate.

Status: Landowners and permittees are working with Bureau of Land Management (BLM) and Utah Grazing Improvement Program (GIP) to initiate a large scale restoration grazing system for the northern part of Rich County.

1.2. **Action:** Implement appropriate treatments and seeding in CRP fields and stands dominated by crested wheatgrass.

Status: No action taken in 2007 with CRM partners

1.3. **Action:** Work with NRCS and private partners to implement Farm Bill programs beneficial to sage-grouse.

Status: Landowners and permeates are working with Utah Grazing Improvement Program (GIP) to initiate a large scale restoration grazing system for the northern part of Rich County.

1.4. **Action:** Work with public and private partners to research/monitor effects of treatments on sage-grouse populations and habitat.

Status: Steps are being taken to ensure research and monitoring efforts continue in conjunction with Utah State University (USU) to monitor the effects of various actions.

2. **Strategy:** Minimize impacts of agricultural conversion on sage-grouse.

2.1. **Action:** Maintain the CRP program and improve its benefit to wildlife by altering seed mixes to include a greater proportion of ecologically appropriate species.

Status: No action taken in 2007 with CRM partners as no new ground was put into CRP

2.2. **Action:** Maintain or reestablish sagebrush patches of sufficient size and appropriate shape to support sage-grouse between agricultural fields.

Status: No action taken in 2007 with CRM partners as no new ground was put into CRP

2.3. **Action:** Work with NRCS and others to maintain the CRP program and enroll important sage-grouse habitats currently in grain production.

Status: No action taken in 2007 with CRM partners as no new ground was put into CRP

2.4. **Action:** Encourage use of sage-grouse friendly seed mixes, including bunchgrasses, forbs and big sagebrush, in CRP and other grassland plantings.

Status: No action taken in 2007 with CRM partners as no new ground was put into CRP

2.5. **Action:** Rehabilitate old low diversity, CRP fields with ecologically appropriate seed mixes including bunchgrasses, forbs, and big sagebrush.

Status: No action taken in 2007 with CRM partners

2.6. **Action:** Encourage interest and enrollment of key sage-grouse habitats in the Grassland Reserve Program or other relevant Farm Bill programs.

Status: No action taken in 2007 with CRM partners

2.7. **Action:** Work with NRCS and private partners to identify areas important to sage-grouse that should be given higher priority for CRP.

Status: No action taken in 2007 with CRM partners

2.8. **Action:** Work with public and private partners to implement sage-grouse appropriate management of CRP.

Status: No action taken in 2007 with CRM partners

3. **Strategy:** Maintain and/or increase amount of winter habitat in “good” condition in the Southern Subunit through the use of appropriate treatments and/or land management strategies.

3.1. **Action:** Work with public and private partners to manage livestock grazing to increase quality and condition of sagebrush stands, where appropriate.

Status: On-going

3.2. **Action:** Work with public and private partners to avoid sagebrush-reducing grazing in areas important for winter use, where feasible.

Status: On-going

3.3. **Action:** Plant sagebrush seedlings into crested wheatgrass stands, where appropriate and feasible.

Status: Pending

4. **Strategy:** Coordinate fire management practices with public and private partners to prevent loss of crucial sage-grouse habitat and enhance/improve sage-grouse habitat, where appropriate.

4.1. **Action:** Comment on BLM/USFS fire plans.

Status: No action taken in 2007

4.2. **Action:** Re-seed sites, post-burn, with ecologically appropriate seed mixture to prevent the establishment of cheat-grass and other invasive/noxious species.

Status: No action taken in 2007

4.3. **Action:** Use fire management to reduce sagebrush canopy cover and create diverse sagebrush stands in brood-rearing and summer use areas, where appropriate.

Status: No action taken in 2007

5. **Strategy:** Maintain and where possible, improve grass/forb component in the understory in nesting and brood-rearing areas.

5.1. **Action:** Reclaim and/or reseed areas disturbed by treatments when necessary, using seed mixtures with appropriate grasses and desirable forbs.

Status: No action taken in 2007

5.2. **Action:** Restore understory vegetation in areas lacking desirable quality and quantity of herbaceous vegetation where economically feasible.

Status: No action taken in 2007

5.3. **Action:** Work with public and private partners to implement rest-rotation/time controlled grazing management strategies, where appropriate.

Status: Landowners and permittees are working with Utah Grazing Improvement Program (GIP) to initiate a large scale restoration grazing system for the northern part of Rich County.

5.4. **Action:** Conduct vegetation treatments to improve forb diversity (e.g., harrowing, aerating, chaining) and reclaim or reseed disturbed area, if needed.

Status: CRM partners implemented projects and Deseret Land and Livestock property and BLM partners burned several sites to increase forb diversity.

5.5. **Action:** Develop management techniques to increase forb diversity and density in sagebrush steppe, within limits of ecological sites and annual variations.

Status: CRM partners are working on monitoring the effects of various treatments across the resource area.

5.6. **Action:** Avoid land use practices that reduce soil moisture, increase erosion, cause invasion of exotic plants, and reduce abundance and diversity of forbs.

Status: No action taken in 2007 to evaluate what these land practices are.

5.7. **Action:** Avoid developing springs for livestock in crucial sage-grouse nesting and brood-rearing areas.

Status: No action taken in 2007 as no springs were developed.

6. **Strategy:** Increase information dissemination and education opportunities for public and private partners regarding sage-grouse ecology and habitat needs.

6.1. **Action:** Develop educational materials (brochures, presentations, etc.) about sage-grouse ecology, habitat needs, and habitat management strategies.

Status: CRM partners are still working on several methods to meet this action.

6.2. **Action:** Share information and educational materials with CRM and other partners through use of printed materials, field tours, websites, reports, and other opportunities.

Status: CRM partners are still working on several methods to disseminate information but work continues through web page and newsletters.

6.3. **Action:** Support involvement of public and private partners in sage-grouse monitoring (lek counts, brood counts, etc.) and management.

Status: No action taken in 2007

7. **Strategy:** By 2016, increase percentage of riparian areas in Rich Co. that are functioning properly and provide suitable for sage-grouse brood-rearing habitat.

7.1. **Action:** Work with public and private partners to implement appropriate grazing management practices in riparian areas.

Status: Landowners and permittees are working with Utah Grazing Improvement Program (GIP) to initiate a large scale restoration grazing system for the northern part of Rich County.

7.2. **Action:** Work with public and private partners to implement appropriate management to reduce amount of noxious/invasive weeds in riparian areas.

Status: Rich County is working on this action with their weed management program.

7.3. **Action:** Modify or adapt pipelines or developed springs to create small wet areas.

Status: No action taken in 2007

7.4. **Action:** Protect existing wet meadows and riparian areas, with a focus on those areas in crucial sage-grouse brood-rearing habitats.

Status: No action taken in 2007

7.5. **Action:** Manage vegetation and artificial structures to increase water-holding capability of areas.

Status: No action taken in 2007

7.6. **Action:** Install catchment structures to slow run-off, hold water, and eventually raise water tables.

Status: No action taken in 2007

8. **Strategy:** Increase practice of time-controlled, seasonally appropriate, rest-rotation grazing.

8.1. **Action:** Encourage small operators to combine herds and allotments to provide restoration with minimal fencing.

Status: Landowners and permittees are working with Utah Grazing Improvement Program (GIP) to initiate a large scale restoration grazing system for the northern part of Rich County.

8.2. **Action:** Facilitate cooperation and communication between private livestock operators.

Status: No action taken in 2007

8.3. **Action:** Provide educational opportunities for private operators about benefits of time controlled grazing.

Status: No action taken in 2007

8.4. **Action:** Provide incentives (habitat project approval from CRM, UDWR, BLM, etc.) for cooperation between private partners.

Status: No action taken in 2007

8.5. **Action:** Avoid dividing allotments into pastures, where possible.

Status: No action taken in 2007

9. **Strategy:** Minimize the impact of excessive predation.

9.1. **Action:** Modify power lines and wood fence posts (to remove raptor perches) in important sage-grouse areas, where feasible and where predator concerns have been identified.

Status: No action taken in 2007

9.2. **Action:** Remove trees, remove/modify raptor perches, and maintain quality sagebrush habitat, where predation concerns on sage-grouse have been identified.

Status: BLM is doing and will continue to address increase juniper in several locations in nesting and brood rearing habitat.

9.3. **Action:** Begin site-specific predation management considering all predator species (especially common ravens and red fox) where necessary and appropriate.

Status: CRM partners are working with USDA Wildlife Services to identify these areas.

10. **Strategy:** Improve knowledge of disease in sage-grouse populations.

10.1. **Action:** Collect grouse parasite and disease organism samples while handling birds for other research.

Status: No action taken in 2007

10.2. **Action:** Monitor radio collared and other grouse for West Nile Virus and other disease outbreaks.

Status: USU research continues in the area, no birds were discovered to have any diseases in 2007.

11. **Strategy:** Minimize impacts of utilities lines in sage-grouse habitat.

11.1. **Action:** Avoid new construction during important periods and re-route lines where technically and economically feasible to avoid impacts. If new power lines must be installed, route them along existing roads if possible.

Status: No action taken in 2007

11.2. **Action:** Schedule maintenance to minimize important periods, however, maintenance in emergency situations will be unrestricted.

Status: No action taken in 2007

11.3. **Action:** Install raptor deterrents when applicable.

Status: No action taken in 2007

12. **Strategy:** Minimize impacts of exotic, invasive, and undesirable plant species.

12.1. **Action:** Identify areas where undesirable vegetation is encroaching on sage-grouse habitat.

Status: No action taken in 2007

12.2. **Action:** Treat areas where undesirable vegetation has become or is at risk of becoming a factor in sage-grouse habitat loss or fragmentation.

Status: No action taken in 2007

12.3. **Action:** Work with existing weed management programs to incorporate sage-grouse habitat needs.

Status: No action taken in 2007

12.4. **Action:** Identify large areas of introduced plant species that are not meeting sage-grouse habitat needs and reseed with native species where appropriate.

Status: No action taken in 2007

12.5. **Action:** Identify areas where pinyon or juniper trees are encroaching on good quality sagebrush habitat and treat as needed.

Status: CRM and partners have identified some of these areas on BLM and private lands within the resource area.

12.6. **Action:** Manage fire, transportation, and vegetation treatments to minimize undesirable vegetation where possible.

This action is being implemented where possible.

13. **Strategy:** Minimize the amount of quality sage-grouse habitat eliminated by residential and commercial land development consistent with private property rights.

No action taken in 2007 as no quality sage-grouse habitat was impacted by development.

13.1. **Action:** Participate with County land use decision makers in identifying key sage-grouse habitats.

Status: CRM partners are still working towards completing this action—on going.

13.2. **Action:** Maintain sagebrush environments of sufficient size and shape around developments in sage grouse habitat.

No action taken in 2007 as no quality sage-grouse habitat was impacted by development.

13.3. **Action:** Encourage the voluntary use of conservation easements and other land protection vehicles with willing sellers in sage grouse habitats.

13.4. **Action:** Educate rural residents about the importance of good grazing management in keeping small tracts weed free and capable of providing wildlife habitat.

14. **Strategy:** By 2016, increase population and habitat monitoring efforts in Rich County.

Status: CRM is working with UDWR to increase monitoring efforts and identifying and searching new areas.

14.1. **Action:** Encourage public and private partners to use techniques from Connelly et al. (2000) “Monitoring of Greater Sage-grouse Habitats and Populations”.

Status: CRM encourages public and private partners to employ existing techniques and increase knowledge of new techniques.

14.2. **Action:** UDWR biologists will coordinate with private partners to identify sage-grouse lek sites and count birds on private lands.

Status: CRM is working with UDWR to increase monitoring efforts and identifying and searching new areas.

14.3. **Action:** UDWR to enlist and coordinate private volunteers and/or other agency biologists search for new leks and conduct lek counts on active leks.

Status: CRM partners are working with UDWR to identify and search new potential sage-grouse lekking areas.

14.4. **Action:** Provide, when possible, reimbursement for volunteers for mileage, etc.

Status: USU applied for a grant to obtain monies to meet this action but the grant was not funded.

14.5. **Action:** Test dead sage-grouse for West Nile Virus and any other parasites/pathogens of importance.

Status: No action taken in 2007 as no dead grouse were found. UDWR works with CRM partners to monitor.

15. **Strategy:** Minimize impacts of oil and gas development on sage-grouse and their habitat.

15.1. **Action:** Coordinate and communicate with BLM to ensure that adequate information/data is available for decision making process.

Status: No report from BLM partners.

15.2. **Action:** Support recommendations that provide for temporal avoidance, minimization of tall structures, and avoid crucial habitat or use areas, where possible.

Status: No report from BLM partners.

15.3. **Action:** Reduce fragmentation of sage-grouse habitat by oil and gas development activities.

Status: No action taken in 2007 action is pending

15.4. **Action:** Minimize disturbance to sage-grouse associated with oil and gas development.

Status: No action taken in 2007 action is pending

15.5. **Action:** Reduce cumulative impacts of oil and gas development.

Status: No action taken in 2007 action is pending

15.6. **Action:** Use directional drilling where feasible to minimize surface disturbance, particularly where well density exceeds 1:160 acres.

Status: No action taken in 2007 action is pending

15.7. **Action:** Minimize pad size and other facilities to the extent possible, consistent with safety.

Status: No action taken in 2007 action is pending

15.8. **Action:** Plan and construct roads to minimize duplication.

Status: No action taken in 2007 action is pending

15.9. **Action:** Cluster development of roads, pipelines, electric lines and other facilities.

Status: No action taken in 2007 action is pending

15.10. **Action:** Use existing, combined corridors where possible.

Status: No action taken in 2007 action is pending

15.11. **Action:** Use early and effective reclamation techniques, including interim reclamation, to speed return of disturbed areas to use by sage-grouse.

Status: No action taken in 2007 action is pending

15.12. **Action:** Reduce long-term footprint of facilities to the smallest possible.

Status: No action taken in 2007 action is pending

15.13. **Action:** Avoid aggressive, non-native grasses (e.g. intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, smooth brome, etc) in reclamation seed mixes.

Status: No action taken in 2007 action is pending

15.14. **Action:** Eliminate noxious weed infestations associated with oil and gas development disturbances.

Status: No action taken in 2007 action is pending

15.15. **Action:** Minimize width of field surface roads.

Status: No action taken in 2007 action is pending

15.16. **Action:** Avoid ridge top placement of pads and other facilities.

Status: No action taken in 2007 action is pending

15.17. **Action:** Use low profile above ground equipment, especially where well density exceeds 1:160 acres.

Status: No action taken in 2007 action is pending

15.18. **Action:** Avoid breeding/nesting season (March 1 – June 30) construction and drilling when possible in sage-grouse habitat.

Status: No action taken in 2007 action is pending

15.19. **Action:** Limit breeding season (March 1 – May 1) activities near sage-grouse leks to portions of the day after 9:00 a.m. and before 4:00 p.m.

Status: No action taken in 2007 action is pending

15.20. **Action:** Reduce daily visits to well pads and road travel to the extent possible in sage-grouse habitat.

Status: No action taken in 2007 action is pending

15.21. **Action:** Utilize well telemetry to reduce daily visits to wells, particularly where well density exceeds 1:160 acres.

Status: No action taken in 2007 action is pending

15.22. **Action:** Locate compressor stations off ridge tops and at least 2,500 feet from active sage-grouse leks, unless topography allows for closer placement.

Status: No action taken in 2007 action is pending

15.23. **Action:** Avoid locating facilities within a minimum of ¼ mile of active sage-grouse leks, unless topography allows for closer placement.

Status: No action taken in 2007 action is pending

15.24. **Action:** Plan for and evaluate impacts to sage-grouse of entire field development rather than individual wells.

Status: No action taken in 2007 action is pending

15.25. **Action:** Study, and attempt to quantify, impacts to sage-grouse from oil and gas development.

Status: No action taken in 2007 action is pending

15.26. **Action:** Evaluate need for near-site and/or off-site mitigation to maintain sage grouse populations during oil and gas development and production, especially where well density exceeds 1:160 acres.

Status: No action taken in 2007 action is pending

15.27. **Action:** Implement near-site and/or off-site mitigation as necessary to maintain sage-grouse populations.

Status: No action taken in 2007 action is pending

15.28. **Action:** Share sage-grouse data with industry to allow for planning to reduce and/or mitigate for impacts.

Status: No action taken in 2007 action is pending

15.29. **Action:** Update setbacks, mitigation requirements, and spatial and temporal avoidance recommendations as new information becomes available.

Status: No action taken in 2007 action is pending

16. **Strategy:** Minimize impacts of utilities lines in sage-grouse habitat.

16.1. **Action:** Avoid new construction during important periods and re-route lines where technically and economically feasible to avoid impacts.

Status: No action taken in 2007

16.2. **Action:** Schedule maintenance to minimize important periods, however, maintenance in emergency situations will be unrestricted.

Status: No action taken in 2007

16.3. **Action:** Install raptor deterrents when applicable.

Status: No action taken in 2007, pending the outcome of research conducted in San Juan County.

17. **Strategy:** Monitor and manage lek viewing opportunities to make sure they do not become harmful to sage-grouse populations.

17.1. **Action:** Occasionally conduct lek viewing tours to facilitate access to leks.

Status: No action taken in 2007

17.2. **Action:** Provide educational materials to local birding groups on appropriate lek viewing behavior.

Status: No action taken in 2007

17.3. **Action:** Discourage viewing of sensitive lek areas through access restrictions, increased law enforcement patrols, and effective use of trespass laws.

Status: No action taken in 2007

18. **Strategy:** Initiate and/or maintain monitoring and research efforts to address information gaps identified in this Plan and in future adaptive planning efforts.

18.1. **Action:** Explore funding opportunities to further scientific research into information gaps identified in this Plan and in future adaptive planning efforts, as needed.

Status: On going

18.2. **Action:** Participate in the Northern Region UPCD Regional Team to develop

Status: On going

18.3. **Action:** Develop research and/or monitoring protocols to address information gaps identified in this plan and in future adaptive planning efforts.

Status: On going

18.4. **Action:** Cooperate with USU and other academic institutions to establish graduate student projects designed to investigate information gaps identified in this Plan and in future adaptive planning efforts.

Status: On going

e. Habitat Improvements and Completed Conservation Actions

The UDWR, BLM, and private landowners have implemented several habitat improvement projects in the Resource Area targeted at restoring or enhancing sage-grouse habitat. In 2004, approximately 4,100 acres of habitat in the Resource Area were treated and 7,000 acres were treated in 2005. Treatments were aimed at reducing sagebrush canopy and enhancing native grass/forb cover in the understory. Additional habitat improvement projects are planned for 2006. The UDWR anticipates treating 15,425 acres in the Resource Area in 2006.

Table 26. Habitat Improvement Projects Implemented to Mitigate Sage-grouse Threats identified by the Rich County Coordinated Resource Management Sage-grouse Local Working Group, 2007.

ID	Region	LWG	FY start	FY complete	Project Title	Treatment type	Threat code	Acres
423	NR	RICHCO	2006	2007	Woodruff Co-Op	spray re-seed	1,12,15,18	96

conversion

4231	NR	RICHCO	2006	2007	Sage Hollow burn	prescribed burn	1,2,18,21	1858
4232	NR	RICHCO	2006	2007	Sage Creek burn	prescribed burn	1,2,18,21	547
4233	NR	RICHCO	2007	2007	Home Ranch South Aeration	Aerator	1,2,18,21	170
4234	NR	RICHCO	2007	2007	Home Ranch Sec. 14	brush crunch	1,2,18,21	670
4235	NR	RICHCO	2006	2007	Home Ranch North Bullhog	Bullhog	1,2,3,18,21	277

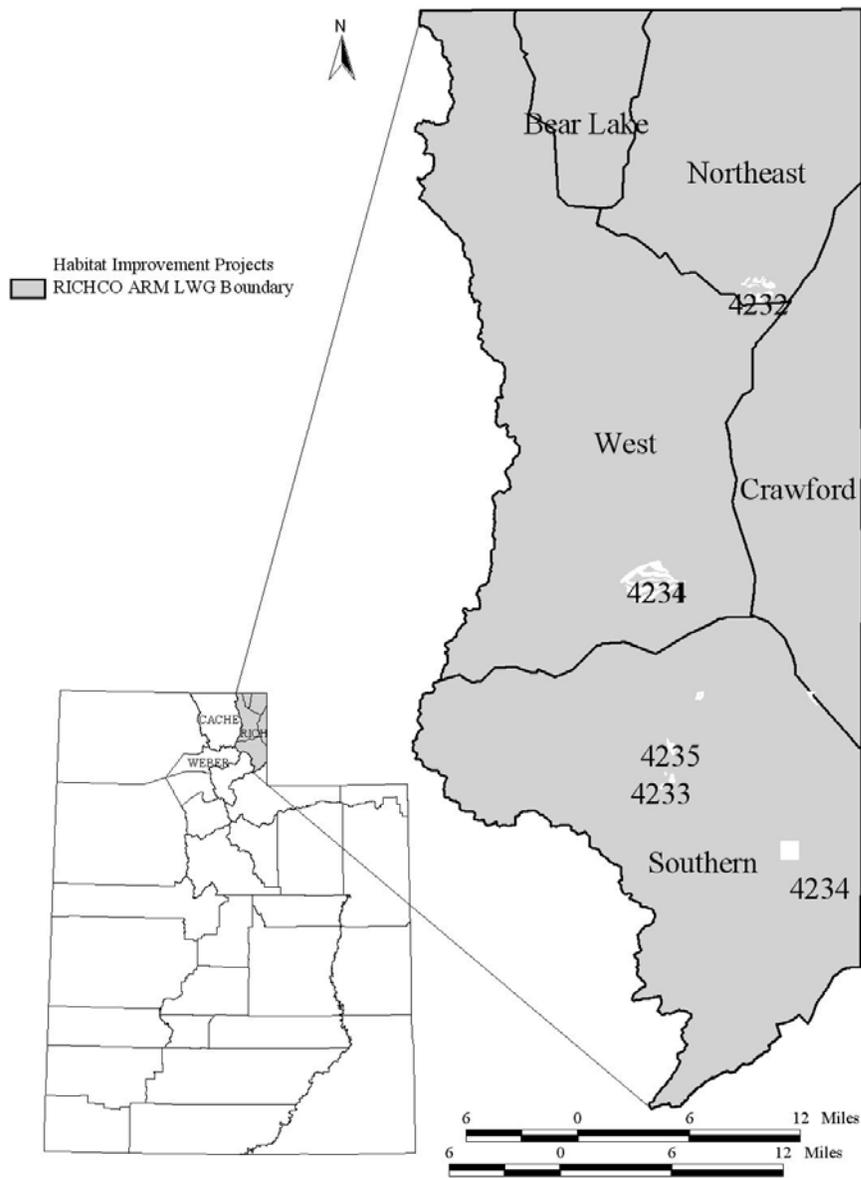


Figure 18. Location of habitat projects completed to mitigate sage-grouse threats in the Rich County Coordinated Resources Management Sage-grouse Local Working Group Resource Area, 2007.

7. Southwest Desert Adaptive Resource Management (SVARM) Sage-grouse Local Working Group

The Southwest Desert Adaptive Resources Management Sage-grouse Local Working Group was organized and facilitated by Todd A. Black and S. Nicole Frey of Utah's Community-Based Conservation Program (CBCP); a collaborative partnership between the UDWR and Utah State University Extension Services, with support from the Jack H. Berryman Institute. Dr. Frey and Sarah G. Lupis also served as the technical writer of the Plan itself. SWARM is comprised of state and federal agency personnel, representatives from local government, non-profit organizations, academic institutions, private industry, and private individuals. The agencies, organizations, and individuals who contributed to the Plan through participation in SWARM are listed in the LWG Plan.

a. Local Legal Authority

The Board of Commissions for Beaver, Iron, Washington Counties serve as the executive and legislative branches of local government. They have the authority to:

- 1 Protect and promote the health, welfare, and safety of the people of these counties
- 2 Regulate land use, land planning, and quality and protection of natural resources
- 3 Duly adopt regulations and policies to exercise such authorities including the review and approval or denial of proposed activities and uses of land and natural resources.

Both Beaver and Iron County are currently revising their Habitat Conservation Plans.

b. Status of Local Population

Plan Area

The SVARM Resource Area is located in southwestern Utah, and encompasses Beaver, Iron, and Washington counties, and portions of Garfield, Kane, and Millard, counties. The Resource Area includes 5,672,052 acres, bounded to the north and east by land formations, to the west by the Nevada border, and to the south by the Arizona border (Figure 1). The Resource Area is divided into four focus areas representing sage-grouse breeding complexes. These breeding complexes are based on geographic boundaries and groupings of leks. Although movement between complexes is likely, the complexes represent discrete subpopulations of sage-grouse in the Resource Area.

Southwestern Utah encompasses some of the most varied habitat in North America. The Southwest Desert contains habitat ranging from Alpine Tundra at elevations over 11,000 feet to the Mojave Hot Desert type at elevations as low as 2,000 feet. However, since all present sage-grouse habitat is located within the cold desert ecotone, the Plan limited descriptions to this area. The cold desert is also known as the northern desert shrub, salt-desert shrub, or the Great Basin Desert. The Great Basin is sometimes referred to as a physiographic province, but is more often considered part of the larger Basin and Range Physiographic Province. This desert actually extends beyond the Great Basin into the adjacent Columbia and Colorado Plateaus.

The elevation of sage grouse habitat within the Resource Area is largely between 5,000 and 9,000 feet. Summers are warm and winters are cold. Annual precipitation is mostly between 8 and 16 inches and is most abundant as winter snow, spring storms and brief but high intensity summer monsoonal moisture. As a result, the vegetation is predominantly deep-rooted shrubs or plants that mature prior to the summer drought period. Growth is limited and confined to the brief spring period when plants utilize the deep infiltrated moisture from snow received the previous fall or winter. This desert is a result of its distance from oceanic sources of precipitation and the rain shadow created by high mountain ranges intercepting the westerly flow of the jet stream.

Forbs are an important component of sage-grouse habitat, but their presence is highly variable due to yearly fluctuations in precipitation patterns and historical management activities. Native annuals are not common in this desert, but several exotic annuals introduced from Eurasia have become very common and have had serious impacts on this ecosystem.

Within the three focus areas, it is believed that populations are both migratory and nonmigratory. This is based on cumulative knowledge of the local working group (years of sage-grouse sightings) and unpublished radio telemetry studies conducted by the Utah Division of Wildlife Resources in the 1970s.

Landownership

Most of the Resource Area is public land (Table 27). In Beaver and Iron counties, the majority of federally owned land is managed by the BLM. Land managed by the USFS, Dixie National Forest, and Fishlake National Forest is located in Iron and Washington counties and along the eastern edge of the Resource Area. Private land is scattered throughout the Resource Area with the largest towns, Beaver (Beaver County), Cedar City (Iron County), and St. George (Washington County), located along I-15 which is the primary north– south travel corridor for this area.

Table 27. Landownership in the Southwest Desert Adaptive Resources Management Sage-grouse Local Working Group Resource Area, 2007.

Landowner	Acres	% of Resource Area
BLM Wilderness Area	3523	< 1
BLM	2858328	51.3
Native American Tribes	30924	< 1
National Park Service	149918	2.7
Private	1377674	24.7
State of Utah	396388	7.1
State, County, City; Wildlife, Park, and Outdoor Recreation Areas	25860	< 1

USFS	670653	12
USFS Wilderness Area	57305	1
Water	3026	< 1
Total	5574132	

Sage-grouse Population Status and Distribution

The UDWR began using lek counts to monitor sage-grouse populations in the Resource Area in 1969 (Figure 19). That year, 100 male sage-grouse were counted on four leks. During early surveys, the locations of only a few leks were known. Thus, most counts of males are accompanied by the number of leks that were counted that year. There was a wide fluctuation in counts of male sage-grouse at leks throughout the data collection period. According to Connelly et al. (2004), a minimum of ten leks must be counted before a reasonably accurate population estimate can be made. It was not until 1998 that ten or more leks were consistently counted each year. By placing a trend line of a five-year moving average over the males per lek counts, it is noticeable that sage-grouse in the Resource Area have been declining since 1993 (Figure 20). The number of active leks can also be used to index sage-grouse population trends. In recent history, little effort was put forth in the Resource Area to locate new leks or survey activity at historic leks that were no longer being counted. Therefore, in spring 2006, the DWR began searching for undocumented activity. Five new leks were discovered, encouraging the DWR to continue to look for new leks.



Figure 19. The number of male sage-grouse and sage-grouse leks counted within the Southwest Desert Adaptive Resources Management Sage-grouse Local Working Group Resource Area, 1969–2005.

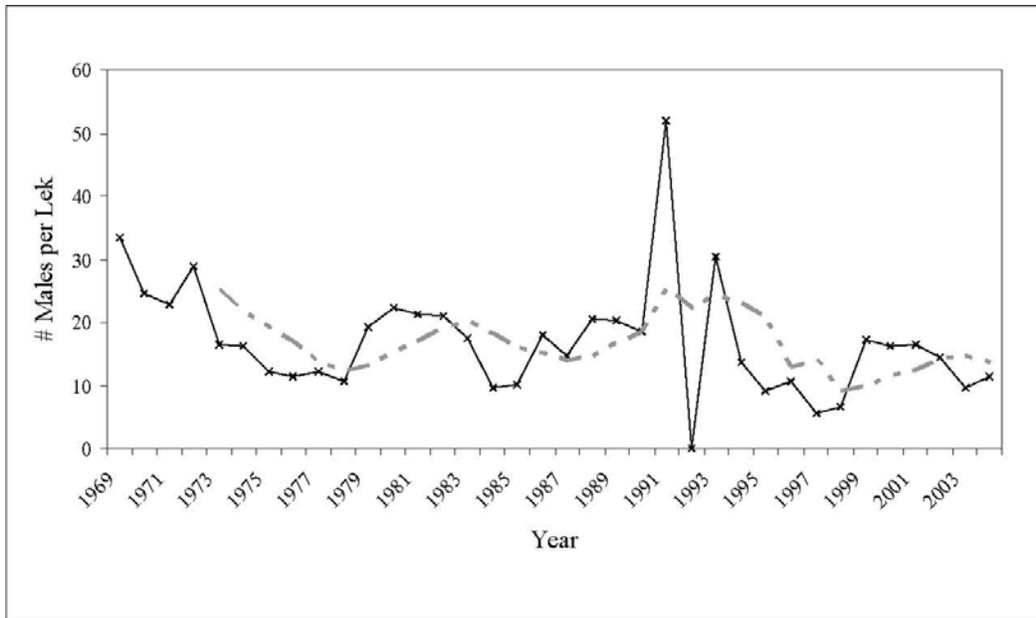


Figure 20. The number of male sage-grouse counted per lek in the Southwest Desert Adaptive Resources Management Sage-grouse Local Working Group Resource Area 1969– 2005, shown with a five-year trend line.

c. Key Ecological Indicators and Threats

SVARM participants identified key ecological aspects (KEAs) of sage-grouse ecology and biology and associated indicators (to measure KEAs), determined and ranked the range of variation for each KEA, and assessed the current and desired conditions for each KEA (Table 28). They then identified and ranked potential threats (Table 29).

Table 28. Greater sage-grouse key ecological aspects identified in Utah's Iron, Milliard, Beaver and Washington Counties, Southwest Desert Adaptive Resources Management Sage-grouse Local Working Group, 2007. The 'Key Attribute' and 'Indicator' cells' are those defined by Greater Sage-grouse guidelines (Connelly et al 2000). The shaded cells represent the current condition as recorded by local working group members of a particular attribute and indicator as it relates to sage-grouse habitat and life history requirements.

Resource	Area Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Current Indicator Status	Current Rating	Desired Rating	Date of Current rating	Date for re-evaluation
Southwest Desert	Landscape Context	Connectivity of key habitat types	Condition and type of surrounding vegetation	isolated patches of sage-grouse habitat; encroachment by invasive species and/or development; or area heavily disturbed	<i>Healthy habitat of patchy distribution; managing vegetation may restore most of the communities to a desired quality</i>	healthy sagebrush community fairly distributed throughout the study area and/or most of the areas have management to maintain a healthy community	healthy sagebrush community well distributed with management in place to maintain this community	Good	Fair	Good	Jan-06	TBD
Southwest Desert	Landscape Context	Connectivity of Sagebrush Communities	Distance to other occupied or potential habitat	Disjointed small patches of habitat isolated from other patches and many barriers to grouse movements between communities.	<i>Patches of habitat isolated from other patches OR there are barriers to grouse movements between communities</i>	<i>Large patches of habitat may be threatened by fragmentation or barriers to grouse movements may be increasing.</i>	Communities consist of large tracts of unbroken habitat and few barriers limiting sage-grouse movements between communities	Good	Fair	Good	Jan-06	TBD
Southwest Desert	Condition	Breeding Quality (Leks and nesting)	Quality of cover; patch size of sagebrush; disturbance ;strutting patches	roads, trails, man-made structures to disturb lek and nesting, sagebrush patchy and/or sparse; no grass or nesting cover; <10% or > 25% canopy cover	<i>Either disturbance or sagebrush patchy and/or sparse; canopy cover 10 - 15%; good strutting area; residual grass for nesting</i>	<i>Canopy cover 15 - 20%; grass/forb cover > 12%; open lek site;residual grass for nesting</i>	canopy cover 20 -25%; open areas with grass/forb cover >15%	Good	Fair	Good	Dec-05	TBD
Southwest Desert	Condition	Brood-rearing habitat quality	Sage canopy cover; grass/forb composition and quality	man-made structures facilitating predation; little to no grass/forbs; sagebrush and shrubs sparse	man-made structures nearby; grass/forbs < 10% of habitat	<i>lack of man-made structures, grass/forb 10 -15% of habitat</i>	<i>lack of man-made structures; grass/forb > 15% of habitat</i>	Good	Good	Very Good	Dec-05	TBD
Southwest Desert	Condition	Riparian Area Quality	Proper functioning condition; classification of water	water intermittent or lacking or PFC rating is "non-functioning"	<i>PFC rating "functioning at risk"; water intermittent or lacking</i>	<i>PFC rating is "properly functioning"; water usually perennial</i>	PFC rating is "properly functioning"; dependable permanent water source	Good	Fair	Good	Dec-05	TBD
Southwest Desert	Condition	Winter Habitat Quality	Sagebrush canopy cover and height	canopy cover <10%; sagebrush decadent	canopy cover 10 - 15%; sagebrush in poor condition or under 12"	<i>canopy cover 15 - 20%; age stand diversity includes many patches of decadent sagebrush</i>	<i>canopy cover >20%; mosaic age stand diversity</i>	Good	Good	Very Good	Dec-05	TBD

Southwest Desert	Size	Population Distribution	Distribution of Leks (secondary consideration)	Few leks within the focus area or clumped in one portion of the focus areas	Active leks well distributed in 1 or 2 of the focus areas but other focus areas are in poor condition	Active leks well distributed throughout all focus areas	<i>Active leks well distributed in all focus areas, and new leks found outside the focus areas</i>	Fair	Fair	Very Good	Dec-05	TBD
Southwest Desert	Size	Population Size	Number of known active leks	< 10	10 -12	13 - 18	> 19	Good	Good	Good	Dec-05	TBD
Southwest Desert	Size	Population Size	Number of males counted on active leks	< 200 males	201- 300 males	301-375 males	> 375 males	Fair	Fair	Good	Feb-06	TBD

Table 29. Relative importance/contribution of threats to sage-grouse populations in Utah’s Iron, Milliard, Beaver, and Washington Counties, Southwest Desert Adaptive Resources Management Sage-grouse Local Working Group, 2007. Threats are described in the “Threat Analysis” section of this Plan. Rankings are as follows: L=low; M=medium; H=high; and VH=very high. Ranks are defined according to TNC (2005).

Threat	Aspects of Sage-grouse population in the SWARM Resource Area							
	Lack of key habitat type connectivity	Poor Condition of Surrounding Community	Degradation of Winter Habitat Quality	Loss of Breeding Quality (Leks and nesting) Habitat	Loss of Brood-rearing habitat quality	Loss of Riparian Area Quality	Reduction of Population Size	Reduction of Population Distribution
Enhanced native and domestic predators	Medium	Low	Low	High	High	Medium	High	High
Recreation use	Medium	Medium	Medium	High	High	High	Medium	Medium
Invasive/ alien vegetation species	High	High	High	Very High	High	Medium	High	High
Concentrated wildlife and/or livestock use	High	Medium	Medium	High	High	Medium	Medium	Medium
Fire and Vegetation Management	High	Medium	Medium	High	High	High	High	High
Development of roads or utilities	High	Medium	Low	Very High	High	Medium	Medium	High
Lack of communication among public parties	Medium	Medium	Low	High	Medium	Medium	Medium	Medium
Diseases and parasites	Medium	Medium	Low	High	Medium	Medium	High	High
Alternative Land Uses (mining, wind power, water development)	High	High	Medium	High	High	High	High	High
Dramatic Weather	High	Medium	Medium	Very High	High	High	High	High

Events								
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d. Status of Conservation Action and Strategies

SWARM participants identified several conservation strategies and actions that could be implemented to enhance greater sage-grouse populations. Here SWARM partners report on specific actions completed or addressed in 2006/2007 but also identified steps to be taken to implement additional actions into subsequent years of the plan. If a strategy or an action number is missing from this report; it means that no action(s) were taken in 2006/2007 towards its completion. To access a copy of the SWARM conservation plan visit the following web site address: <http://utahcbcp.org/files/uploads/SWARM/SVARMfml-10-06-web.pdf>. The SWARM LWG will review and update their Plan in early 2009

- 1. **Strategy:** Improve age distribution of sagebrush-steppe communities by 2016.
 - 1.1. **Action:** Identify and prioritize target areas needing improvement.
Status: Working group has identified Hamlin Valley and Pine Valley as the primary target for grouse research and monitoring
 - 1.2. **Action:** Coordinate associations among agencies and landowners to fund implementation of projects and monitoring.
Status: Each meeting consists of a report from each agency to notify group about upcoming projects. The group then collaborates as needed. For example, collaboration resulted in support for a retired UDWR employee to search for new lek sites based on his research from the 1970s.
 - 1.3. **Action:** Monitor the response of sage-grouse to changing habitat conditions.
Status: We have 2 research studies initiated to monitor the change in grouse use in areas where UDWR and BLM have conducted habitat improvement projects.
 - 1.4. **Action:** Implement treatments to change age class distribution of sagebrush.
Status: At least 2 projects have been initiated in the focus areas due to discussions at the SWARM meeting to improve sagebrush age class. Mechanical, chemical and fire treatments have been used.
 - 1.5. **Action:** Assist agencies in assessing wildfires in focus areas and restoration needs for sagebrush seed in mixes.
Status: The group partners have surveyed areas after a fire (eg. Bald Hills) to determine grouse losses and post-fire use of the area by grouse. USU has submitted a proposal to study the effects of fire on grouse use of habitat.

- 2. **Strategy:** Improve water availability in brood-rearing habitat by 2016.
 - 2.1. **Action:** Survey and evaluate current water sources and needs.
Status: Hamlin Valley has been surveyed as to water condition. BLM has proposed several projects to improve springheads. NRCS has signed on 2 projects to improve water conditions for grouse.
 - 2.2. **Action:** Partner with watershed specialists to identify new water sources.
Status: NRCS, DWR, and BLM have surveyed potential sources, such as removing trees,

improving grazing practices, etc. to create new water sources (or reclaim historical sources).

2.3. Action: Restore and improve wildlife access to water.

Status: NRCS has signed on two landowners to initiate projects that improve water sources. These projects have modifications that designed specifically to improve access to water for most wildlife species.

2.4. Action: Improve riparian conditions.

Status: BLM has approved several major projects in Hamlin Valley that will improve riparian conditions along Ash Creek, marsh areas around springheads, and develop “spillouts” around existing water troughs.

3. Strategy: Improve wildlife and livestock distribution in winter and brood-rearing habitat throughout the next ten years.

3.1. Action: Identify and prioritize target areas needing improvement.

Status: Hamlin Valley and Pine Valley have been identified as our priority areas.

Additionally, within these valleys important areas for grouse have been identified and projects across agencies have been prioritized as to our focus and monitoring.

3.2. Action: Implement habitat improvements and direct management actions to improve distribution.

Status: Two projects in Hamlin Valley have been coordinated between NRCS and BLM to install fences, watering sources, and initiate habitat improvement projects to change livestock land use and distribution.

4. Strategy: Increase participation of local public and private landowners with SWARM over the next ten years.

4.1. Action: Develop partnerships with landowners and interest groups to increase visibility of sage-grouse management.

4.1.1. Action step: *Develop fact sheet to distribute to special interest groups concerning sage-grouse natural history and threats to populations.*

Status: A fact sheet has been created and distributed

4.1.2. Action step: *Identify regional groups and their contact person to promote cooperation from these groups.*

Status: A list of regional groups was created during a meeting. Several group members assisted in contacting a representative from each group. These people also get emails announcing the next meeting.

4.2. Action: Host open houses, field tours, and presentations.

Status: An annual open house was initiated last fall and will be repeated annually. Field tours, organized and initiated by the group, have been conducted several times each year to investigate potential projects or investigate the status of an ongoing project.

4.3. Action: Distribute annual reports to local management agencies, county commissioners, and other interested parties.

Status: Annual reports of agency projects are distributed among our group. Additionally, annual reports of research are disseminated at the group meeting as well as post-mailed to county commissioners and other parties.

4.4. Action: Develop incentives for landowners and interest groups.

4.4.1. Action step: Host educational field trips and provide interpretive areas.

Status: Educational field trips were conducted during the summer 2007. Several trailheads were identified as places to install interpretive signs.

5. Strategy: Locate and monitor new active lek sites over the next ten years.

5.1. Action: Survey landowners and land users to determine sage-grouse distributions.

Status: Via NRCS employees and county Extension employees, landowners are continuously surveyed to gather sage-grouse locations and habitat use information. This information is gathered at the local working group meetings and entered into the DWR database as well as USU Extensions records.

5.2. Action: Investigate possible new lek sites based on local reports.

Status: Independently, group members investigate local reports. This has expanded our information regarding habitat use and distribution, but has not resulted in new lek sites.

5.3. Action: Survey for new lek sites during lek counts and survey historic sites for new activity.

Status: UDWR supported a retired employee to investigate possible new lek sites. 6 new sites were found. This effort will be repeated each spring.

6. Strategy: Maintain or increase sage-grouse populations through direct management.

6.1. Action: Work with enforcement agencies to prevent illegal harvest of sage-grouse.

Status: Local reports or comments concerning possible poaching were recorded by group members. These reports were in turn reported to UDWR Conservation Officers and USFWS enforcement. These 2 groups will increase their presence in the areas where potential poaching might occur again.

6.2. Action: Monitor the presence of West Nile Virus or other diseases in sage-grouse populations.

Status: During the summer months, UDWR monitors the presence of WNV throughout the state. These reports are emailed to the facilitator and shared with the group. Suspicious deaths of birds are reported among the group as well.

7. Strategy: Manage unwanted plant species in sage-brush steppe habitat by 2016.

7.1. Action: Remove juniper and pinyon pines from brood-rearing habitat.

Status: Several projects have been initiated by management agencies throughout the focus areas to reduce invasive juniper and pinyon pines.

7.2. Action: Reduce abundance of unwanted and/or invasive plant species.

7.2.1. Action step: Re-seed area after land disturbances such as mechanical treatments, fire, and human development.

Status: UDWR and BLM have grouped together to be more efficient with reseeding efforts post-treatment.

7.3. Action: Evaluate and utilize chemical applications where appropriate to restore habitat dominated by cheatgrass and/or noxious weeds.

Status: A research project was initiated to study the impacts of chemical treatments on sagebrush in Hamlin Valley. This study will also monitor the establishment of cheatgrass in the area.

8. Strategy: Minimize impacts of new land developments and/or recreational uses on sage-

grouse populations during the next ten years.

8.1. Action: Provide consultations and recommendations for new land developments and/or recreational uses.

Status: The group has written letters of recommendations for proposed ATV and recreation trails that may impede on grouse habitat use. Additionally, NRCS is actively engaged in the working group process and utilizes the grouse management plan when assisting with landowner project development.

8.2. Action: Regularly discuss new developments and alternative land uses to management agencies at local working group meetings.

Status: The group reports on new developments at each meeting and determines what actions the group should take to support the development or provide comments.

8.3. Action: Provide input into management plans for federal, state, and local agencies.

Status: Due to the constant involvement of agencies in the working group, we are able to provide input to their representatives within the group, who then share this with the management agency.

9. Strategy: Take steps to reduce the negative impact of dramatic weather events during the next ten years.

9.1 Action: Manage for diverse and healthy habitat that will withstand effects of drought or other long-term weather events.

Status: A diverse array of projects have been initiated that will improve the health of the ecosystem. By managing for diversity within these ecosystems, we feel that they will be better able to withstand drastic weather events and drought.

10. Strategy: Reduce threat of predators on sage-grouse over ten-year period.

10.1. Action: Determine predator community composition and depredation rate.

Status: A study of the predator community around Cedar City has been initiated and will be summarized by Fall 2008.

e. Habitat Improvements and Completed Conservation Actions

The BLM has participated in several projects to improve areas that were degraded, in an effort to improve sagebrush habitat. For example, in 1999 280-acres and in 2003 370-acres were reseeded to stimulate growth of sagebrush-steppe vegetation. In 2005, the BLM reseeded Lee's Wash after a wildfire to promote the re-growth of this landscape into a healthy sagebrush-steppe ecosystem.

Table 30. Habitat improvement projects implemented to mitigate sage-grouse threats identified by the Southwest Desert Adaptive Resources Management Sage-grouse Local Working Group, 2005-2007.

Year	Project Name	Acres
2005	Fishlake NF Sagebrush Enhancement	4445

2006 (proposed)	South Beaver Rehabilitation	2000
	Brad Bowler chaining	1000
	North Hills Lop and Scatter	1000
	Blawn Wash Seeding	2700
	Salt Cabin Re-seed	1200
	Pine Valley Guzzler Repair	
	Hamlin Valley Pinyon Juniper Removal	1000
	Hamlin Valley	10
	Mt. Home Post Harrow Cutting	2500
	Parowan Front Dixie Harrow	250

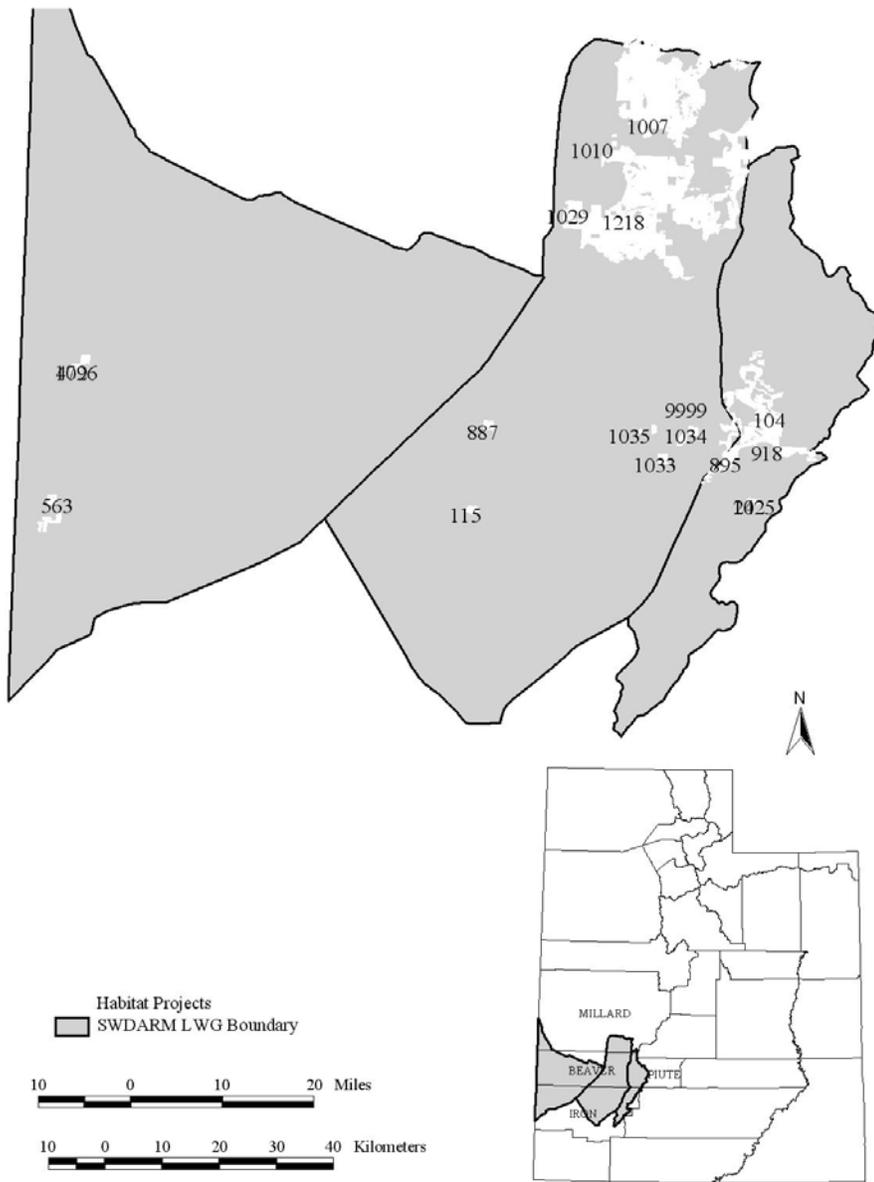


Figure 21. Location of habitat projects completed to mitigate sage-grouse threats in the Southwest Desert Adaptive Resources Management Sage-grouse Local Working Group Resource Area, 2006-2007.

8. Strawberry Valley Adaptive Resource Management (SVARM) Sage-grouse Local Working Group

The Strawberry Valley Adaptive Resource Management Sage-grouse Local Working Group was organized in 2004 and is facilitated by Todd A. Black and Sarah G. Lupis. Ms. Lupis also served as the technical writer and compiler of the Plan itself. SVARM is comprised of state and federal agency personnel, representatives from local government, non-profit organizations, academic institutions, private industry, and private individuals. The agencies, organizations, and individuals who contributed to the Plan through their participation in SVARM are listed in the LWG Plan.

a. Local Legal Authority

The Wasatch County Council and the Duchesne County Commission serve as the executive and legislative branches of local government. They have the authority to 1) protect and promote the health, welfare, and safety of the people of Wasatch and Duchesne counties 2) regulate land use, land planning, and quality and protection of natural resources; and 3) have duly adopted regulations and policies to exercise such authorities including the review and approval or denial of proposed activities and uses of land and natural resources (Wasatch County Commission 2005). The Wasatch County Code (Section 16.28.05) contains the following provisions related to wildlife:

Wildlife studies may be required in any large-scale development being planned within any foothill, canyon or rural area, prior to any development, to determine the presence of critical or important wildlife habitat. The foothills and canyon areas provide important wildlife habitat for a wide variety of animal and bird species. As a result of past development activities, many habitat areas have been impaired, altered, or fragmented. The following requirements have been developed to promote and preserve valuable wildlife habitats and to protect them from adverse effects and potentially irreversible impacts.

(1) Applicability.

- (a) The requirements of this chapter shall apply to large-scale (more than five (5) lots or units) developments being planned on property that contains wildlife habitats designated as Critical and High Value Use Areas. If information is not available, a wildlife study should be done to make this determination. The Planning Department may have this study reviewed by the Utah State Division of Wildlife Resources.
- (b) Maintain buffers between areas dominated by human activities and core areas of wildlife habitat.
- (c) Facilitate wildlife movement across areas dominated by human activities by maintaining connections between open space parcels on adjacent and near-by parcels, locating roads and recreational trails away from natural travel corridors used by wildlife such as riparian areas and prohibiting fencing types that inhibit the movement of wildlife species, except directly adjacent to the structures in order to protect adjacent landscaping features.

- (d) Mimic features of the local natural lands vegetation in developed areas by retaining pre-development, high quality habitat to the maximum extent feasible, including large patches of natural, vegetated areas that have not yet been fragmented by roads or residential development; minimizing the levels of disturbance to trees, the under story, and other structural landscape features during construction; designing lots in a fashion consistent with local natural habitats by landscaping with native vegetation; enhancing the habitat value of degraded pre-development landscapes.
- (e) Clustering of development to limit the areas to be disturbed.

The Duchesne County Code (Duchesne County 1997, amended 2005) contains the following provisions related to wildlife:

- a. Wildlife management agencies, public land management agencies and the County shall work together to manage big game populations.
- b. Wildlife agencies shall find effective ways to mitigate and compensate landowners for damage caused by big game animals on private property. Duchesne County recognizes that the Utah Division of Wildlife Resources is mandated by Utah Code to mitigate damage to agricultural crops, equipment and improvements and that a process to do so is in place.
- c. Wildlife populations shall not be increased nor shall new species be introduced until forage allocations have been provided and an impact analysis completed for the effects on other wildlife species and livestock.
- d. Reduction in forage allocation resulting from forage studies, drought, or other natural disasters will be shared proportionately by wildlife, livestock and other uses.
- e. Increases in forage allocation resulting from improved range conditions shall be shared proportionally by wildlife, livestock and other uses.
- f. Wildlife target levels and/or populations must not exceed the forage assigned in the RMP forage allocations.
- g. Predator and wildlife numbers must be controlled to protect livestock and other private property and to prevent population decline in other wildlife species.
- h. Resource-use and management decisions by federal land management and regulatory agencies should support state-sponsored initiatives or programs designed to stabilize wildlife populations that may be experiencing a scientifically proven decline in numbers.

b. Status of Local Population

Plan Area

The SVARM Resource Area is located in Wasatch and Duchesne counties in northeastern Utah. The Resource Area encompasses the greater Strawberry Valley area. It is bounded on the south by Reservation Ridge and the Wasatch-Utah county boundary, on the east by Indian Canyon, the north by Highway 35, and on the west by Strawberry Ridge (Figure 1). The Resource Area encompasses approximately 948,568 acres, managed primarily by

the U.S. Forest Service (USFS) and private land owners. The predominant land uses in the area include livestock grazing, recreation, mineral development, summer home development, fishing, hunting, and big game spring, summer, and winter range.

Landownership

Land in the Resource Area is owned and/or managed by several entities including private landowners, federal agencies, state agencies, and tribal governments (Table 31). The greatest percentage of land is owned or managed by the USFS and private landowners.

Table 31. Landownership in Utah’s Strawberry Valley Adaptive Resources Management Sage-grouse Local Working Group Resource Area, 2007.

Landowner*	Acres	Miles²	Percentage of SVARM Resource Area*
Bureau of Land Management	2,079	3.2	0.2
Indian Reservation	76,595	119.7	7.9
Private	370,224	587.5	38.2
State Institutional Trust Lands (SITLA)	29,735	46.5	3.1
U.S. Forest Service	360,382	563.1	37.2
State	108,950	170.2	11.2
*Total SVARM area (969,040 acres, 1,514 mi ²) includes land covered by water.			

d. Sage-grouse Population Status and Distribution

Greater sage-grouse were once abundant in the Resource Area. In the 1930s, flocks of 400 to 500 birds were flushed along Windy Ridge during early winter and the population was estimated to be between 3,000 and 4,000 birds (Griner 1939). The UDWR began monitoring sage-grouse populations by annually counting males on leks in 1970 (Figures 21-22). That year, a total of 127 male sage-grouse were counted on four leks. Under the assumption that 75% of all males in the population were observed and counted, and assuming a sex ratio of 1.67 females to each male, the estimated population size in spring of 1970 was about 440 birds. In 1999 the sage-grouse population in the Strawberry Valley was estimated to be 250-350 birds, representing a population decrease of 88-94% from population estimates of the 1930s. Several factors may have contributed to population declines between the 1930s, 1970s (when lek counting began) and 1999, including habitat degradation from livestock grazing, loss and degradation of habitat caused by aerial herbicide (2,4-D) spraying, and loss of mesic habitat from incised stream channels, channel diversions, and other factors that would have lowered the water table.

During 1981 and 1982, UDWR biologists studied sage-grouse populations in the Resource Area. In 1982, they estimated a summer population of no more than 350 birds. That year, there were two active leks in the area. The loss of two leks since 1970 is further indication of population declines. Aerial photographs of the area indicate that willow habitat along riparian corridors was eliminated between 1964 and 1971. The

UDWR reported that ‘past herbicidal treatments of large expanses of sagebrush have been extremely detrimental to nesting and brood habitat [of sage-grouse].’ They further concluded that ‘Loss of habitat is believed to be the major factor responsible for the reduction in the grouse population. Quality and quantity of sagebrush habitat has been reduced in the Resource Area in both Strawberry Valley and on winter ranges to the east. Habitat loss has resulted from cultivation, herbicidal spraying of sagebrush, road and housing construction, construction of campgrounds, reservoir enlargement, and associated increased human activities.’

Another study on sage-grouse in the Resource Area was conducted from 1986–1989 by USFS personnel. This study estimated the population to be between 160 and 185 birds and concluded that population declines were primarily due to loss of riparian habitat, herbicide treatments on sagebrush, and expansion of the reservoir. Expansion of the reservoir eliminated one of the two remaining leks.

Overgrazing by domestic livestock, often cited as a potential reason for sage-grouse population declines, does not appear to have contributed to more recent sage-grouse population declines in the Resource Area. Following transfer of approximately 57,000 acres of land to the Uinta National Forest in 1988, all livestock grazing was removed from the Strawberry Grazing Association lands. Intensive stream bank rehabilitation efforts were initiated along with restoration of riparian habitats.

Research conducted by BYU graduate students since 1998 has illustrated the importance of red fox predation on sage-grouse survival and raven predation on nest failure. This research has demonstrated how predation is likely the main factor responsible for low recruitment of juvenile birds.

Red fox predation was a major limiting factor in the recovery and expansion of the resident sage-grouse population in Strawberry Valley. Red fox were suspected to be the cause of extremely low (30% for females and 29.7% for males) adult survival and almost complete reproductive failure from 1998–1999. Red foxes became common in the Resource Area in the 1980s and are currently controlled by USDA WS. BYU’s research has demonstrated that habitat used by sage-grouse broods, meets requirements for productive sage-grouse brood rearing habitat.

Several species of potential nest predators are known to occur in the Resource Area including common raven, red fox, raccoons, skunks, and badgers. However; artificial nest studies conducted in 2003 demonstrated that raven populations were likely having a significant impact on sage-grouse nesting success. Ravens were implicated in the depredation of 97% of artificial nests in the study. Starting in 2003, USDA WS is responsible for controlling raven populations during sage-grouse nesting season through the use of poisoned egg baits.

In an effort to reverse the downward sage-grouse population trends in the Resource Area and to recover the population, 38, 34, and 70 female sage-grouse were translocated into the Strawberry Valley in 2003, 2004, and 2005 respectively. Sage grouse were trapped in

the spring on and around leks on Parker Mountain in south-central Utah, and from Diamond Mountain in northeastern Utah. Sage-grouse were transported overnight to the Strawberry Valley and were released by opening the boxes in live sagebrush at the edge of the only known active lek in the valley in order to provide them with visual breeding cues and the opportunity to intermix with actively strutting resident sage-grouse. To date, no mortalities have occurred during the capture, transport, or release phase of the translocations. Preliminary results show exceptional survival, nest initiation, nest success, and overall growth of the translocation population. Pre-translocation population estimates were between 100-120 birds, and the current population estimate, just three years later, is between 300–350 birds.

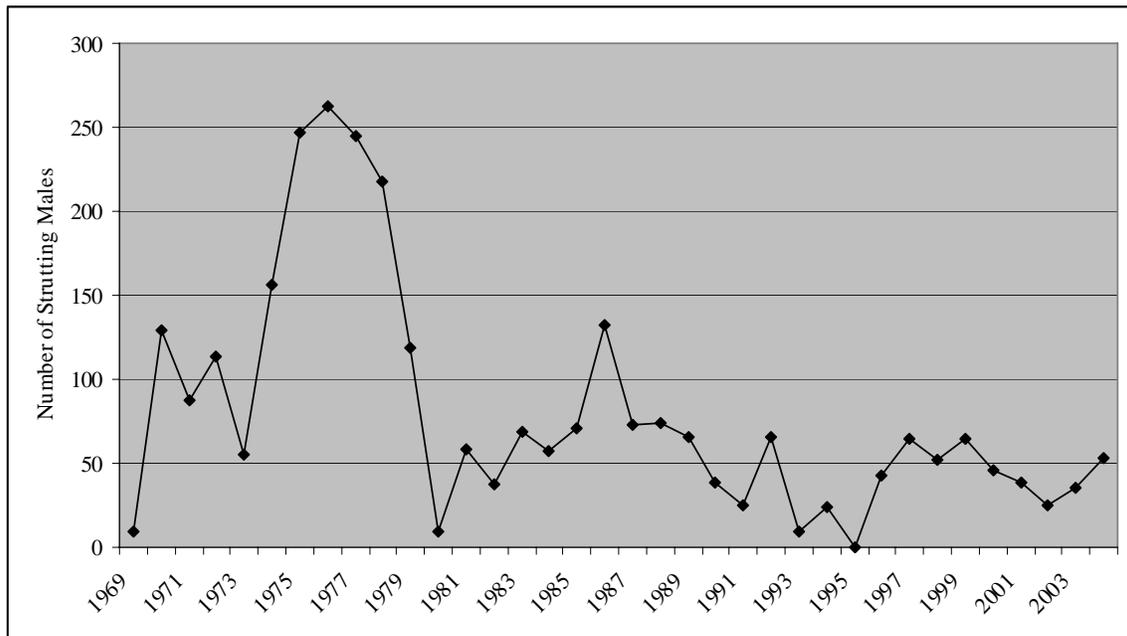


Figure 22. Maximum total number of males counted on leks in the Strawberry Valley Adaptive Resources Management Sage-grouse Local Working Group Resource Area, 1969-2005.

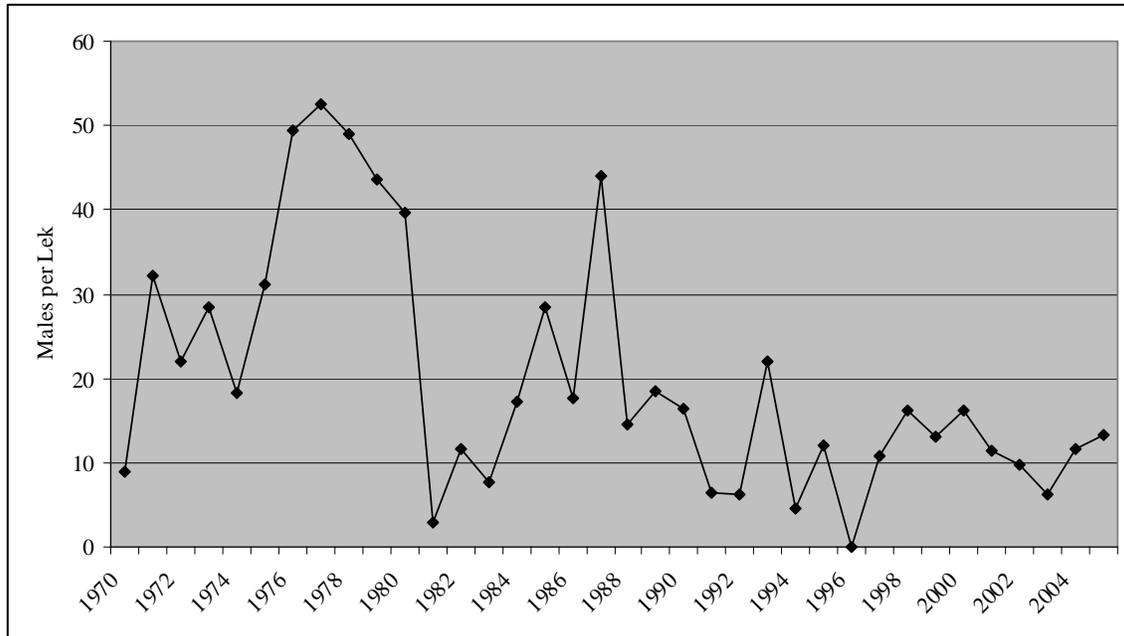


Figure 23. The number of males per lek in the Strawberry Valley Adaptive Resources Management Sage-grouse Local Working Group Resource Area, 1970-2005.

c. Key Ecological Indicators and Threats

SVARM participants identified key ecological aspects (KEAs) of sage-grouse ecology and biology and associated indicators (to measure KEAs), determined and ranked the range of variation for each KEA, and assessed the current and desired conditions for each KEA (Table 32). They then identified and ranked potential threats (Table 33).

Table 32. Greater sage-grouse key ecological aspects in Utah's Wasatch and Duchesne Counties, Strawberry Valley Adaptive Resources Management Sage-grouse Local Working Group, 2007. The 'Key Attribute' and 'Indicator' cells' are those defined by Greater Sage-grouse guidelines (Connelly et al 2000). The shaded cells represent the current condition as recorded by local working group members of a particular attribute and indicator as it relates to sage-grouse habitat and life history requirements.

Resource	Area Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Current Indicator Status	Current Rating	Desired Rating	Date of Current Rating	Date for Desired Rating
Strawberry Valley	Landscape Context	Connectivity of Populations & Sub-populations	Frequency of interactions with other populations	Population does not interact with any other population	<i>Population has some/low levels of interaction with other populations</i>	Population has several/moderate level of interactions with other populations	Regular mixing of individuals	Fair amount of interaction between populations. Most interaction facilitated by translocation efforts; natural interactions may be low as a function of low population density. Natural interactions limited to birds in Strawberry and Wildcat, Current Creek	Fair	Fair	5-Dec	16-Jul
Strawberry Valley	Condition	Brood-rearing Habitat	Sagebrush canopy cover; forb cover; vegetation composition; insect diversity and abundance; availability of mesic sites.	Low insect diversity and abundance; little to no (<5%) sagebrush canopy cover; monocultures ; no mesic sites available.			High forb cover and diversity; high insect abundance and diversity; 5-20% sagebrush canopy cover; mesic sites available.	Except for the lagging effects of drought conditions affecting the supply of water in late summer and fall, habitat conditions during this season are in good shape. Research conducted by BYU indicates that breeding habitat is abundant and in good condition	Good	Fair	5-Dec	16-Jul
Strawberry Valley	Condition	Late Summer/Fall Habitat Quality	Vegetative cover; availability of water; sagebrush canopy cover	Sparse vegetative cover in understory; little to no (<5%) sagebrush canopy cover; little to no water or mesic sites.	Fair...	Good...	Mesic sites readily available; diverse, high density understory vegetation; very good sagebrush canopy cover.	Except for the lagging effects of drought conditions affecting the supply of water in late summer and fall, habitat conditions during this season are in good shape. Research conducted by BYU indicates that late summer/fall habitat is abundant and in goo	Good	Good	5-Dec	16-Jul

Strawberry Valley	Condition	Lek habitat quality.	Open areas with sagebrush in close proximity	Too much and/or too little sagebrush surrounding lek site; sagebrush encroaching into lek area.	Fair...	Good...	Open area within 150 meters of sagebrush with 15-25% canopy cover and >25% grass cover.	Although only one active lek in Strawberry Valley, it appears to be in good condition. Little knowledge of lek quality in other parts of the Resource Area.	Good	Good	5-Dec	16-Jul
Strawberry Valley	Condition	Nesting Habitat Quality	Sagebrush height and canopy cover; understory cover.	Sagebrush <8-12" tall with <5% shrub cover; <5% residual or live grass cover in understory.	Sagebrush <8-12" tall 5-10% canopy cover, 5-10% residual or live grass cover in understory.	Sagebrush >20" tall with 10-15% sagebrush canopy cover; 10-15% residual of live grass cover in the understory.	Sagebrush >20" tall; approximately 25% sagebrush canopy cover; >15% residual or live grass in understory.	Research conducted by BYU indicates nesting habitat is in good condition. Need more information about nesting habitat in other parts of the Resource Area.	Good	Good	5-Dec	16-Jul
Strawberry Valley	Condition	Winter Habitat Quality	Sagebrush canopy cover and height; aspect	40-60% sagebrush canopy cover or <5%; north and east slopes; sagebrush always covered by snow.	5-10% or 25-40% sagebrush canopy cover; north and east slopes; sagebrush frequently covered by snow.	<i>10-20% sagebrush canopy cover; south and west slopes; sagebrush occasionally covered by snow.</i>	15-25% sagebrush canopy cover; south and west slopes; sagebrush rarely covered by snow.		Fair	Good	5-Dec	16-Jul
Strawberry Valley	Size	Population Distribution	Distribution of leks	1 lek per 10,000 acres & 100% of leks located in Strawberry Valley	<i>4/10,000 acres & 35% of leks located outside Strawberry Valley</i>	<i>8/10,000 acres & 45% of leks located outside Strawberry Valley</i>	10+/10,000 acres & 50% of leks located outside of Strawberry Valley	Although little information is available regarding sage-grouse in the Resource Area outside of Strawberry Valley itself, the group suspects that most, likely almost 100% of leks are located in Strawberry Valley itself.	Poor	Fair	5-Nov	10-Mar
Strawberry Valley	Size	Population Size	3-year running average maximum number of males counted on leks	<30	30-150	<i>150-300</i>	300+	2003-2005 average total males counted on all leks in the Resource Area = 80	Fair	Good	5-Nov	10-Mar

Strawberry Valley	Size	Population Size	Number of active leks	0-3	5-Apr	8-Jun	9+	In 2005 there were 4 active leks in the Resource Area	Fair	Good	5-Nov	10-Mar
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Table 33. Relative importance/contribution of threats to sage-grouse populations in Utah’s Wasatch and Duchesne Counties, Strawberry Valley Adaptive Resources Management Sage-grouse Local Working Group, 2007. Threats are described in the “Threat Analysis” section of this Plan. Rankings are as follows: L=low; M=medium; H=high; and VH=very high. Ranks are defined according to TNC (2005).

Threat	Aspects of Sage-grouse population in the SVARM Resource Area							
	Reduced Population Size	Population Distribution	Reduced Nesting Habitat Quality	Reduced Brood-rearing Habitat Quality	Reduced Summer/Fall Habitat Quality	Reduced Winter Habitat Quality	Reduced Connectivity of Seasonal Habitat Types	Reduced Connectivity of Populations & Sub-populations
Drought and Weather	M	M	H	H	H	L	M	L
Existing and New Fences	L	L	L	L	L	L	L	L
Home and Cabin Development	H	H	M	M	M	M	H	VH
Power lines & Other Tall Structures	M	H	H	H	H	M	H	H
Renewable & Non-renewable Energy Development	M	M	M	M	M	M	M	M
Roads	M	H	H	H	H	M	H	H
Historic Vegetation Treatments	M	H	M	M	M	H	M	L
Hunting	L	L	-	-	-	-	-	-
Fire	L	L	L	L	L	L	L	L
Livestock Grazing	L	L	L	L	L	L	L	L
OHV Recreation	M	M	H	H	H	VH	M	M
Invasive/Noxious Weeds	-	-	L	M	M	H	L	-
Parasites and Disease	M	M	-	-	-	-	-	-
Predation	VH	VH	H	H	M	M	M	M
Pinyon-Juniper Encroachment	M	M	M	L	L	M	M	M

d. Status of Conservation Strategies and Actions

SVARM participants identified several conservation strategies and actions that could be implemented to enhance greater sage-grouse populations. Here SVARM partners report on specific actions completed or addressed in 2006/2007 but also identified steps to be taken to implement additional actions into subsequent years of the plan. If a strategy or an action number is missing from this report; it means that no action(s) were taken in 2006/2007 towards its completion. To access a copy of the SVARM conservation plan visit the following web site address:

<http://utahbcbp.org/files/uploads/SVARM/SVARMfnl-10-06-web.pdf>. The SVARM LWG will review and update their Plan in early 2009

1. **Strategy:** Provide a system and the reasonable extent of domestic livestock grazing that maintains and improves both the long-term stability of Greater Sage-Grouse populations, and habitats and the livestock industry in the Resource Area.
 - 1.1. **Action:** Coordinate grazing management with livestock operators to reduce resource and timing conflicts on leks and prime nesting habitat when possible.

Status: See action 1.3.
 - 1.2. **Action:** Apply grazing management practices to achieve desired conditions including maintenance of residual herbaceous vegetation appropriate for the site.

Status: See action 1.3.
 - 1.3. **Action:** Encourage implementation of grazing systems that provide for areas and

times of deferment, while taking into consideration the resource capabilities and needs of the livestock operator.

Status: The UDWR implemented a rest-rotation grazing system on the Wallsburg Wildlife Management Area (WMA) in 2005. The Wallsburg serves as a demonstration site for area livestock producers.

1.4. **Action:** Manage livestock to enhance riparian conditions.

Status: On-going. Indian Creek and Strawberry River have been/will be fenced to restrict livestock access to riparian areas. The Indian Creek project is complete. The Strawberry River project will begin in 2008. NEPA has been completed.

2. **Strategy:** Maintain and, where possible, improve grass/forb component in the understory in nesting and brood-rearing areas.

2.1. **Action:** Reclaim and/or reseed areas disturbed by treatments when necessary, using seed mixtures with appropriate grasses and desirable forbs.

Status: On-going. The Trout Creek project has been reseeded using a UDWR approved seed mixture.

2.2. **Action:** Restore understory vegetation in areas lacking desirable quality and quantity of herbaceous vegetation, where economically feasible.

Status: On-going. The Trout Creek and Big Hollow projects were implemented to enhance/restore the herbaceous understory in the areas.

2.3. **Action:** Conduct vegetation treatments to improve forb diversity (e.g., harrowing, aerating, chaining) and reclaim or reseed disturbed areas, if needed.

Status: On-going. See action 2.3.

2.4. **Action:** Develop management techniques to increase forb diversity and density in sagebrush steppe, within limits of ecological sites and annual variations.

Status: On-going. The Trout Creek and Badger Hollow projects.

3. **Strategy:** Enhance existing riparian areas or create small wet areas to improve nesting and brood-rearing habitat.

3.1. **Action:** Identify opportunities or needs to create small wet areas, implement such projects where economically feasible.

Status: The UDWR has implemented several small projects on the Wildcat WMA. Similar work is being conducted on the Strawberry Reservoir project. In 2006, the UDWR cleaned out and rebuilt 7 livestock ponds in the sage-grouse brood rearing area on the Wildcat WMA so they would hold water and create more wet meadow habitat for brood rearing through out the summer. Five of the 7 ponds worked on were successful at storing water throughout the summer. One pond was very successful, dramatically improving the water availability and wet meadow area for over 5-10 acres. In 2006 similar efforts were completed on the Currant Creek WMA, Cut Off Road Unit (site of the old upper Saleratus lek near Fruitland). An additional 6 ponds were rebuilt, of which only 3 held water into late summer. As of June 2008, 5 of the 6 ponds currently hold water.

3.2. **Action:** Design and implement livestock grazing management practices to benefit riparian areas.

Status: On-going. This action will be part of the Strawberry River project to be implemented in the Fall of 2008. Since 2005, the UDWR has worked on the Currant

Creek WMA and with adjacent landowners to install riparian fences, drift fences, etc. These fences have reduced livestock grazing in the riparian corridor along Currant Creek. In 2008, the UDWR changed the livestock grazing program on the Tabby Mtn WMA to a high intensity/short duration grazing program to benefit riparian and wet meadow areas on the WMA. The Tabby Mtn WMA is winter, spring, and brood rearing grouse habitat.

3.3. **Action:** Modify or adapt pipelines or developed springs, to create small wet areas.

Status: In 2005, the UDWR constructed a sage-grouse "drinker" off a recently buried irrigation pipeline on the Cut Off Road parcel of the Currant Creek WMA (west side of Fruitland near old Upper Saleratus lek. The drinker is designed to provide water throughout the summer and to overflow into an old wet meadow area and pond that was dried up when the irrigation ditch was piped. It is in a high use grouse area.

3.4. **Action:** Locate projects to minimize the potential loss of water table associated with wet meadows.

Status: In 2005, a pasture aerator project was completed on about 100 acres in cooperation with NRCS on private property (Little Red Creek Cattle Co. property) west of Fruitland to reduce basin big sagebrush in wet meadows. The intent was to open up the old wet meadows and improve the herbaceous understory. The project was effective.

3.5. **Action:** Protect existing wet meadows and riparian areas where necessary.

Status: On-going. This action has been included in the Strawberry River Headwaters and the Indian Creek project. NRCS cooperated on an additional dixie harrow project that was completed in 2006 or 2007 on Joyce Baileys private property between Currant Creek and Trout Creek to open up old wet meadows that were being encroached.

3.6. **Action:** Manage vegetation and artificial structures to increase water-holding capability of areas.

Status: On-going. DWR implemented as part of the Wildcat WMA project. See the description of Wildcat and Cut Off Road pond projects above. The UDWR has plans to clean out and repair around 15 additional ponds on those WMAs in the next year or two.

3.7. **Action:** Install catchment structures to slow run-off, hold water, and eventually raise water tables.

Status: In spring 2006 , 75 "gully plug / water dispersers" were installed in the Santaquin Draw sage-grouse area on the Tabby Mtn WMA.

4. **Strategy:** Manage pinyon/juniper stands to reduce encroachment into sagebrush/grass communities

4.1. **Action:** Remove encroaching trees and tall shrubs mechanically (chainsaws, chaining, etc.) or by other methods, to maintain visibility at lek sites and security from predation in other seasonal habitats.

Status: On-going. This work was completed on the Allen Smith Grassland Reserve Easement along Hwy 208. Other chaining projects have been completed as part of the

Rabbit Gulch project. The following pinyon-juniper projects have been completed in the Strawberry Valley workgroup area.

2004-

1. Santaquin Draw 1,500 acre anchor chaining and reseeding - remove dead sagebrush from 2003 die off. Tabby Mtn WMA
2. Mill Hollow 300 acre anchor chaining and reseeding - remove pinyon-juniper to re-establish sagebrush.
3. Lower Red Creek sagebrush seeding on Allan Smith property near lek - aerial seeding into dead sagebrush strips to re-establish sagebrush on grouse winter range.

2005-

1. Gray Wolf mountain - 480 acre anchor chaining and reseeding - remove pinyon-juniper to re-establish sagebrush.
2. Golden Stairs - 185 acre anchor chaining and reseeding - remove pinyon-juniper to re-establish sagebrush.
3. Allan Smiths - 325 acre Dixie Harrow treatment and reseeding to re-establish healthy sagebrush.
4. Rabbit Gulch Lop and scatter- 400 acres - chainsaw removal of encroaching pinyon-Juniper to protect sagebrush areas.

2006-

1. Coyote Draw/Lower Red Creek Lop and Scatter- 1,200 acre - chainsaw removal of encroaching pinyon-juniper to protect sagebrush areas.
2. Fruitland Lop and Scatter - 500 acres - chainsaw removal of encroaching pinyon-juniper to protect sagebrush areas.
3. East Santaquin - 500 acre anchor chaining and reseeding - remove pinyon-juniper to re-establish sagebrush.

2007-

1. Rabbit Gulch Lop and Scatter - 700 acres -chainsaw removal of encroaching pinyon-juniper to protect sagebrush areas.
2. Blacktail Mountain - 450 acre anchor chaining and reseeding - remove pinyon-juniper to re-establish sagebrush.
3. Sand Wash - 350 acre anchor chaining and reseeding - remove pinyon-juniper to re-establish sagebrush.

4.2. **Action:** Brush-cut or treat with other mechanical methods specified areas and reclaim or re-seed as necessary.

Status: On-going. See action 4.1

4.3. **Action:** Coordinate with State Forester to expand defensible space programs to improve sage-grouse habitat where possible.

Status: A project is been completed in the Fruitland area as part of the Utah Division of State Forestry , Fire, and Lands Community Wildfire Protection Plan. Under this plan the community removed pinyon-juniper trees and trimmed back oakbrush to

open the canopy and reduce wildfire risks. This project was conducted in an area inhabited by sage-grouse.

Ken Ludwig is the contact.

5. **Strategy:** Improve lek vegetation conditions to allow for predator recognition and visibility.
 - 5.1. **Action:** Open lek areas that have been invaded by sagebrush and other shrubs.
Status: The Road Hollow lek was Dixie harrowed in 2004 to increased sage-grouse visibility.
 - 5.2. **Action:** Map and inventory leks with potential for restoration.
Status: BYU and UDWR are actively searching the area for new leks.
 - 5.3. **Action:** Maintain and enhance desired conditions for leks.
Status: On-going.
 - 5.4. **Action:** Coordinate vegetation management to maintain desired conditions
Status: On-going.
 - 5.5. **Action:** Evaluate/monitor treatment effects.
Status: On-going. Vegetation response to treatments are being monitored by UDWR range trend crews.

6. **Strategy:** Maintain and improve habitat conditions in winter range.
 - 6.1. **Action:** Treat decadent stands of sagebrush (harrowing, aerator, brush beating, chain, spike), where appropriate, to create uneven aged stands of sagebrush across the Resource Area.
Status: On-going. See action 4.1. the Badger Hollow treatment planned for the fall of 2009 will enhance winter range.
 - 6.2. **Action:** Establish easements or other land protection in crucial sage-grouse use areas.
Status: On-going. 2007 - Allan Smith Conservation Easement - around 5500 acres of sage grouse winter range permanently protected from development. Cooperators: UDWR, NRCS, RMEF, etc. 2005 - CUP mitigation commission acquired 1700 additional acres of sage grouse habitat from Larry Fitzgerald adjacent to Wildcat WMA .
 - 6.3. **Action:** Work with county planners and county council to establish zoning ordinances for crucial winter habitat that protect those areas from inappropriate development.
Status: On-going. See Local Legal Authority section of this report.

7. **Strategy:** Protect crucial habitat from inappropriate development.
 - 7.1. **Action:** Work with county planners and county council to establish zoning ordinances for crucial habitat that protect those areas from inappropriate development.
Status: On-going. See action 6.3.
 - 7.2. **Action:** Establish easements or other land protection in crucial habitat.
Status: On-going. See action 6.2.
 - 7.3. **Action:** Work with USFS and other federal agencies to protect crucial sage-grouse habitat from renewable and non-renewable energy development.

- Status:** On-going. An EIS has been prepared and submitted for public comment. This EIS identifies actions/measures that would be implemented to mitigate the effects of oil/gas development on sage-grouse in the area.
- 7.4. **Action:** Maintain or reestablish sagebrush patches of sufficient size and appropriate shape, to support sage-grouse between agricultural fields.
- Status:** On-going.
- 7.5. **Action:** Work with NRCS and others to maintain and enroll important sage-grouse habitats involved in Farm Bill programs currently in agricultural production.
- Status:** NRCS is working with local landowners to access project funding through the WHIP program. Allen Smith Grassland Reserve (GRP) is part of this effort.
- 7.6. **Action:** Encourage use of sage-grouse friendly seed mixes, including bunchgrasses, forbs, and big sagebrush, in plantings.
- Status:** On-going. All habitat projects completed in the area are reseeded with a UDWR developed seed mixture that was developed to benefit sage-grouse.
- 7.7. **Action:** Encourage interest and enrollment of key sage-grouse habitats in the Farm Bill programs.
- Status:** On-going.
8. **Strategy:** Minimize impacts of noxious and invasive weeds.
- 8.1. **Action:** Identify areas where noxious/invasive weeds are encroaching on sage-grouse habitat
- Status:** On-going. Projects include Desert Hollow and Wasatch County – CWMA Cooperative Weed Management Area. Under the CWMA numerous partners are working to minimize the impacts of noxious and invasive weeds on rangeland habitats in the LWG area.
- 8.2. **Action:** Treat areas where noxious/invasive weeds and non-desirable introduced species (e.g. smooth brome) have become, or are at risk of becoming, a factor in sage-grouse habitat loss or fragmentation.
- Status:** On-going. Strawberry Valley Thistle Project – Coop Creek Knapweed Project – Wallsburg/McAfee Mountain Knapweed – Squaw Creek Thistle Project.
- 8.3. **Action:** Work with existing weed management programs to incorporate sage-grouse habitat needs.
- Status:** On-going. See action 8.2.
- 8.4. **Action:** Identify large areas of noxious/invasive weeds and non-desirable introduced species (e.g. smooth brome), that are not meeting sage-grouse habitat needs and reseed where appropriate.
- Status:** On-going. See action 8.2
- 8.5. **Action:** Manage burned areas, transportation, utility, and pipeline corridors, and vegetation treatments to minimize undesirable vegetation where possible.
- Status:** On-going. The wildfire that occurred in 2007 on the Currant Creek WMA near the old upper Saleratus lek area was treated with Plateau to prevent establishment of cheatgrass and other annuals and then re-seeded with a sage-grouse friendly seed mix.
- 8.6. **Action:** Work with County weed board to increase awareness of weed problems in sage-grouse and other important wildlife habitat.

Status: On-going through county wide CWMA.

9. **Strategy:** Minimize impacts of utility lines, fences, and roads in sage-grouse habitat.
 - 9.1. **Action:** Avoid new construction during important periods and re-route lines where technically and economically feasible to avoid impacts.
Status: On-going.
 - 9.2. **Action:** Schedule maintenance to avoid important periods, however, maintenance in emergency situations will be unrestricted.
Status: On-going. In Nov. 2006 Moon Lake Electric planned to reconstruct a power line on the Cut Off Road parcel of the Currant Creek WMA (sage grouse area) The UDWR required them to complete the work by mid Dec. instead of stretching it out all winter as planned.
 - 9.3. **Action:** Install raptor deterrents when applicable
Status: Pending the outcome of research being conducted in San Juan County.

10. **Strategy:** Minimize sage-grouse habitat loss to oil and gas activities.
 - 10.1 **Action:** Increase/encourage participation by private oil/gas industry in SVARM.
Status: Pending. Currently there is minimal oil/gas development, The draft EIS identifies potential issues and mitigation strategies.
 - 10.2.**Action:** Encourage use of central tanks and locate those in areas with least impact to sage-grouse.
Status: Pending. See action 10.1.
 - 10.3.**Action:** Use directional drilling where feasible to minimize surface disturbance, particularly where well density exceeds 1:160 acres.
Status: Pending. See action 10.1.
 - 10.4.**Action:** Minimize pad size and other facilities to the extent possible, consistent with safety.
Status: Pending. See action 10.1.
 - 10.5.**Action:** Plan and construct roads to minimize duplication.
Status: Pending. See action 10.1.
 - 10.6.**Action:** Cluster development of roads, pipelines, electric lines and other facilities.
Status: Pending. See action 10.1.
 - 10.7.**Action:** Minimize noise disturbance (directing mufflers, glass packs, etc.) in and near lek and nesting habitat.
Status: Pending. See action 10.1.
 - 10.8.**Action:** Use existing, combined corridors where possible.
Status: Pending. See action 10.1.
 - 10.9.**Action:** Use early and effective reclamation techniques, including interim reclamation, to speed return of disturbed areas to use by sage-grouse.
Status: Pending. See action 10.1.
 - 10.10 **Action:** Reduce long-term footprint of facilities to the smallest possible.
Status: Pending. See action 10.1.
 - 10.11 **Action:** Avoid aggressive, nonnative grasses (e.g. intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, smooth brome, etc) in reclamation seed mixes.

Status: Pending. See action 10.1.

10.12**Action:** Eliminate noxious weed infestations associated with oil and gas development disturbances.

Status: Pending. See action 10.1.

10.13**Action:** Minimize width of field surface roads.

Status: Pending. See action 10.1.

10.14**Action:** Avoid ridge top placement of pads and other facilities.

Status: Pending. See action 10.1.

10.15**Action:** Use low-profile, above-ground equipment, especially where well density exceeds 1:160 acres.

Status: Pending. See action 10.1.

10.16**Action:** Avoid breeding/nesting season (March 1 – June 30) construction and drilling when possible in sage grouse habitat.

Status: Pending. See action 10.1.

10.17**Action:** Limit breeding season (March 1 – May 1) activities near sage grouse leks to portions of the day after 9:00 a.m. and before 4:00 p.m.

Status: Pending. See action 10.1.

10.18**Action:** Reduce daily visits to well pads and road travel to the extent possible in sage-grouse habitat.

Status: Pending. See action 10.1.

10.19**Action:** Utilize well telemetry to reduce daily visits to wells, particularly where well density exceeds 1:160 acres.

Status: Pending. See action 10.1.

10.20**Action:** Locate compressor stations off ridge tops and at least 2,500 feet from active sage-grouse leks, unless topography allows for closer placement.

Status: Pending. See action 10.1.

10.21**Action:** Avoid locating facilities within a quarter mile of active sage-grouse leks, unless topography allows for closer placement.

Status: Pending. See action 10.1.

10.22**Action:** Plan for and evaluate impacts to sage-grouse of entire field development rather than individual wells.

Status: Pending. See action 10.1.

10.23**Action:** Study, and attempt to quantify, impacts to sage-grouse from oil and gas development.

Status: Pending. See action 10.1.

10.24**Action:** Evaluate need for near-site and/or off-site mitigation to maintain sage-grouse populations during oil and gas development and production, especially where well density exceeds 1:160 acres.

Status: Pending. See action 10.1.

10.25**Action:** Implement near-site and/or off-site mitigation as necessary to maintain sage-grouse habitat quality.

Status: Pending. See action 10.1.

10.26**Action:** Share sage-grouse data with industry to allow planning to reduce impacts.

Status: Pending. See action 10.1.

- 11 **Strategy:** Minimize the impact of extraordinary predation.
- 11.01 **Action:** Modify power lines and wood fence posts (to remove raptor perches) in important sage-grouse areas, where feasible, and where predator concerns have been identified.
- Status:** See action 9.3.
- 11.02 **Action:** Remove trees, remove/modify raptor perches, and maintain quality sagebrush habitat, where predation concerns on sage-grouse have been identified.
- Status:** No action.
- 11.03 **Action:** Begin site-specific predation management considering all predator species (especially common ravens and red fox) where necessary and appropriate.
- Status:** On-going. USDA Wildlife Services has been conducting red fox and raven control in the Strawberry Valley per UDWR guidance. The SVARM Plan discusses this effort and reports on its success.
- 11.04 **Action:** Work with County planners and private developers to incorporate trash minimization and domestic animal control measures in CCNRs.
- Status:** Pending.
- 12 **Strategy:** Improve knowledge of diseases and parasites in sage-grouse populations.
- 12.01 **Action:** Collect sage-grouse parasite and disease organism samples while handling birds for other research, when possible.
- Status:** On-going. The UDWR is coordinating with SVARM.
- 12.02 **Action:** Monitor radio-collared and other sage-grouse for West Nile Virus and other disease outbreaks.
- Status:** On-going. The UDWR is coordinating with SVARM.
- 13 **Strategy:** Improve knowledge of genetics in sage-grouse in minimum viable populations.
- 13.01 **Action:** Collect samples for genetic research from all known breeding complexes (including hunted and un-hunted areas) when possible.
- Status:** On-going. The UDWR is coordinating with SVARM.
- 14 **Strategy:** Increase size of sage-grouse population in the Resource Area.
- 14.01 **Action:** Continue translocation efforts as called for by UDWR, BYU, and other participating agencies and organizations
- Status:** On-going. The UDWR is coordinating with SVARM.
- 14.02 **Action:** Continue existing predator management activities as called for by UDWR, USDA-WS, BYU, and other participating agencies and organizations.
- Status:** On-going. The UDWR is coordinating with SVARM.
- 15 **Strategy:** Maintain and increase long-term habitat and population monitoring and research.
- 15.01 **Action:** Maintain long-term habitat monitoring sites on the Resource Area (as monitored by the Utah Big Game Range Trend Studies program).
- Status:** On-going. The UDWR is coordinating with SVARM.
- 15.02 **Action:** Maintain and increase radio-monitoring of translocated sage-grouse.

Status: On-going. The UDWR is coordinating with SVARM.

15.03 **Action:** Work with agency partners to maintain and increase funding for research and monitoring

Status: On-going. The UDWR is coordinating with SVARM.

15.04 **Action:** Continue to monitor sage-grouse populations through use of lek counts

Status: On-going. The UDWR is coordinating with SVARM.

15.05 **Action:** Increase lek search activities to find new lek sites in the Resource Area

Status: On-going. The UDWR is coordinating with SVARM.

15.06 **Action:** Work with USDA-WS to monitor populations of sage-grouse predators.

Status: On-going. The UDWR is coordinating with SVARM.

16 **Strategy:** Increase public education about sage-grouse ecology, conservation, and management.

16.01 **Action:** Work with Audubon Society to increase educational opportunities regarding sage-grouse in the Resource Area.

Status: SVARM is working with Utah Audubon to designate the Strawberry Valley as an important bird area.

16.02 **Action:** Develop educational materials (brochures, presentations, etc.) and deliver to Friends of Strawberry Valley, Strawberry Anglers Association, Daniels Summit Lodge, Strawberry Water Users and other potential stakeholders to increase awareness

Status: On-going. Some public activities include SVARM participation in the annual Strawberry Valley festival. The USFS maintained a booth at the Festival and reported on the Badger Hollow project. Michael Bornstein has conducted several youth programs at the Mepollen Elementary School. SVARM participated in a field tour of the area that was sponsored by the Utah Section of the Society for Range Management (SRM). In October 2007, the LWG area was included in a field tour held in conjunction with the SRM sponsored Ecological Site Workshop. .

16.03 **Action:** Encourage use of signage in appropriate areas to increase awareness of crucial sage-grouse habitats.

Status: On-going. The UDWR is coordinating with SVARM.

16.04 **Action:** Develop sage-grouse identification materials for distribution to recreationists, bird watchers, and other stakeholders

Status: Pending.

17 **Strategy:** Minimize negative impacts of incompatible OHV (ATVs, snowmobiles, 4WD trucks, etc.) recreation and other recreation on sage-grouse populations and habitats.

17.01 **Actions:** Work with County planners and other agencies to restrict seasonal OHV access to crucial sage-grouse use areas

Status: To date no restrictions are in place. SVARM will work with partners to develop and educational program in 2008 to address these concerns.

17.02 **Actions:** Coordinate with enforcement agencies (Sheriff, parks, USFS, COs) to increase awareness of negative impacts to sage-grouse

Status: On-going.

17.03 **Action:** Create opportunities and use existing avenues to increase awareness in participating public about negative impacts of OHV use in crucial sage-grouse areas

Status: Pending. To be initiated in 2008.

17.04 **Action:** Coordinate with enforcement agencies to increase awareness of poaching and to minimize sage-grouse poaching opportunities

Status: On-going. The UDWR is coordinating with SVARM.

17.05 **Action:** Encourage use of signage to identify areas closed to hunting; language in proclamation that specifies closed area

Status: On-going. The UDWR is coordinating with SVARM.

18 **Strategy:** Maintain and increase coordination and communication between state and federal agencies and private partners.

18.01 **Action:** When possible, present all brush management projects at regional UPCD meetings in advance, to facilitate information sharing and coordination

Status: On-going. The UDWR is coordinating with SVARM.

18.02 **Action:** Annually provide maps of crucial sage-grouse habitat to SVARM partners

Status: On-going. The UDWR is coordinating with SVARM.

18.03 **Action:** Meet annually to visit habitat projects in the field

Status: On-going. The UDWR is coordinating with SVARM.

18.04 **Action:** Hold annual coordination meeting prior to the start of spring field season

Status: On-going. The UDWR is coordinating with SVARM.

18.05 **Action:** SVARM representative to report on UDWR-USFS coordination meetings

Status: On-going. The UDWR is coordinating with SVARM.

18.06 **Action:** Coordinate with the County through public lands coordinator and committee

Status: On-going. The UDWR is coordinating with SVARM.

18.07 **Action:** When possible, comment, as a group, on proposed actions that may impact sage-grouse or their habitats

Status: On-going. The UDWR is coordinating with SVARM.

e. Habitat Improvements and Completed Conservation Actions

The UDWR and USFS have implemented several habitat improvement projects in the Resource Area targeted at restoring or enhancing sage-grouse habitat. In 2004, approximately 1,400 acres of habitat in the Resource Area were treated, and an additional 300 acres were treated in 2005. Treatments were aimed at reducing sagebrush canopy in a mosaic pattern to enhancing native grass/forb cover in the understory. Additional habitat improvement projects are planned for 2006. The UDWR anticipates treating 2,690 acres in the Resource Area in 2006. The location of some habitat improvement projects is given in Figure 24. Table 34 lists the acreage and general location of habitat improvement projects implemented in 2004 and 2005 and proposed for 2006 by the UDWR.

Table 34. Habitat improvement projects implemented to mitigate sage-grouse threats identified by the Strawberry Valley Adaptive Resources Management Sage-grouse Local Working Group, 2004-2006.

Year	Project Name	Acres
2004	Santaquin Draw	1,400
	Road Hollow Lek	5+
2005	Gray Wolf Mountain	300
2006	Coyote Draw	1,200
	Fruitland	500
	2-Bar	520
	Alan Smith seeding	450
	Trout Creek	



Figure 24. Location of habitat projects completed to mitigate sage-grouse threats in the Strawberry Valley Adaptive Resources Management Sage-grouse Local Working Group Resource area, 2006-2007.

9. Uintah Basin Adaptive Resource Management Local Working Group

The Uintah Basin Adaptive Resource Management Local Working Group (UBARM) was organized in 2004 and facilitated by Todd A. Black and Sarah G. Lupis. Ms. Lupis served as the technical writer and compiler of the Plan itself. UBARM is comprised of state and federal agency personnel, representatives from local government, nonprofit organizations, academic institutions, private industry, and private individuals. Agencies, organizations, and individuals who contributed to the Plan through their participation in UBARM are listed in the LWG Plan.

a. Local Legal Authority

The Board of Commissions for Duchesne, Uintah, and Daggett counties serve as the executive and legislative branches of local government. They have the authority to 1) protect and promote the health, welfare, and safety of the people of Duchesne, Uintah, and Daggett counties, 2) regulate land use, land planning, and quality and protection of natural resources, and 3) have duly adopted regulations and policies to exercise such authorities (Duchesne County Commission 1997, Daggett County Commission 2004, Uintah County Commission 2005a and 2005b). The Uintah County Public Lands Implementation Plan (Uintah County Board of Commissioners 2005a) makes the following statements relevant to sage-grouse management:

- Wildlife populations, such as sage-grouse or prairie dog, determined to be in need of special protection must be protected from sport shooting prior to determining the need for implementation or restrictions on livestock grazing or development
- Sage-grouse management in Northeastern Utah must follow the Strategic Management Plan for Sage Grouse 2002 (Publication 02-20 State of Utah Department of Natural Resources Division of Wildlife Resources, June 11, 2002). This is to insure that management guidelines for the grouse are compatible with local sage-grouse population and habitat
- Guidelines to manage sage-grouse populations and their habitat (John W. Connelly, Michael A. Schroeder, Alan R. Sands, and Clait E. Braun), represent definitive work on sage-grouse and their habitat. This publication should be the basis for creation of any state or local sage-grouse management plan
- The following buffers must be implemented to insure required protection is provided to sage-grouse during the critical stages of breeding, nesting, and rearing young. These buffers or requirements may be adjusted where natural barriers exist, impacts can be mitigated, or sage-grouse are determined not to be present during the proposed disturbance
- Avoid significant human disturbances within 0.6 miles (1 km) of a lek during the breeding season (March 1-May 31) from one hour before sunrise to three hours after sunrise.
 - Avoid developing roads, fences, poles, and utility lines within 1300 feet (400 meters) of a lek. Any such developments within the 1300 feet must be designed to minimize to the extent possible, bird structure collision and to prevent raptor perching.

In addition, the Uintah County General Plan (Uintah County Board of Commissioners 2005b) promotes County-to-community, community-to-community and agency-to-County coordination, cooperation, and communication. The Duchesne County Code (Duchesne County 1997, amended 2005) contains the following provisions related to wildlife in the County:

- Wildlife management agencies, public land management agencies, and the County shall work together to manage big game populations
- Wildlife agencies shall find effective ways to mitigate and compensate landowners for damage caused by big-game animals on private property. Duchesne County recognizes that the Utah Division of Wildlife Resources is mandated by Utah Code to mitigate damage to agricultural crops, equipment, and improvements and that a process to do so is in place
- Wildlife populations shall not be increased, nor shall new species be introduced, until forage allocations have been provided and an impact analysis completed for the effects on other wildlife species and livestock
- Reduction in forage allocation resulting from forage studies, drought, or other natural disasters will be shared proportionately by wildlife, livestock, and other uses
- Increases in forage allocation resulting from improved range conditions shall be shared proportionally by wildlife, livestock, and other uses.
- Wildlife target levels and/or populations must not exceed the forage assigned in the Resource Management Plan (RMP) forage allocations
- Predator and wildlife numbers must be controlled to protect livestock and other private property, and to prevent population decline in other wildlife species
- Resource-use and management decisions by federal land management and regulatory agencies, should support state-sponsored initiatives or programs designed to stabilize wildlife populations that may be experiencing a scientifically-proven decline in numbers.

Portions of Daggett County are zoned to provide some measure of protection to wildlife habitat, including wetlands, wildlands, and open spaces. The zoning requirement (Daggett County Commission 2004, amended 2006) specifically states:

The Multiple Use (MU-40) District is formulated to protect mountain, hillside, wetland areas subject to flooding, plus agricultural and farmlands from incompatible land uses and the inefficient or costly provision of services while allowing activities that recognize the environmental and physical sensitivity of these areas and the public health, safety and welfare.

b. Status of Local Population

Plan Area

The Uinta Basin LWG Resource Area is located in eastern Utah in Uintah, Duchesne, and Daggett counties (Figure 1). The Resource Area encompasses 5,375,423 acres (24,024mi²) managed by the USFS, BLM, SITLA, Tribal, and private landowners. The Resource Area is defined by the Utah-Wyoming border to the north, the Utah-Colorado border to the east, the Book Cliffs Divide to the south, and Highway 35 and Wolf Creek to the west. The Resource Area has been subdivided into nine subunits, corresponding to sage-grouse breeding complexes.

These breeding complexes are based on geographic boundaries and groupings of leks. Although movement between complexes is likely, the complexes represent discrete subpopulations of sage-grouse in the Resource Area. The Resource Area is characterized by hot summers and cold winters. According to National Climate Data Center records collected at the Vernal Municipal Airport from 1961 to 1995, July is the hottest month with an average high temperature of 90.0°F; winter lows reach 5°F in January. The Resource Area is a primarily a dry area, receiving an average of only 8.0 inches of rain annually. The Resource Area contains a diverse array of microclimates from low elevation, desert-like conditions to high-elevation forested areas. Recorded climate information does not entirely reflect conditions over the entire Resource Area; however, it does provide an indication of relative conditions.

Landownership

Approximately 56% of the Resource Area is public land. The remaining lands are private, Tribal, and State Institutional Trust Lands Administration ownership (Table 35).

Table 35. Landownership in the Uintah Basin Adaptive Resources Management Sage-grouse Local Working Group Resource Area, 2007.

Landowner*	Area (acres)	Area (Miles²)	% of Resource Area
Bureau of Land Management	1,745,787	2,727	32.74
Northern Ute Tribe	989,500	1,546	18.56
National Park Service	51,324	80	0.96
Private	867,786	1,355	16.28
State of Utah	47,410	74	0.89
School Institutional Trust Lands Administration	414,853	648	7.78
US Fish & Wildlife Service	8,975	14	0.17
US Forest Service	1,182,271	1,847	22.17

Sage-grouse Population Status and Distribution

Accounts from pioneers, trappers, and explorers of the Resource Area indicate that sage-grouse were historically abundant in the area. Paul McCoy, whose family came to the Uinta Basin in 1889, recounted that homesteaders coming to the area in 1916 reported an abundance of ‘sage chickens’. Another long-time resident of the area, Morgan Hall, reported that during the 1920s, “... the crickets and the sage chickens were so numerous that my horse would almost step on sage chickens during the day...” Somewhat contradictory statements have also been found from the same era. For example, in a 1898 Report of the State Fish and Game Warden (Sharp 1898), “...the sage hen, [does] not seem to thrive well with civilization, and are surely becoming fewer and more difficult to get as the years go by, and bid fair to become extinct before long.” In addition, Rulon

Hacking, Senior High First Prize, The Protection and Conservation of Game, Animal and Bird Life of the Uinta Basin, was quoted in the Vernal Express in 1924, “The game birds of the Basin are on the decrease. There are a number of reasons for this. First, the illegal hunter...is greatly responsible for this decrease. It is estimated that each coyote kills one hundred and fifty sage chickens per year, either by killing the bird or destroying the egg. A greater effort should be made to get rid of this roamer.”

These accounts illustrate that sage-grouse populations in the Uinta Basin may have been declining 80 years ago. The UDWR began using lek counts to monitor sage-grouse populations in the Resource Area in 1967 (Figure 25). That year, a total of 134 male sage-grouse were counted on 3 leks. During these initial counts, the locations of only a few leks were known. In 1971, 10 leks in the Resource Area were counted for a total of 121 males. The estimated spring population size in 1971 was 484 adult birds. Sage-grouse populations in the Resource Area reached a peak in 1978 when 748 males were counted on 26 leks. This represents a total estimated spring population of 2,992 adult birds. Since 2000, the total number of males counted on leks has fluctuated around the 30-year average of 477 total males (Figure 26). The number of males counted fell slightly below the average during 2001 and 2002, likely due to drought conditions, and was slightly above the average in 2003 and 2004. In 2005, more sage-grouse males were counted on leks in the Uinta Basin than ever recorded. A total of 788 males were counted on 51 leks for an estimated total spring population of 3,158 adult birds.

The number of active leks can also be used to index sage-grouse population trends. In an attempt to avoid bias due to monitoring effort, only years when >10 leks were counted were included in this analysis (Figure 26). The historical population high of 1978 is still apparent, however, recent increases do not appear as significant, and the population appears to be stable, rather than increasing. This indicates that while the number of males counted on leks in the Resource Area is increasing, increases in total males counted could be attributed to increased counting and lek searching efforts. In fact, 51 leks were counted in 2005, more than were ever counted in the Resource Area (range = 1-51).

c. Key Ecological Indicators and Threats

UBARM participants identified key ecological attributes (KEAs) of sage-grouse ecology and biology and associated indicators (to measure KEAs), determined and ranked the range of variation for each KEA, and assessed the current and desired conditions for each KEA (Table 36). They then identified and ranked potential threats (Table 37).

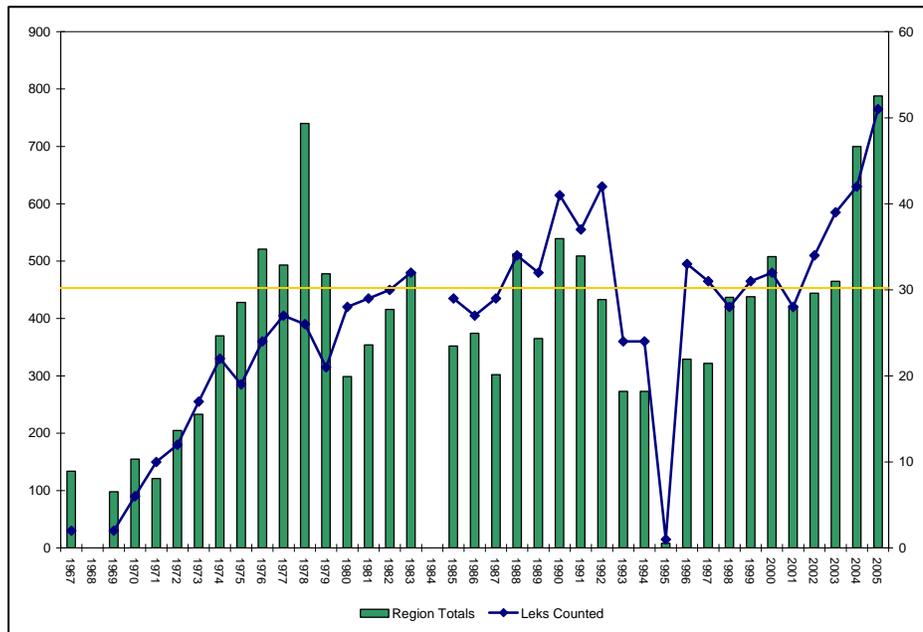


Figure 25. Maximum total number of males counted, number of leks counted, and 30-year average maximum total males counted on leks in the Uintah Basin Adaptive Management Sage-grouse Local Working Group Resource Area, 1967-2005.

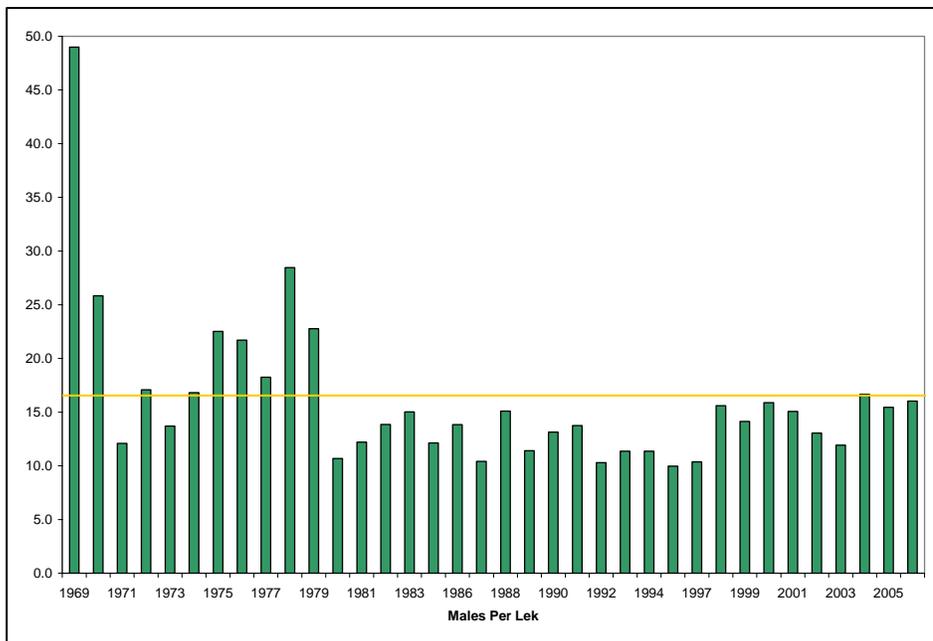


Figure 26. The number of males per lek in the Uintah Basin Adaptive Resources Management Sage-grouse Local Working Group Resource Area, 1969-2006; only years when >10 leks were counted included.

Table 36. Greater sage-grouse key ecological aspects identified in Utah's Daggett, Duchesne, and Uintah Counties, Uintah Basin Adaptive Resources Sage-grouse Local Working Group, 2007. The 'Key Attribute' and 'Indicator' cells are those defined by Greater Sage-grouse guidelines (Connelly et al 2000). The shaded cells represent the current condition as recorded by local working group members of a particular attribute and indicator as it relates to sage-grouse habitat and life history requirements.

Resource	Area Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Current Indicator Status	Current Rating	Desired Rating	Date of Current Rating	Date for Desired Rating
Uintah Basin	Landscape Context	Connectivity of key habitat types	Condition of surrounding natural vegetation	Life history patches are sparse and dispersed creating barriers between low habitat patches.	Habitat patches are isolated and narrowly connected.	Habitat patches are of generally good quality and close proximity, but with some fragmenting features.	All habitat patches are within a similar matrix and functionally connected.	Sage-grouse seasonal habitat in the Uintah Basin is generally well connected but has some fragmentation. Sage-grouse are able to move between seasonal habitats within the Resource Area and are able to move between the Resource Area and surrounding habit	Good	Good	5-Nov	16-Jul
Uintah Basin	Landscape Context	Connectivity of Populations & Sub-populations	Distance to other occupied or potential habitat	Population does not interact with any other population(s).	Next adjacent population 25-35 mi away with few habitat patches in between.	Next adjacent population 20-35 mi away with large habitat patches connecting the two; a few birds/generation known to move between populations.	Next adjacent population 15-35 mi away with occasional to regular mixing of individuals through large patches with short separation distances between patches.	Connectivity to other populations seems good based on radio-telemetry studies in the area. Lack knowledge of sage-grouse movement in the Book Cliffs.	Good	Good	5-Nov	16-Jul
Uintah Basin	Condition	Lek habitat quality.	Proximity to sagebrush (or other cover) and openness on lek.	No appropriate cover w/in 400 m of most leks; significant encroachment of tall vegetation on leks.	Dispersed patches of sagebrush cover and little grass w/in 400 m of lek; density of tall vegetation on leks increasing.	Large patches of sagebrush or other cover w/in 400 m of lek with little encroachment of tall vegetation.	<i>Large patches of sagebrush or other cover w/in 400 m of lek with no encroachment of tall vegetation.</i>	There is variability across the entire Resource Area. Most leks are in good condition.	Good	Very Good	5-Nov	11-Jul
Uintah Basin	Condition	Nesting/early brood-rearing habitat quality.	Sagebrush canopy cover and density; understory composition; proximity to open patches dominated by herbaceous vegetation.	Inadequate sagebrush cover/density; little perennial grasses or forbs in dense sagebrush with no openings.	Inadequate or high sagebrush cover/density; poor perennial grass/forb cover in sagebrush with limited openings.	<i>Adequate sagebrush cover/density; some perennial grasses/forbs in sagebrush with good perennial grass/forb content in openings.</i>	High stature grasses in shrub lands; dense cover in riparian zone; high species richness; a matrix of open patches that includes mesic sites.	Most areas are in fair condition during a "normal" year and look better in wet years.	Fair	Good	5-Nov	16-Jul

Uintah Basin	Condition	Summer/Late Brood-rearing Habitat Quality	Sagebrush canopy cover and density; understory composition; proximity to open patches and mesic sites dominated by herbaceous vegetation.	Little or no shrub land cover/density ; little perennial grasses or forbs in dense sagebrush with no open patches or mesic sites.	Little or high shrub land cover/density; poor perennial grass/forb cover in sagebrush with limited openings and mesic sites or alfalfa fields.	<i>Open shrub land (5-10%) with moderate stature grasses; some perennial grasses/forbs in sagebrush with good perennial grass/forb content in openings; some mesic sites.</i>	High stature grasses in open shrub lands (5-10%); dense cover in mesic sites; high species richness; a matrix of open patches and many mesic sites.	In the high end of fair--most sites look pretty good.	Fair	Good	5-Nov	16-Jul
Uintah Basin	Condition	Winter Habitat Quality	Sagebrush canopy cover and height.	Majority sparse sagebrush cover or very small patches or majority very dense and tall (i.e. "decadent"); sagebrush frequently covered by snow.	Low stature and/or sparse sagebrush cover on westerly and southerly slopes and drainages or majority very dense and tall (i.e. "decadent"); sagebrush often covered by snow.	Less than 15% canopy cover of sagebrush on southerly and westerly aspects and few dense patches available; sagebrush rarely covered by snow.	Widely distributed winter habitat throughout the Resource Area; canopy cover >15% sagebrush on southerly and westerly aspects w/avg. of 10" above snow depth on >5% slopes; dense sagebrush cover in drainages.	Winter habitat in good condition.	Good	Good	5-Nov	16-Jul
Uintah Basin	Size	Population Distribution	Distribution of leks			Current distribution	<i>Current distribution + more leks in the Book cliffs and on the South Slope of the Uintah.</i>		Good	Very Good	5-Sep	16-Jul
Uintah Basin	Size	Population Size	3-year running average maximum number of males counted on leks	<300	301-625	626-1,000	1,000+		Good	Very Good	5-Sep	16-Jul
Uintah Basin	Size	Population Size	Number of active leks	<23	24-35	36-60	60+		Good	Very Good	5-Sep	16-Jul

Table 37. Relative importance/contribution of sage-grouse population threats in Utah's Daggett, Duchesne, and Uintah Counties, Uintah Basin Adaptive Resources Management (UBARM) Sage-grouse Local Working Group, 2007. Threats are described in the "Threat Analysis" section of this Plan. Rankings are as follows: L=low; M=medium; H=high; and VH=very high. Ranks are defined according to TNC (2005).

Threat	Aspects of Sage-grouse population in the UBARM Resource Area							
	Reduced Population Size	Population Distribution	Reduced Lek Habitat Quality	Reduced Nesting/Early Brood-rearing Habitat Quality	Reduced Summer/Late Brood-rearing Habitat Quality	Reduced Winter Habitat Quality	Reduced Connectivity of Seasonal Habitat Types	Reduced Connectivity of Populations & Sub-populations
Home and Cabin Development	L	M	L	L	L	L	L	L
Power lines, Fences, & Other Tall Structures	-	M	H	M	M	M	M	M
Oil and Gas Development	M	M	M	M	M	M	M	M
Roads	L	M	M	M	L	M	H	H
Drought and Weather	L	-	L	H	H	H	-	-
Hunting Pressure	L	L	-	-	-	-	-	-
Incompatible Fire Management Practices	-	H	H	H	H	H	H	M
Incompatible Livestock Grazing	-	L	L	H	H	L	-	-
OHV Recreation	-	M	H	M	M	L	L	L
Invasive/Noxious Weeds	-	M	M	VH	VH	H	M	L
Parasites and Disease	H	H	-	-	-	-	-	-
Predation	VH	H	-	-	-	-	-	-
Vegetation Management	-	-	H	H	H	H	H	M
Pinyon-Juniper Encroachment	-	M	H	M	M	H	H	H

d. Status of Conservation Strategies and Actions

UBARM participants identified several conservation strategies and actions that could be implemented to enhance greater sage-grouse populations. Here UBARM partners report on specific actions completed or addressed in 2006/2007 and steps to be taken to implement additional actions into subsequent years of the plan. If a strategy or an action number is missing from this report; it means that no action(s) were taken in 2006/2007 towards its completion. To access a copy of the UBARM conservation plan visit the following web site address: <http://utahcbcp.org/files/uploads/uintah/ubarmsagrplan.pdf>. The UBARM LWG will be reviewing and updating their Plan in early 2009

1. Strategy: Increase cooperation and coordination between UBARM and public and private partners.

Action: By 2007, meet with the Ute Tribe Fish and Game Department to update them on UBARM activities and encourage participation.

Status: Leah Smith and Brian Maxfield met with Karen Court to discuss greater sage-grouse conservation and obtain access to Tribal land to conduct the ecology study. The UDWR meets with the tribe in annual coordination meeting. Jim Brown and other Grazing Improvement Program Representatives and Mark Chamberlain NRCS have met with the Tribe in the fall 2007 and winter 2008 to discuss potential projects.

Action: In 2007, UDWR biologists will coordinate with Ute Tribe biologists to identify sage-grouse lek sites and count birds on Tribal lands.

Status: This is ongoing. This work is being conducted by Brain Maxfield and Leah Smith.

Action: Work with the NRCS to review and potentially endorse NRCS WHIP and EQIP projects that would benefit sage-grouse in the Resource Area.

Status: See 1.1. During the fall 2007 and several times since, NRCS has meet with Karen Courts regarding possible projects. NRCS (Mark Chamberlain) meets regularly with Utah partners to review and plan projects that may benefit greater sage-grouse.

Partners: USU Extension, Ute Tribe, UDWR, NRCS.

Threats addressed: Vegetation management

Aspects of Sage-grouse ecology addressed: population size, population distribution, seasonal habitat quality.

2. Strategy: Increase information/education opportunities with local community and UBARM partners.

Action: By 2008, develop informational handout about sage-grouse ecology and UBARM activities.

Status: No action has been completed on this brochure. It was identified by the LWG as a high priority item to be completed in 2008. A draft will be prepared by the LWG facilitator in 2008 for group review.

Action: Through 2016, include information about UBARM activities in County Extension newsletter.

Status: This is ongoing. The County Extension Office provides updates and notice of LWG activities in county newsletters and through periodic correspondence.

Action: Schedule spring field tour of habitat management projects.

Status: A field tour of projects sites on Diamond Mountain was conducted in the spring 2007. The LWG toured the East Bench Project area in the fall of 2006 to discuss a study on the ecology of sage-grouse inhabiting the area. This project was subsequently implemented. Funding for the project was provided by the UDWR, Enduring Resources, LLC and more recently Andarko Petroleum, Inc. Also in the spring of 2007 the group reviewed projects on Deadmans Bench. This work is being coordinated by – Miles Hanberg - UDWR and Steve Strong BLM.

Action: Coordinate workshops for private partners to share information about habitat enhancement, funding opportunities, and other relevant topics to be identified as needed. Pending – Regional team meetings –

Status: On-going through Utah Partners quarterly meetings

Partners: USU Extension, UDWR, USFS, BLM, SITLA, NRCS, UFBB, private partners.

Threats Addressed: Vegetation management, fire management, pinyon-juniper encroachment, livestock grazing.

Aspects of Sage-grouse Ecology Addressed: Seasonal habitat quality.

3. Strategy: By 2016, increase brood-rearing habitat quality in the Resource Area.

Action: Work with the NRCS and private partners to develop NRCS WHIP and EQIP projects that would increase brood-rearing habitat quality in the Resource Area.

Status: On-going

3.2. Action: Work with agency partners to develop projects that would increase brood-rearing habitat quality in the Resource Area.

Status: On-going. The prescribed burns implemented on Anthro Mountain were designed to improve brooding rearing habitat. The response of greater sage-grouse to burns is being evaluated by Utah State University.

3.2. Action: Work with private and public partners to monitor effects of habitat improvement projects on vegetation and sage-grouse habitat use.

Status: On-going. The vegetation response on all projects implemented is monitored by UDWR Range Trend crews. Sage-grouse response to major demonstration projects such as Anthro Mt. (Action 3.2) is being evaluated by Utah State University.

Partners: NRCS, UDWR, USFS, BLM, Ute Tribe, SITLA, USU Extension, private partners.

Threats Addressed: Vegetation management, livestock grazing, drought and weather, invasive/noxious weeds, pinyon-juniper encroachment.

Aspects of Sage-grouse Ecology Addressed: Nesting/early brood rearing habitat quality, summer/late brood rearing habitat quality, connectivity of seasonal habitat types.

4. Strategy: Increase the amount of mesic sites available to sage-grouse during the late summer and early fall.

Action: Work with public and private partners to maintain or create mesic sites in areas used by sage-grouse during late summer and fall.

Status: Mark Chamberlain reported that projects have been implemented on Diamond Mt and Jackson Draw. These projects are reported in the LWG area project list.

Action: During times of drought, coordinate with public and private partners to maintain water available for sage-grouse during late summer and early fall in areas used during this time.

Status: No action

Partners: NRCS, UDWR, USFS, BLM, Ute Tribe, SITLA, USU Extension, private partners.

Threats Addressed: Drought and weather, livestock grazing, vegetation management.

Aspects of Sage-Grouse Ecology Addressed: Summer/late brood-rearing habitat quality

5. Strategy: By 2016, increase population and habitat monitoring efforts in the Resource Area.

Action: Encourage public and private partners to use techniques from Connelly et al. (2003) "Monitoring of Greater Sage-grouse Habitats and Populations"

Status: Sage-grouse population status and response to management actions are being conducted on Anthro Mt. Seep Ridge, Blue Mt, and Deadsman Bench using standard radio telemetry protocols.

Action: In 2007, UDWR biologists will coordinate with Ute Tribe biologists to identify sage-grouse lek sites and count birds on Tribal lands.

Status: On-going. Leah Smith and Brian Maxfield are coordinating this effort.

Action: UDWR to enlist and coordinate private volunteers and/or other agency biologists search for new leks and conduct lek counts on active leks.

Status: On-going. Utah State University and the UDWR are coordinating a program to train and involve dedicated hunters in effort to locate new lek sites.

Action: Through 2016, test dead sage-grouse for West Nile Virus and any other parasites/pathogens of importance.

Status: On-going. Birds recovered in 2007 were tested for WNV and other pathogens. One positive test was recorded in 2006 in the LWG area.

Partners: NRCS, UDWR, USFS, BLM, Ute Tribe, SITLA, USU Extension, private partners.

Threats Addressed: Parasites/disease

Aspects of Sage-Grouse Ecology Addressed: Population size, population distribution, connectivity of populations and subpopulations.

6. Strategy: By 2016, work with public and private partners to reduce invasive/noxious plant species, especially in areas used for nesting and brood-rearing.

Action: Coordinate with county weed control department to control invasive/noxious weeds in areas used by sage-grouse.

Status: Several UBARM members have been involved - Spotted Knapweed, Hoary Cress on Anthro Mt, Russian Knapweed – Road maintenance agreements with private industry. Daggett County knap weed and Canadian thistle.

Action: Avoid controlled burns and fight wildfires in areas dominated by cheat-grass.

Status: On-going. The Neola North Fire has been reseeded with an approved seed mixture to mitigate a cheatgrass invasion.

Action: Encourage and support use of chemical and mechanical treatments to control cheat-grass and invasive/noxious weeds.

Status: Several UBARM Members are part of the weed control board. Cory Ramson USU conducting study on Sunshine Bench to control cheatgrass.

Partners: NRCS, UDWR, USFS, BLM, Ute Tribe, SITLA, USU Extension, County Weed Boards & departments, private partners.

Threats Addressed: Invasive/noxious weeds, vegetation management, fire.

Aspects of Sage-grouse Ecology Addressed: Lek habitat quality, nesting/early brood-rearing habitat quality, summer/late brood-rearing habitat quality, connectivity of seasonal habitat types.

7. Strategy: By 2016, minimize effects of roads and utilities in areas used by sage-grouse.

Action: Re-vegetate utility corridors with sage-grouse seed mixes.

Status: On-going. This effort is coordinated through Utah Partners Regional Team – Utilities contact the UDWR BLM USFS NRCS to coordinated revegetation. The agencies provide seed recommendations and approve mixtures.

Action: Avoid placement of new roads and utilities near lek sites (specific distances should be site specific).

Status: On-going. URARM is searching for new leks to mitigate potential future impacts. The Uintah County Public Lands Implementation Plan (Uintah County Board of Commissioners 2005a) makes the following statements relevant to sage-grouse management: 1) sage-grouse management in Northeastern Utah must follow

the Strategic Management Plan for Sage Grouse 2002 (Publication 02-20 State of Utah Department of Natural Resources Division of Wildlife resources, June 11, 2002). This is to insure that management guidelines for the grouse are compatible with local sage-grouse population and habitat, 2) buffers must be implemented to insure required protection is provided to sage-grouse during the critical stages of breeding, nesting, and rearing young. These buffers or requirements may be adjusted where natural barriers exist, impacts can be mitigated, or sage-grouse are determined not to be present during the proposed disturbance, 3) avoid significant human disturbances within 0.6 miles (1 km) of a lek during the breeding season (March 1-May 31) from one hour before sunrise to three hours, and after sunrise, and 4) avoid developing roads, fences, poles, and utility lines within 1300 feet (400 meters) of a lek. Any such developments within the 1300 feet must be designed to minimize to the extent possible, bird structure collision and to prevent raptor perching.

Action: Where possible, install perch deterrents on tall structures located in areas used by sage-grouse.

Status: Pending the results of a study being conducted in San Juan County.

Action: Where practicable, install low-profile tanks in areas used by sage-grouse.

Status: Ongoing – recommended on all projects. Compliance is largely volunteer on part of operators. The recommendations have been followed on East Bench by Andarko Petroleum Inc.

Partners: NRCS, UDWR, USFS, BLM, Ute Tribe, SITLA, USU Extension, private partners.

Threats Addressed: Powerlines, fences, and other tall structures, predation, renewable and non renewable energy development, roads.

Aspects of Sage-grouse Ecology Addressed: Seasonal habitat quality, connectivity of seasonal habitat types.

8. Strategy: Through 2016, avoid locating homes/cabins within important sage-grouse use areas, while ensuring private property rights. If development does occur, the work will minimize impacts to biodiversity.

Action: Participate in county planning efforts for home/cabin development to ensure that biodiversity impacts are minimized.

Status: Housing developments are not currently impacting sage-grouse areas. UBARM is searching new leks to mitigate this future potential. The Uintah County General Plan (Uintah County Board of Commissioners 2005b) promotes County-to-community, community-to-community and agency-to-County coordination, cooperation, and communication. The Duchesne County Code (Duchesne County 1997, amended 2005) contains the following provisions related to sage-grouse and other wildlife in the County: 1) resource-use and management decisions by federal land management and regulatory agencies, should support state-sponsored initiatives or programs designed to stabilize wildlife populations that may be experiencing a scientifically-proven decline in numbers, 2) Portions of Daggett County are zoned to provide some measure of protection to wildlife habitat, including wetlands, wildlands, and open spaces.

Action: Educate County planning departments about where important sage-grouse use areas are located.

Status: The Uintah County planning office has been provided maps to identify important sage-grouse areas. Duchesne County will be provided similar maps in 2008.

Action: Establish easements or other land protection in crucial habitat.

Status: Some landowners have expressed interest in easements. UBARM members are continuing this dialogue with interested landowners.

Action: Work with county planners and county council to establish zoning ordinances for crucial habitat that protect those areas from inappropriate development.

Status: On-going . See actions 8.1 and 8.2.

Partners: NRCS, UDWR, USFS, BLM, Ute Tribe, SITLA, USU Extension, County Planning departments, private partners.

Threats Addressed: Home and cabin development, roads, powerlines, fences, and other tall structures.

Aspects of Sage-Grouse Ecology Addressed: Seasonal habitat quality, connectivity of seasonal habitats, connectivity of populations and subpopulations.

9. Strategy: Through 2016, avoid locating oil and gas roads or pads near lek sites.

Where impacts do occur, implement interim reclamation to well site(s) as soon as practicable.

Action: Participate in county planning efforts for oil and gas exploration and development to ensure that sage-grouse impacts are minimized.

Status: On-going. UBARM members participate and site reviews. For example - Deadmans Bench – some stipulations were placed in leases but compliance is largely left to the operator. Compliance has been good.

Action: Influence BLM/USFS/SITLA/private enterprise planning efforts to minimize impacts to sage-grouse.

Status: On-going – UBARM representatives participate in interagency planning meetings.

Partners: NRCS, UDWR, USFS, BLM, Ute Tribe, SITLA, USU Extension, private partners

Threats Addressed: Renewable and non-renewable energy development, roads, powerlines, fences, and other tall structures.

Aspects of Sage-grouse Ecology Addressed: Seasonal habitat quality, connectivity of seasonal habitat types, connectivity of populations and subpopulations.

10. Strategy: Through 2016, prevent reestablishment of pinyon/juniper through annual monitoring and maintenance level control efforts.

Action: Revisit and retreat as needed pinyon/juniper removal site.

Status: See habitat project list.

Partners: NRCS, UDWR, USFS, BLM, Ute Tribe, SITLA, USU Extension, private partners

Threats Addressed: Pinyon-juniper encroachment, vegetation management.

Aspects of Sage-grouse Ecology Addressed: Seasonal habitat quality, connectivity of seasonal habitat types.

11. Strategy: Monitor impacts of hunting on sage-grouse population in Resource

Area.

Action: Review and advise UDWR on sage-grouse harvest plans.

Status: On-going. The UDWR has reduced the size of the area hunted. And opened new area based on increased numbers. Limited number of permits are available and number adjusted based on population estimates.

Partners: UDWR, UBARM

Threats Addressed: Hunting

Aspects of Sage-grouse Ecology Addressed: Population size.

12. Strategy: By 2016, key public and private lands in the UBARM Resource Area (specific locations to be selected) are protected and/or managed so as to conserve/improve sage-grouse nesting and breeding habitat.

Action: Encourage use of UBARM defined desired conditions for state and federal lands and influence management actions in order to move toward those conditions.

Status: On-going. The UBARM completed plan defines current and desired condition and provides a management action framework. This plan has been provided to all UBARM partners.

Action: Support partner efforts that protect sage-grouse and sage-grouse habitat on public lands.

Status: On-going through Utah Partners and UBARM.

Action: Pursue private land protection on a few key parcels (TBD).

Status: Pending.

Action: Pursue habitat improvement projects or land management strategies on private lands in areas used by sage-grouse for nesting and brood-rearing.

Status: See project list.

Partners: NRCS, UDWR, USFS, BLM, Ute Tribe, SITLA, USU Extension, private partners, The Nature Conservancy.

Threats Addressed: Home and cabin development, powerlines, fences, and other tall structures, renewable and non-renewable energy development, roads, livestock grazing, recreation, vegetation management.

Aspects of Sage-grouse Ecology Addressed: Seasonal habitat quality, connectivity of seasonal habitat types, connectivity of populations and subpopulations.

13. Strategy: Provide for a level and system of domestic livestock grazing that maintains and improves both the long-term stability of sage-grouse populations and habitats and the livestock industry in the Resource Area.

Action: Coordinate grazing management with livestock operators to reduce resource and timing conflicts on leks and prime nesting habitat when possible.

Status: The Uintah Basin Grazing Association is involved in strategic grazing and rotational grazing on Blue and Diamond Mountain.

Action: Apply grazing management practices to achieve desired conditions including maintenance of residual herbaceous vegetation appropriate for the site.

Status: On-going. The Utah Grazing Improvement Project has implemented projects to improve water distribution and use on native rangelands in the area. The USFS has implemented prescribed burns on Anthro Mt to improve grouse use and grazing

distribution. Sage-grouse response to the the burns is being monitored by Utah State University.

Action: Encourage implementation of grazing systems that provide for areas and times of deferment while taking into consideration the resource capabilities and needs of the livestock operator.

Status: See 13.1 – Regional Team partners are discussing the need to locating forage that could be grazed so other sites could be deferred.

Action: Manage livestock to enhance riparian conditions.

Status: On-going. The Grazing Improvement Project has funded projects in the area to improve riparian conditions. NRCS is also involved in this effort. See attached project lists.

Partners: NRCS, UDWR, USFS, BLM, Ute Tribe, SITLA, USU Extension, UFBF, private partners.

Threats Addressed: Livestock grazing.

Aspects of Sage-grouse Ecology Addressed: Seasonal habitat quality.

14. Strategy: Maintain and where possible, improve forb component in the understory.

Action: Reclaim and/or reseed areas disturbed by treatments when necessary, using seed mixtures high in native bunch grasses and desirable forbs.

Status: On-going. See attached project list.

Action: Restore understory vegetation in areas lacking desirable quality and quantity of herbaceous vegetation where economically feasible.

Status: On-going. See attached project list.

Action: Conduct vegetation treatments to improve forb diversity (e.g., harrowing, aerating, chaining) and reclaim or reseed disturbed area, if needed.

Status: On-going. See attached project list.

Action: Develop management techniques to increase forb diversity and density in sagebrush steppe, within limits of ecological sites and annual variations.

Status: On-going. See attached project list.

Partners: NRCS, UDWR, USFS, BLM, Ute Tribe, SITLA, USU Extension, private partners.

Threats Addressed: Vegetation management, fire, renewable and non-renewable energy development, roads, pinyon-juniper encroachment, invasive/noxious weeds.

Aspects of Sage-grouse Ecology Addressed: Seasonal habitat quality.

15. Strategy: Manage pinyon/juniper stands to reduce encroachment into sagebrush/grass communities.

Action: Remove encroaching trees and tall shrubs mechanically (chainsaws, chaining, etc.) or by other methods, where needed to maintain visibility at lek sites and security from predation in other seasonal habitats.

Status: On-going. See attached project list.

Action: Brush-cut or treat with other mechanical methods on specified areas and reclaim or re-seed as necessary.

Status: On-going. See attached project list.

Action: Identify areas where pinyon or juniper trees are encroaching on good quality

sagebrush habitat and treat as needed.

Status: On-going. See attached project list.

Partners: NRCS, UDWR, USFS, BLM, Ute Tribe, SITLA, USU Extension, private partners.

Threats Addressed: Pinyon-juniper encroachment, vegetation management, predation, fire.

Aspects of Sage-grouse Ecology Addressed: Seasonal habitat quality, population size, connectivity of seasonal habitat types.

16. Strategy: Enhance existing riparian areas or create small wet areas to improve nesting and brood-rearing habitat.

Action: Identify opportunities or needs to create small wet areas, implement such projects where economically feasible.

Status: On-going. See attached project list.

Action: Design and implement livestock grazing management practices to benefit riparian areas.

Status: On-going. See attached project list.

Action: Modify or adapt pipelines or developed springs to create small wet areas.

Status: No action

Action: Locate projects to minimize potential loss of water table associated with wet meadows.

Status: Pending.

Action: Protect existing wet meadows and riparian areas where necessary.

Status: On-going. See attached project list.

Action: Manage vegetation and artificial structures to increase water-holding capability of areas.

Status: No action.

Action: Install catchment structures to slow run-off, hold water, and eventually raise water tables.

Status: No action.

Partners: NRCS, UDWR, USFS, BLM, Ute Tribe, SITLA, USU Extension, private partners.

Threats Addressed: Drought and weather, vegetation management.

Aspects of Sage-grouse Ecology Addressed: Nesting/Early brood-rearing habitat quality, summer/late brood-rearing habitat quality, connectivity of seasonal habitats.

17. Strategy: Improve lek vegetation conditions to allow for predator recognition and visibility.

17.1Action: Open lek areas that have been invaded by sagebrush and other shrubs.

Status: A lek on Blue Mt and Deadmans Bench was Dixie harrowed to open the site – See attached project list.

17.2Action: Map and inventory leks with potential for restoration.

Status: On-going. As new leks are identified the maps are updated.

17.3Action: Maintain and enhance desired conditions for leks.

Status: On-going. The UDWR has identified a potential lek enhancement project on tribal land.

Partners: NRCS, UDWR, USFS, BLM, Ute Tribe, SITLA, USU Extension, private partners.

Threats Addressed: Predation, invasive/noxious weeds, pinyon-juniper encroachment, powerlines, fences, and other tall structures.

Aspects of Sage-grouse Ecology Addressed: Population size, lek habitat quality, population distribution.

18 Strategy: Minimize impacts of exotic and invasive/noxious plant species.

18.1 Action: Identify areas where undesirable vegetation is encroaching on sage-grouse habitat.

Status: On going. See attached project list and Strategy 6.

18.2 Action: Treat areas where undesirable vegetation has become or is at risk of becoming a factor in sage-grouse habitat loss or fragmentation.

Status: On-going. See Strategy 6.

18.3 Action: Work with existing weed management programs to incorporate sage-grouse habitat needs;

Status: On-going.

18.4 Action: Identify large areas of introduced plant species that are not meeting sage-grouse habitat needs and reseed with native species where appropriate.

Status: On-going.

18.5 Action: Manage fire, transportation and vegetation treatments to minimize undesirable vegetation where possible.

Status: On-going. See strategy 6.

Partners: NRCS, UDWR, USFS, BLM, Ute Tribe, SITLA, USU Extension, private partners.

Threats Addressed: Invasive/noxious species, vegetation management, fire, roads.

Aspects of Sage-grouse Ecology Addressed: Nesting/early brood-rearing habitat quality, summer/late brood-rearing habitat quality, connectivity of seasonal habitats.

19 Strategy: Minimize impacts of agricultural conversion on sage-grouse.

19.1 Action: Maintain the CRP program and improve its benefit to wildlife by altering seed mixes.

Status: On-going.

19.2 Action: Expand Grassland Reserve Program (GRP) opportunities in sage-grouse habitats.

Status: Pending.

19.3 Action: Maintain or reestablish sagebrush patches of sufficient size and appropriate shape to support sage-grouse between agricultural fields.

Status: Pending.

19.4 Action: Work with NRCS and others to maintain the CRP program and enroll important sage-grouse habitats currently in grain production

Status: Pending Farm Bill action.

19.5 Action: Encourage use of sage-grouse friendly seed mixes, including bunchgrasses, forbs and big sagebrush, in CRP and other grassland plantings.

Status: On-going.

19.6 Action: Rehabilitate old low diversity, sod bound CRP fields with sage-grouse

friendly seed mixes including bunchgrasses, forbs, and big sagebrush.

Status: Pending.

19.7 Action: Encourage interest and enrollment of key sage-grouse habitats in relevant Farm Bill programs.

Status: On-going and pending new Farm Bill.

Partners: NRCS, UDWR, USFS, BLM, SITLA, USU Extension, private partners.

Threats Addressed: Vegetation management.

Aspects of Sage-grouse Ecology Addressed: Lek habitat quality, nesting/early brood-rearing habitat quality, summer/late brood-rearing habitat quality, connectivity of seasonal habitat types.

20 Strategy: Minimize the amount of quality sage-grouse habitat eliminated by residential and commercial land development consistent with private property rights.

20.1 Action: Participate with County land use decision makers in identifying key sage-grouse habitats.

Status: On-going work with Farm Bureau.

20.2 Action: Maintain sagebrush environments of sufficient size and shape around developments in sage grouse habitat.

Status: On-going – See Strategy 8.

20.3 Action: Encourage the voluntary use of conservation easements and other land protection vehicles with willing sellers in sage grouse habitats.

Status: On-going.

20.4 Action: Educate rural residents about the importance of good grazing management in keeping small tracts weed free and capable of providing wildlife habitat.

Status: On-going.

Partners: NRCS, UDWR, USFS, BLM, Ute Tribe, SITLA, USU Extension, County Planning departments, private partners.

Threats Addressed: Home and cabin development

Aspects of Sage-grouse Ecology Addressed: Seasonal habitat quality, connectivity of seasonal habitat types, connectivity of populations and subpopulations, population distribution, increased predation, disturbance during critical periods.

21 Strategy: Minimize sage-grouse habitat loss to oil and gas activities while ensuring continued development.

Status: On-going see Strategy 9 above – UBARM partner provide recommendations to operators. Voluntary compliance has been good.

21.1 Action: Reduce fragmentation of sage-grouse habitat by oil and gas development activities.

21.2 Action: Minimize disturbance to sage-grouse associated with oil and gas development.

21.3 Action: Reduce cumulative impacts of oil and gas development.

21.4 Action: Use directional drilling where feasible to minimize surface disturbance, particularly where well density exceeds 1:160 acres.

21.5 Action: Minimize pad size and other facilities to the extent possible, consistent with safety.

- 21.6 Action:** Plan and construct roads to minimize duplication.
- 21.7 Action:** Cluster development of roads, pipelines, electric lines and other facilities.
- 21.8 Action:** Use existing, combined corridors where possible.
- 21.9 Action:** Use early and effective reclamation techniques, including interim reclamation, to speed return of disturbed areas to use by sage-grouse.
- 21.10 Action:** Reduce long-term footprint of facilities to the smallest possible.
- 21.11 Action:** Avoid aggressive, non-native grasses (e.g. intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, smooth brome, etc) in reclamation seed mixes.
- 21.12 Action:** Eliminate noxious weed infestations associated with oil and gas development disturbances.
- 21.13 Action:** Minimize width of field surface roads.
- 21.14 Action:** Avoid ridge top placement of pads and other facilities.
- 21.15 Action:** Use low profile above ground equipment, especially where well density exceeds 1:160 acres.
- 21.16 Action:** Avoid breeding/nesting season (March 1 – June 30) construction and drilling when possible in sage-grouse habitat.
- 21.17 Action:** Limit breeding season (March 1 – May 1) activities near sage-grouse leks to portions of the day after 9:00 a.m. and before 4:00 p.m.
- 21.18 Action:** Reduce daily visits to well pads and road travel to the extent possible in sage-grouse habitat.
- 21.19 Action:** Utilize well telemetry to reduce daily visits to wells, particularly where well density exceeds 1:160 acres.
- 21.20 Action:** Locate compressor stations off ridge tops and at least 2,500 feet from active sage-grouse leks, unless topography allows for closer placement.
- 21.21 Action:** Avoid locating facilities within ¼ mile of active sage-grouse leks, unless topography allows for closer placement.
- 21.22 Action:** Plan for and evaluate impacts to sage-grouse of entire field development rather than individual wells.
- 21.23 Action:** Study, and attempt to quantify, impacts to sage-grouse from oil and gas development.
- 21.24 Action:** Evaluate need for near-site and/or off-site mitigation to maintain sage grouse populations during oil and gas development and production, especially where well density exceeds 1:160 acres.
- 21.25 Action:** Implement near-site and/or off-site mitigation as necessary to maintain sage-grouse populations.
- 21.26 Action:** Share sage-grouse data with industry to allow planning to reduce impacts.

Partners: UDWR, USFS, BLM, SITLA, County Planning departments, private partners.

Threats Addressed: Renewable and non-renewable energy development, roads, powerlines, fences, and other tall structures, invasive/noxious weeds, vegetation management.

Aspects of Sage-grouse Ecology Addressed: Seasonal habitat quality, connectivity of seasonal habitat types, connectivity of populations and subpopulations, population distribution.

22 Strategy: Minimize impacts of utilities lines in sage-grouse habitat.

Status: See Strategy 7, 8, and 9.

22.1 Action: Avoid new construction during important periods and re-route lines where technically and economically feasible to avoid impacts.

22.2 Action: Schedule maintenance to minimize important periods, however, maintenance in emergency situations will be unrestricted.

22.3 Action: Install raptor deterrents when applicable.

Partners: UDWR, USFS, BLM, SITLA, private partners.

Threats Addressed: Powerlines, fences, and other tall structures.

Aspects of Sage-grouse Ecology Addressed: Seasonal habitat quality, connectivity of seasonal habitat types.

23 Strategy: Minimize the impact of excessive predation.

23.1 Action: Plan and conduct research to determine the population-level effects of predation on sage-grouse.

Status: No action.

23.2 Action: Where sage-grouse population-level effects of predation are clearly identify, plan and implement site-specific predation management as necessary. Incorporate a monitoring plan to determine success

Status: USDA Wildlife Services is placing DRC-1339 egg baits to reduce the risk of raven predation on sage-grouse nests during the nesting season by reducing populations.

23.3 Action: Plan and conduct research to determine if man-made raptor perches increase predator effectiveness in sage-grouse use areas.

Status: Pending – Research is currently being conducted in San Juan County to evaluate the effectiveness of Perch deterrents.

23.4 Action: Modify power lines and wood fence posts (to remove raptor perches) in important sage-grouse areas, where feasible and where predator concerns have been identified

Status: Pending the outcomes of an on-going research project. See Action 23.3.

23.5 Action: Remove trees, remove/modify raptor perches, and maintain quality sagebrush habitat, where predation concerns on sage-grouse have been identified.

Status: Pending.

23.6 Action: Begin site-specific predation management considering all predator species (especially common ravens and red fox) where necessary and appropriate.

Status: On-going. USDA Wildlife Services and the UDWR have implemented a predator management plan that includes sage-grouse.

Partners: UDWR, USFS, BLM, SITLA, USDA-WS, private partners.

Threats Addressed: Predation, pinyon-juniper encroachment, powerlines, fences and other tall structures

Aspects of Sage-grouse Ecology Addressed: Population size, seasonal habitat quality.

- 24 Strategy:** Improve knowledge of disease in sage-grouse populations.
- 24.1 Action:** Collect grouse parasite and disease organism samples while handling birds for other research.
- Status:** On-going.
- 24.2 Action:** Monitor radio collared and other grouse for West Nile Virus and other disease outbreaks
- Status:** On-going on Seep Ridge Anthro, Deadmans Bench.
- Partners:** UDWR, USFS, BLM, private partners.
- Threats Addressed:** Parasites and disease
- Aspects of Sage-grouse Ecology Addressed:** Population size, population distribution, connectivity of populations and subpopulations.
- 25 Strategy:** Increase subpopulation numbers and genetic distribution in Resource Area subunits (TBD).
- 25.1 Action:** Use translocation from within the Resource Area to supplement subpopulations.
- Status:** Pending.
- 25.2 Action:** Use translocation from areas outside the Resource Area to supplement subpopulations.
- Status:** A total of 70 birds over three years were trapped on Diamond Mt and moved to Strawberry Valley.
- 25.3 Action:** Use translocation techniques developed by Baxter et al. in Strawberry Valley
- Status:** Pending.
- Partners:** UDWR, USFS, University partners, private partners.
- Threats Addressed:** None
- Aspects of Sage-grouse Ecology Addressed:** Population size, population distribution, connectivity of populations and subpopulations.
- 26 Strategy:** Strategy: Increase knowledge base regarding the positive and negative effects of sagebrush habitat improvement projects on other shrubsteppe species.
- 26.1 Action:** Identify and/or develop research and monitoring protocol to address impacts to other shrubsteppe species of management practices targeted at improving or enhancing sage-grouse populations and/or habitats.
- Status:** On-going. Evaluations are being conducted on Anthro Mt., Seep Ridge, Deadmans Bench.
- Partners:** USFS, BLM, USU Extension, UDWR, University partners.
- Threats Addressed:** None
- Aspects of Sage-grouse Ecology Addressed:** None

e. Habitat Improvements and Completed Conservation Actions

The UDWR, in conjunction with the Utah Partners for Conservation and Development (UPCD), have implemented several habitat improvement projects in the Resource Area targeted at restoring or enhancing sage-grouse habitat. In 2004, approximately 4,100 acres of habitat in the Resource Area were treated and 7,000 acres were treated in 2005. Treatments were aimed at opening sagebrush canopy to enhance native grass/forb cover in the understory. Additional habitat improvement projects are planned for 2006. The UDWR anticipates treating 15,425 acres in the Resource Area in 2006. The location of some habitat improvement projects is given in Figure 27. Table 38 lists the acreage and general location of habitat improvement projects implemented in 2004 and 2005 and proposed for 2006 by the UDWR.

The USFS has also implemented several habitat improvement projects and burn restoration projects on the Uinta Mountains and Tavaputs Plateau. General conclusions (S. Goodrich, USFS, personal communication) from the monitoring of those projects are:

- Big sagebrush is well adapted to drought except on areas bordering or grading into desert shrub communities
- Mountain big sagebrush can return to burned areas with crown cover reaching pre-burn levels in about 15-30 years
- Mountain big sagebrush can return to pretreatment levels following herbicide applications in about the same time as in burned areas
- Limited information indicates Wyoming big sagebrush will take much longer to recover from fire than mountain big sagebrush

In 2006, USU and the Ashley National Forest initiated a study to evaluate the effects of small scale (<100 acres) prescribed burning on use of mountain big sagebrush communities by sage-grouse. The selected sites, located on Anthro Mountain, will be burned in the fall of 2007. Two years of pre-treatment and 2 years of post-treatment data will be collected relative to sage-grouse use of the areas and the vegetative response. The information gleaned from this study will enhance UBARM's understanding of fire as a potential threat and potential tool in the Resource Area

Table 38. Habitat improvement projects implemented to address sage-grouse threats identified by the Uintah Basin Adaptive Resources Management Local Sage-grouse Working Group, 2005-2007.

ID	FY start	FY complete	Project Title	Treatment type	Threat code	Acres
10	2005	2006	Taylor Flat P/J removal	lop and scatter hand thin P/J	1,2,18,21	733
ID	FY start	FY complete	Project Title	Treatment type	Threat code	Acres
22	2005	2006	Monument Ridge P/J removal	lop and scatter hand thin P/J	1,2,18,21	40
28	2005	2006	Steinaker Draw P/J project	P/J removal with bullhog a-way dixie harrow and	1,2,18,21	1002
39	2005	2006	Snake John greenstripping	aerial seed	1,9,18	1091

73	2005	2006	Seep/Winter Ridge P/J removal	lop and scatter hand thin P/J	21	23
178	2005	2007	Ruple Cabin sagr range enhance	double drum aerator and aerial seed	1,2	410
258	2005	2005	Snake John Valley lop and scatter	lop and scatter hand thin P/J	1,2,18,21	197
259	2005	2005	Wolf Point lop and scatter	lop and scatter hand thin P/J	1,2,18,21	497
298	2005	2005	Wolf Point phase 2 P/J removal	lop and scatter hand thin P/J	1,2,18,21	1987
299	2005	2005	Red Creek Flat lop and scatter	lop and scatter hand thin P/J	1,2,18,21	199
310	2005	2005	V-Canyon Ridges lop and scatter project	lop and scatter hand thin P/J	1,2,18,21	673
314	2005	2007	Kings Point P/J removal	lop and scatter hand thin P/J	1,2,18,21	994
316	2006	2007	Chew-Blue Mtn. sagr enhancement	2-way dixiie harrow re-seed	1,2,15	235
317	2006	2006	Clay Basin-Daggett P/J removal	lop and scatter hand thin P/J	1,2,18,21	511
319	2006	2007	Winter Ridge Asphalt P/J removal	lop and scatter hand thin P/J	1,2,18,21	1065
357	2006	2007	West Stuntz Blue mtn sagr enhancement	2-way dixie harrow and re-seed	1	883
358	2006	2006	Winter Ridge phase 2 lp and scatter	lop and scatter hand thin P/J	1,2,18,21	1322
359	2006	2007	Red Creek Flat phase 2 lop and scatter	lop and scatter hand thin P/J	1,2,18,21	612
392	2006	2007	Clay Basin-Daggett SITLA	lop and scatter hand thin P/J	1,2,18,21	810
393	2005	2005	Red Fleet-Donkey Flat seeding	re-seed using range land drill	1,2	1007
394	2006	2007	Blue Knoll lop and scatter	lop and scatter hand thin P/J	1,2,18,21	1003
397	2006	2007	Anthro mtn sage-grouse project Y-1	lop and scatter hand thin P/J	1,2,18,21	1680
399	2006	2007	Chew/USU sheep grazing project	use livestock to reduce CC of sage-brush	1,2,15,18	1040
999	2006	2006	2 Bar X Ranch	Water development	22	700
9999	2007	2007	Uintah Basin Grazing Assoc	Brush control	15	2000
9998	2007	2007	Searle Brush Mgmt	Brush mgmt	15	240
9997	2007	2007	CW McCoy Sheep brush mgmt	Brush mgmt	15	700
9996	2006	2006	Chivers Water Develepment	Water development	22	250

			Chivers Water			
9995	2005	2005	Development	Brush mgmt	15	1600
9994	2005	2005	Terry Brotherson	Brush mgmt and seeding	15	122
				Range planting/water		
9993	2005	2005	Max Anderson	development	15-22	60
9992	2006	2006	Terry Brotherson	Brush mgmt	22	60
				Brush mgmt & Spring		
9991	2007	2007	Max Giles	development	22-15	40
			Drippin Chicken Water/			
9990	2007	2007	Doc Allen	Water Development	22	100
				Range planting/Water		
9989	2006	2006	Donald Hicken	development	15	275
			Hacking Land and			
9988	2007	2007	Livestock	Brush mgmt	15	350
9987	2007	2007	Grant Hacking	Water development	22	300
				Brush mgmt/water		
9986	2006	2006	Burt Delambert	development	15-22	900
9985	2007	2007	Chew Livestock	Brush mgmt/Seeding	15-22	250
				Water development 2		
9984	2005	2005	Donald Frandsen	springs	22	150
			Deep creek	Prescribed grazing for	1, 2, 15,	
9983	2006	Ongoing	investment/Allen Smith	sage grouse	16	9300
			Deep creek		1, 2, 15,	
9982	2005	2005	investment/Allen Smith	Dixie harrow on brush	16	325
			Deep creek	Seeding of better sage	1, 2, 15,	
9981	2006	2006	investment/Allen Smith	grouse forage	16	740
9980	2005	2005	Strawberry River Ranch	Water development	22	100
				13 pond sites/ brush		
9979	2005	2005	Little red creek cattle co.	mgmt	15-22	600
				1 pond, brush mgmt,	1, 2, 15,	
9978	2004	2004	Southern Cross Ranch	seeding	22	150
9977	2006	2006	Jay Abbot	10 ponds/gully plugs	22	500
				Weed mgmt, seeding,		
9976	2007	2007	Mike Vanderhoof	brush mgmt	7, 15	450
			Lanny Young/ State Trust			
9975	2007	2007	Lands	Brush mgmt	15, 16	500
				hand crew lop and scatter		
9974	2006	2007	LH Lop and scatter	PJ	21	328

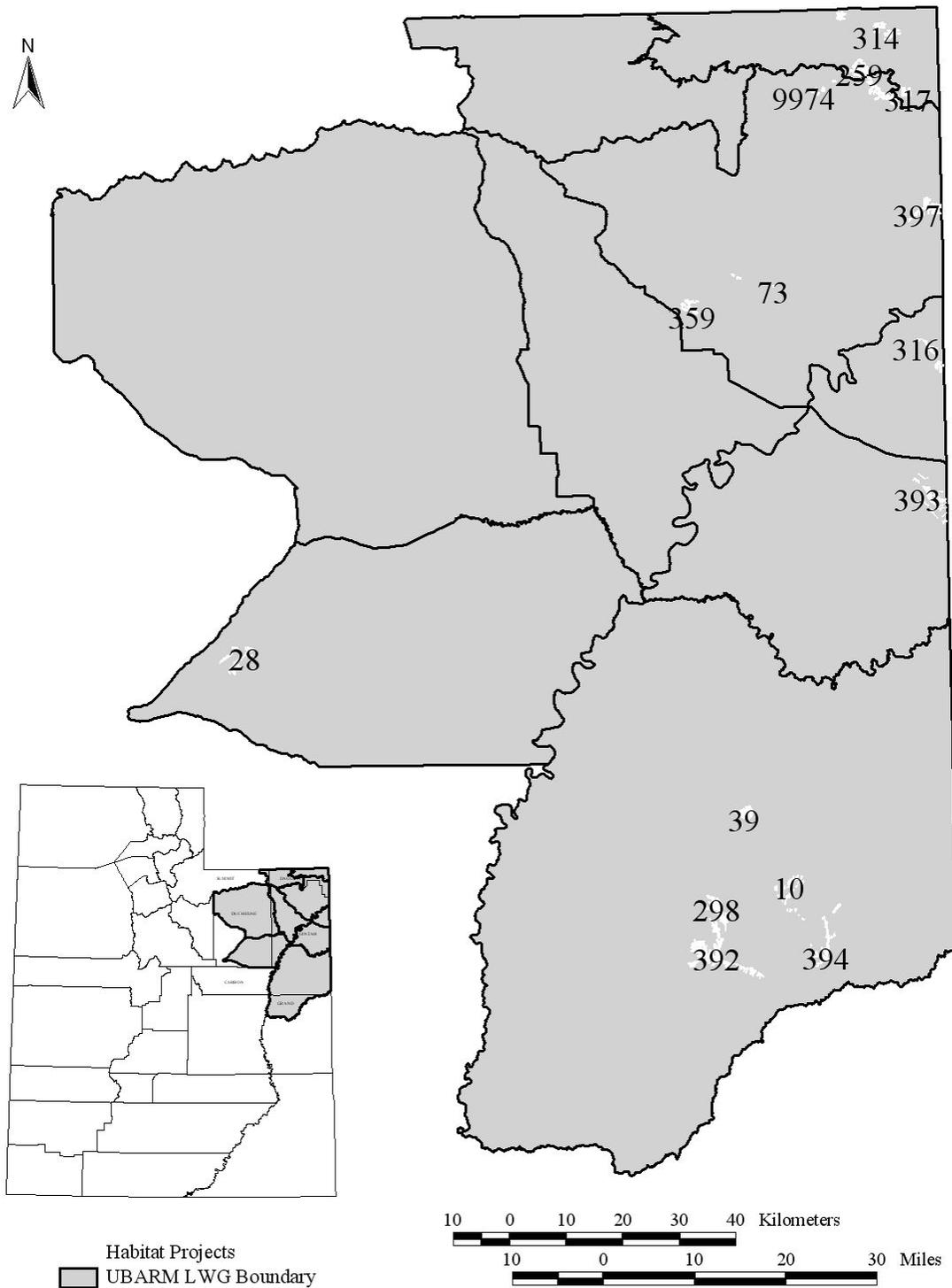


Figure 27. Location of habitat projects completed to mitigate sage-grouse threats in the Uintah Basin Adaptive Resources Management Sage-grouse Local Working Group Resource Area, 2006-2007.

10. West Desert Adaptive Resource Management Local Working Group

WDARM was organized in 2004 and facilitated by Scott Pratt and later by Sarah G. Lupis. Ms. Lupis also served as the technical writer and compiler of the Plan itself. WDARM is comprised of state and federal agency personnel, representatives from local government, non-profit organizations, academic institutions, private industry, and private individuals. The agencies, organizations, and individuals who contributed to the Plan through their participation in WDARM are identified in the LWG Plan.

a. Local Legal Authority

The Tooele and Juab County Commissions serve as the executive and legislative branches of local government. They have the authority to:

- Protect and promote the health, welfare, and safety of the people of Tooele and Juab Counties.
- Regulate land use, land planning, and quality and protection of natural resources.
- Adopt regulations and policies to exercise such authorities, including the review and approval or denial of proposed activities and uses of land and natural resources.

The Tooele County General Plan (Tooele County 2006) call for the maintenance of open space and preservation of critical wildlife habitat. Specific goals related to protection of wildlife and habitat include:

- To protect native wildlife, development which interferes with wildlife and their habitats should be avoided. Knowledge of wildlife and their habitats will aid in determining designations for appropriate locations and densities of development in those areas.
- The preservation of open space is important to maintain important pristine mountain views, watershed systems, as well as important valley views and general rural character of the County. Open space includes agricultural lands as well as undeveloped hillsides and fields. Land-use plans should result in decreased development pressure on threatened open space and agricultural areas.

The Juab County Zoning Ordinances designate a Grazing, Mining, Recreation, and Forestry District the objectives of which are to:

1. Preserve, insofar as possible, natural scenic attractions, natural vegetation, and other natural features located within the district.
2. Promote tourism, grazing, mining, and the development of natural resources.
3. Promote sanitation and protect and conserve the water supply and other natural resources.
4. Prohibit substandard, urban type developments.
5. Coordinate with programs of public land agencies.

Some forms of development are permitted in this zone (Juab County Planning Commission).

b. Status of Local Population

Plan Area

The West Desert Resource Area is located in Tooele and Juab counties in western Utah (Figure 1). The Resource Area encompasses 5,137,991 acres and is divided into two subunits, Vernon and Ibapah, according to sage-grouse population distribution. The Resource Area is bounded on the south by the Juab County-Millard County line, on the east by Tooele County-Utah County boundary and Highway 6, on the north by I-80, and on the west by the Utah-Nevada border, excluding land managed by the U.S. Department of Defense. The Resource Area is managed primarily by the USFS, BLM, and private landowners. The predominant land use in the area is grazing by domestic livestock.

The West Desert is characterized by hot summers and cold winters. According to National Climate Data Center records, temperatures range from an average high of around 90° F in July to an average low of about 12° F in January. As the name implies, the West Desert is a dry region of the state. Ibapah receives an average of only 9.74 inches of annual precipitation; Vernon receives slightly more with an average of 10.52 inches. Most precipitation comes in the form of snow during January.

Landownership

Most of the Resource Area is public land with smaller areas managed by the state of Utah, the USFS, and private landowners (Table 39).

Table 39. Landownership in the West Desert Adaptive Resources Management Sage-grouse Local Working Group Resource Area, 2007.

Subunit	Landowner	Area (acres)*
Deep Creek	BLM	501,683
Deep Creek	Department of Defense	2,013
Deep Creek	Tribal	93,183
Deep Creek	Private	35,461
Deep Creek	State Trust	34,669
Vernon	BLM	498,233
Vernon	Department of Defense	43,985
Vernon	Tribal	9,558
Vernon	Private	386,159
Vernon	State of Utah	956
Vernon	US Forest Service	179,085
Vernon	State Trust	92,949
Great Salt Lake Desert	BLM	6,941,504,024
Great Salt Lake Desert	USFWS	14,917
Great Salt Lake Desert	Tribal	8,582
Great Salt Lake Desert	State Trust	203,763
Great Salt Lake Desert	State of Utah	5,096

Great Salt Lake Desert	Private	183,598
Great Salt Lake Desert	Department of Defense	1,367,688
*Water accounts for 67,825 acres (1.24%) of the total acreage of the Resource Area.		

Sage-grouse Population Status and Distribution

The UDWR began monitoring sage-grouse populations in the Resource Area by annually counting males on leks in 1968 and 1982, in the Vernon and Deep Creek Subunits, respectively (Figures 28 and 29). Subunits are evaluated separately because there is likely no movement between the two areas (Robinson, unpublished data). When monitoring began in the Vernon Subunit, a total of 44 male sage-grouse were counted on two leks. In 1982, 20 males were counted on one lek in the Deep Creek Subunit. The Vernon Subunit high count was recorded in 2002 when 163 males were counted on six leks. Under the assumption that 75% of all males in the population were observed and counted, and assuming a sex ratio of 1.67 females to each male, the estimated spring population size in the Vernon Subunit was approximately 326 adult birds in 2002. New leks discovered in recent years will likely result in a new high count in the Vernon Subunit as monitoring continues and these new leks are considered active and included in indices. New leks are not considered active until at least two males are observed for two years. Further, population estimates based on lek counts should be treated cautiously due to variance in the methods used to collect lek count data, the assumptions built into the estimate, and other factors. However, as no other population estimation technique is currently available, WDARM will use this currently established method. There is no high count available for the Deep Creek subunit because leks have not been monitored consistently in this area.

In 2005, a total of 143 males were counted on two known active and one new lek in Vernon. In Ibapah, a total of 59 males were counted on one known active, and two new leks. In 2006, two additional new leks were discovered and a total of 190 males were counted on six total leks. Also in 2006, a total of 93 males were counted on five total leks, one of which was discovered that year.

An observation of the number of males per lek is another index used to evaluate sage-grouse population trends. Because this index accounts for the number of leks counted (i.e. the amount of effort) this index may, in cases where effort is variable, be a more useful illustration of the population trend. In the Vernon Subunit, the number of males per lek still reflects a variable but stable pattern in sage-grouse numbers since the late 1960s. It appears that population monitoring through the use of lek counts has been somewhat inconsistent in the past, although increased efforts in 2005 and 2006 have resulted in six new leks being discovered. As Figures 28 and 29 illustrate, there are years when no counts were made. Lek sites can be difficult to access in some years due to inclement weather and road conditions. Additionally, leks may be located on private or Tribal land and permission to access them may not be available.

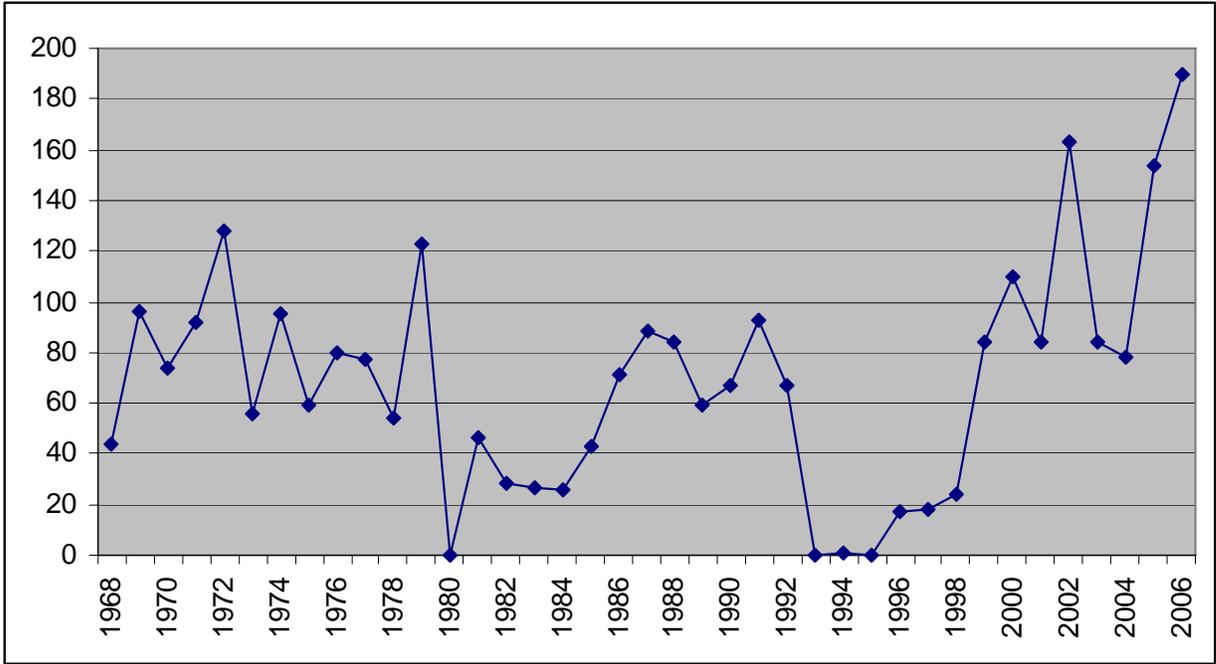


Figure 28. Maximum total number of males counted on all leks in the Vernon Subunit of the Resource Area, 1968-2006.

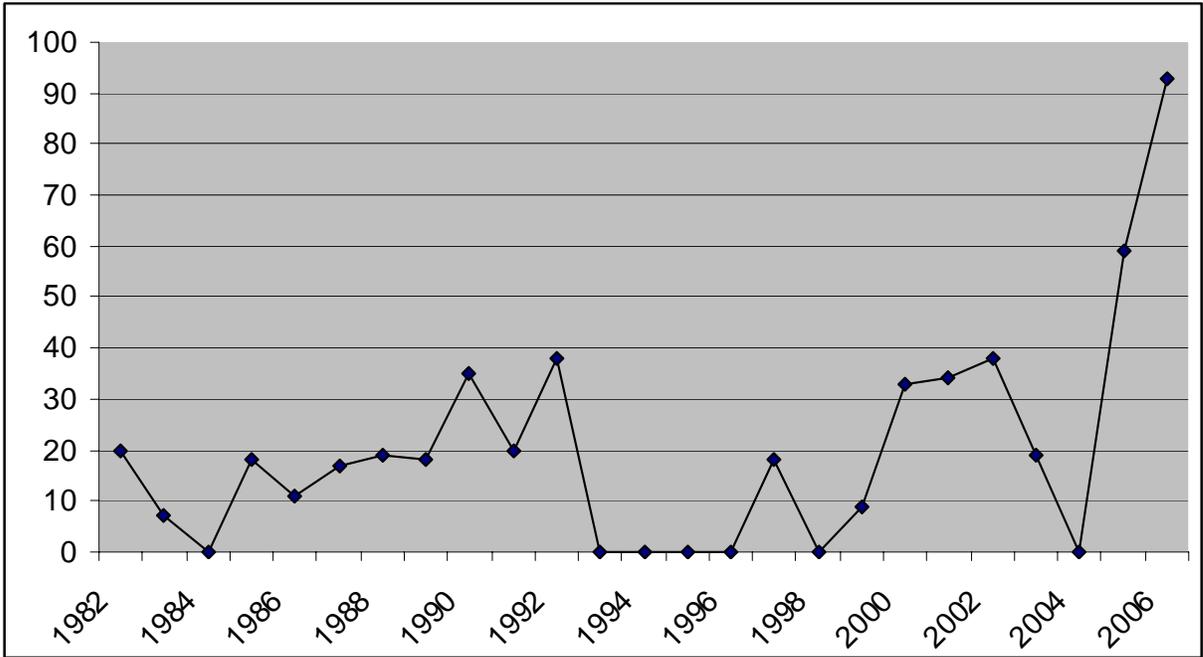


Figure 29. Number of males per lek for the Vernon Subunit of the Resource Area, 1982-2006.

c. Key Ecological Indicators and Threats

WDARM participants identified key ecological aspects (KEAs) of sage-grouse ecology and biology and associated indicators (to measure KEAs), determined and ranked the range of variation for each KEA, and assessed the current and desired conditions for each KEA (Table 40). They then identified and ranked potential threats (Table 41).

Table 40. Greater sage-grouse key ecological aspects identified in Utah's Tooele and Juab Counties, West Desert Adaptive Resources Management Sage-grouse Local Working Group, 2007. The 'Key Attribute' and 'Indicator' cells' are those defined by Greater Sage-grouse guidelines (Connelly et al 2000). The shaded cells represent the current condition as recorded by local working group members of a particular attribute and indicator as it relates to sage-grouse habitat and life history requirements.

Resource	Area Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Current Indicator Status	Current Rating	Desired Rating	Date of Current Rating	Date for Desired Rating
West Desert	Condition	Breeding Habitat Quality (leks, nesting, early brood-rearing)	Shrub cover and height; availability of open patches; understory height and cover	shrub cover <15% or >25% and <30 or >80 cm tall; no open patches; understory cover <15% and ,18 cm in height.	shrub cover <15% or >25% and <30 or >80 cm tall, open patches sparse; understory cover <15% and <18 cm in height.	15-25% shrub cover and 30-80 cm in height; open patches abundant, understory cover >15% and height >18 cm	not identified.	lacking in understory cover open spaces (shrub cover too dense or absent in many locations).	Fair	Good	6-Feb	16-Jul
West Desert	Condition	Late Summer/Fall Habitat Quality	Sagebrush cover; availability of insect food resources; availability of perennial water sources; availability of forbs.	Sagebrush cover <10% or >25%; no insect food resources; no perennial water sources; no forbs.	Sagebrush cover <10% or >25%, insect food resources lacking; few perennial water sources; few forbs available.	Sagebrush cover 10-25%; insect food resources abundant; perennial water sources abundant; sufficient forbs available.	not identified.	Lacking in insects and water; lack of sagebrush cover in Ibapah.	Fair	Good	6-Feb	16-Jul
West Desert	Condition	Winter Habitat Quality	Sagebrush canopy cover; height above snow.	sagebrush <10 or >30% cover and/or never above snow.	sagebrush <10 or >30% cover and/or rarely above snow	sagebrush 10-30% cover and mostly above snow.	sagebrush 10-30% cover and always above snow.	areas used by radio-collared birds are generally on southwest slopes and sagebrush is generally above snow.	Good	Good	6-Feb	16-Jul
West Desert	Size	Population Distribution	Distribution of leks	Vernon: Anything less than current distribution; Ibapah: Current distribution	Vernon: Current distribution; Ibapah: Current distribution plus leks west of the highway.	Vernon: Current distribution plus leks in Rush Valley; Ibapah: "Fair" plus leks in on the bench.	Vernon: "Good" plus leks in area of potential habitat; Ibapah: "Good" plus all of Ibapah Valley.		Fair	Very Good	6-Feb	16-Jul
West Desert	Size	Population Size	3-year running average maximum number of males	Vernon<200; Ibapah <50	Vernon 200-350; Ibapah 50-100	Vernon 350-500; Ibapah 100-200	Vernon 500+; Ibapah 200+		Poor	Good	6-Feb	16-Jul

			counted on leks									
West Desert	Size	Population Size	Number of active leks	Vernon <4; Ibapah <2	Vernon 4-8; Ibapah 2-4	<i>Vernon 8-16; Ibapah 5-7</i>	Vernon 16+; Ibapah 7+		Fair	Good	6-Feb	16-Jul

Table 41. Relative importance/contribution of threats to sage-grouse populations in Utah’s Tooele and Juab Counties, West Desert Adaptive Resources Management Sage-grouse Local Working Group, 2007. Threats are described in the “Threat Analysis” section of this Plan. Rankings are as follows: L = low; M = medium; H = high; and VH = very high. Ranks are defined according to TNC (2005).

WDARM							
Threat	Reduced Population Size	Reduced Population Distribution	Reduced Breeding Habitat Quality	Reduced Late Summer/Fall Habitat Quality	Reduced Winter Habitat Quality	Reduced Connectivity of Seasonal Habitat Types	Reduced Connectivity of Populations & Sub-populations
Altered Water Distribution	-	VH	VH	H	L	L	H
Drought and Weather	M	H	M	M	L	L	-
Existing and New Fences	-	M	M	M	-	M	-
Home and Cabin Development	-	M	M	M	M	M	M
Power lines and Other Tall Structures	-	M	M	M	-	M	-
Renewable and Non-renewable Energy Development	-	M	M	M	-	L	L
Roads	-	M	M	M	M	M	M
Incompatible Vegetation Management	H	M	H	L	M	M	M
Poaching	H	L	-	-	-	-	-
Fire	-	-	VH	VH	VH	H	M
Incompatible Livestock Grazing	-	-	H	H	L	L	L
Recreation	VH	VH	H	M	VH	M	M
Invasive/Noxious Weeds	-	-	VH	VH	H	H	M
Parasites and Disease	M	M	-	-	-	-	-
Predation	VH	M	-	-	-	-	-
Pinyon-Juniper Encroachment	-	-	H	H	H	H	-
Conversion to Agriculture	-	-	L	L	-	-	-

d. Status of Conservation Strategies and Actions

This section summarizes efforts made by individual and partners to address threats and strategic actions for the West Desert Vernon Greater Sage-grouse Local Conservation Plan July 2007. This adaptive plan is in effect until the year 2016. WDARM partners

not only reported on specific actions completed or addressed in 2006/2007 but also identified steps to be taken to implement additional actions into subsequent years of the plan. Please note that if a strategy or an action number is missing from this report; it means that no action(s) were taken in 2006/2007 towards completion. For the complete list of threats identified by the WDARM group, see page 62 of the conservation plan located on line at

<http://utahbcpc.org/files/uploads/westdesert/WDARMSAGRPlanFinal.pdf>

1. Strategy: Maintain and increase coordination and communication with agency and private partners.

1.1. Action: Participate with and coordinate with the Central Region UPCD, Tooele County Natural Resource Group, Deep Creek Watershed partnership, Goshute Tribe, Tooele and Juab County Commissioners, SCDs, UFBF, and any other groups, as necessary.

Status: WDARM members regularly attend (Utah Partners for Conservation and Development) UPCD meetings to coordinate and discuss projects. Attend watershed/SCD, tribal and county commission meetings to discuss projects and coordinate efforts.

1.2. Action: Hold annual field tours to review projects, evaluate on-the-ground progress on the Plan, and share ideas.

Status: A field tour was held in May 2007 to review and look at future project areas and previously implemented projects within the Resource area.

1.3. Action: Develop educational material appropriate for a broad recreationist audience to develop sensitivity to issues identified in the Plan.

Status: WDARM members in conjunction with UDWR posted no hunting signs in key areas throughout the resource area and in sporting good stores in the Tooele area.

2. Strategy: By 2010, reduce pinyon/juniper stands from sage-grouse use areas.

2.1. Action: Remove pinyon/juniper trees from priority areas where action is warranted.

Status: WDARM partners treated encroaching P/J in sage valley clover creek, Ibapah west and east slopes of the Onaqui mtns. Bennion Ranch, Goshute Reservation, Base of the Stansbury mtns, and other areas, see table and project map

2.2. Action: Revisit and retreat pinyon/juniper removal sites, as needed.

Status: WDARM partners treated encroaching P/J in sage valley, Lee and Round Canyon, Bennion Ranch, and other areas, see table and project map

3. Strategy: By 2016, increase brood-rearing habitat quality in the Resource Area.

3.1. Action: Work with the NRCS and private partners to develop projects that would increase brood-rearing habitat quality in the Resource Area.

Status: WDARM members worked on brood-rearing projects in West middle and east pastures in Ibapah valley and then on the Goshute Reservation and a spike treatment and Bennion Ranch.

3.2. Action: Work with agency partners to develop projects that would increase brood-rearing habitat quality in the Resource Area.

Status: WDARM partners meet in conjunction with UPCD partners to identify and discuss projects within the Resource Area—these projects are planned through 2010.

3.3. Action: Work with private and public partners to monitor effects of habitat improvement projects on vegetation and sage-grouse habitat use.

Status: WDARM partners UDWR and BLM collect range trend data and ecological site inventory on treated projects.

3.4. Action: Where appropriate, reduce sagebrush canopy cover with mechanical or chemical treatments and reseed with ecologically appropriate seed mixes.

Status: WDARM partners treated sagebrush around Bennion Ranch, Sage Valley, Goshute Reservation., Ibapah west and east slopes, Rush Valley, the west slope of the Oquirrh.

4. Strategy: Thru 2016, maintain and protect winter habitat distribution and quality in the Resource Area.

4.1. Action: Promote protection of winter habitat from fire.

Status: WDARM partners treated areas in Ibapah west and east slopes, Rush Valley, West slope of the Onaqui Mtns

4.2. Action: Promote protection of winter habitat from OHV trail development and activities.

Status: UDWR made recommendations to the BLM to key OHV users to stay out of brooding and nesting areas north of the little sahara recreation area.

4.3. Action: Update maps of crucial winter habitat areas and monitor winter habitat use areas for presence of sage-grouse.

Status: USU completed research project in 2006 identifying key wintering areas data was then used in the UPCD database to identify and expand key focus areas.

4.4. Action: In the event of fire, aggressively rehabilitate sites to prevent domination of invasive/noxious weed communities.

Status: WDARM partners treated the St. John, Cedar Fort, Quincey, Kimball, M&M, etc. within the resource area.

5. Strategy: Reduce the threat of conversion of sagebrush stands to invasive/noxious weed communities.

5.1. Action: Seed green-strips and/or fire breaks in crucial areas (to be identified).

Status: WDARM partners treated sagebrush Ibapah west and east slopes, Rush Valley, (see table and Map)

5.2. Action: Identify areas where fire suppression should be promoted to protect crucial habitat.

Status: WDARM partners will be working in Ibapah area, south slope of the Sheep Rock mtns, North Slope of the Gilson Mtns. West side of Onaqui mtns.

5.3. Action: Maintain and/or increase fuels reduction projects in crucial areas (to be identified)

Status: WDARM partners will be working in Ibapah area, Onaqui mtns, Stansberrys, Sheep Rock mtns.

5.4. Action: Work with agency and private partners to conduct vegetation treatments that restore functional plant groups to sagebrush communities.

Status: Ongoing

5.5. Action: Coordinate with noxious/invasive weed Coordinated Weed Management Area (CWMA) personnel.

Status: WDARM partners participate in the Squarrose knapweed CWMA. BLM participates in all the CWMAs.

6. Strategy: Minimize the impact of excessive predation.

6.1. Action: Modify power lines and wood fence posts (to remove raptor perches) in important sage-grouse areas, where feasible and where predator concerns have been identified.

Status: WDARM partners removed poles in the Benmore pasture area.

6.2. Action: Remove trees, remove/modify raptor perches, and maintain quality sagebrush habitat, where predation concerns on sage-grouse have been identified.

Status: See P/J projects listed above

6.3. Action: Maintain or increase site-specific predation management to consider all predator species (especially common ravens and red fox) where necessary and appropriate.

Status: WDARM partners (WS) aerial gunning of foxes and coyote, removed raven nest and baited nesting areas with DRC1339 eggs—contact WS for more info.

6.4. Action: Initiate research on direct and indirect impacts of predation during each sage-grouse life history phase.

Status: No action taken 2006/07

6.5. Action: Coordinate management and research with USDA-WS.

Status: No action taken 2006/07

7. Strategy: Work with public and private partners to implement livestock management plans that address seasonal needs of sage-grouse and livestock operations.

7.1. Action: Incorporate appropriate livestock management in vegetation/habitat treatment projects.

Status: WDARM partners work with livestock owners and operators to adjust and rest treated projects and modify grazing plans. Any treatment sites that were re-seeded were rested for a minimum of 2 growing seasons.

7.2. Action: Initiate research on the direct and indirect effects of livestock grazing on various aspects of sage-grouse life history.

Status: No action taken 2006/07

7.3. Action: Work with public and private partners to evaluate livestock management in crucial sage-grouse use areas.

Status: WDARM partners works with livestock owners and operators to adjust and rest treated projects and modify grazing plans.

8. Strategy: By 2016, increase population and habitat monitoring efforts in the Resource Area.

8.1. Action: Encourage public and private partners to use techniques from Connelly et al. (2003) “Monitoring of Greater Sage-grouse Habitats and Populations”

Status: WDARM partners lek surveys, range trend surveys and ecological site inventories.

- 8.2. Action:** In 2007, UDWR biologists will coordinate with Goshute Tribe biologists to identify sage-grouse lek sites and count birds on Tribal lands.
Status: WDARM partners (USU/EXT and UDWR) count know leks in conjunction with the Tribe.
- 8.3. Action:** UDWR to enlist and coordinate private volunteers and/or other agency biologists search for new leks and conduct lek counts on active leks.
Status: WDARM partners initiated lek searches in WDARM identified areas in 2007.
- 8.4. Action:** Through 2016, test dead sage-grouse for West Nile Virus and any other parasites/pathogens of importance.
Status: No dead grouse found 2006/07 but WNV is present in Tooele County.
- 8.5. Action:** Secure funding to support additional research and monitoring on issue as identified in the Plan.
Status: WDARM partners submitted proposals for future research in 2007.
- 8.6. Action:** Increase outreach with private landowners to facilitate greater communication about sage-grouse distribution, ecology, and management.
Status: WDARM partners participate in landowner meetings throughout the county; develop a quarterly news letter that is sent out to various groups. Landowners also participated in field tours and lek surveys.
- 9. Strategy:** Encourage use of this Plan in local, county, state, and federal natural resources planning efforts.
- 9.1. Action:** Provide the Plan to all appropriate local, county, state, and federal natural resource agencies, departments, and personal.
Status: WDARM partners distributed the plan to all partners and other agencies and originations in 2007 the plan is also on the CBCP web page.
- 9.2. Action:** Review local, county, state, and federal plans and projects with the potential to impact sage-grouse and/or sagebrush habitats in the Resource Area.
Status: Ongoing through UPCD meetings and UPCD identified projects.
- 9.3. Action:** Participate in local, county, state, and federal natural resource planning efforts, committees, and working groups.
Status: Ongoing through UPCD meetings and UPCD identified projects.
- 10. Strategy:** Minimize impacts of oil and gas development on sage-grouse and their habitat.
- 10.1. Action:** Coordinate and communicate with BLM and USFS to ensure that adequate information/data is available for decision making process.
Status: WDARM partners review all proposed projects and provide comments to avoid sage-grouse issues.
- 10.2. Action:** Support recommendations that provide for temporal avoidance, minimization of tall structures, and avoid crucial habitat or use areas, where possible. **Status:** WDARM partners review all proposed projects and provide comments to avoid sage-grouse issues.
- 10.3. Action:** Reduce fragmentation of sage-grouse habitat by oil and gas development activities.
Status: No action taken 2006/07
- 10.4. Action:** Minimize disturbance to sage-grouse associated with oil and gas

development.

Status: No action taken 2006/07

10.5. Action: Reduce cumulative impacts of oil and gas development.

Status: No action taken

10.6. Action: Share sage-grouse data with industry and encourage planning to reduce and/or mitigate for impacts.

Status: No action taken 2006/07

11. Strategy: Minimize the amount of quality sage-grouse habitat eliminated by residential and commercial land development consistent with private property rights.

11.1. Action: Participate with County land use decision makers in identifying key sage-grouse habitats.

Status: Done through UPCD meetings and UPCD identified projects.

11.2. Action: Maintain sagebrush environments of sufficient size and shape around developments in sage-grouse habitat.

Status: Done through UPCD meetings and UPCD identified projects.

11.3. Action: Encourage the voluntary use of conservation easements and other land protection vehicles with willing sellers in sage-grouse habitats.

Status: No action taken 2006/07

11.4. Action: Educate rural residents about the importance of good grazing management in keeping small tracts weed free and capable of providing wildlife habitat.

Status: Done through UPCD meetings and UPCD identified projects.

11.5. Action: Work with public and private partners to maintain rural economies and viable ranching and agricultural enterprises.

Status: Done by participating through UPCD farm bill and GIP programs.

12. Strategy: By 2016, maintain or increase distribution and quality of mesic sites available to sage-grouse during summer months.

12.1. Action: Work with public and private partners to develop mesic sites for sage-grouse associated with existing or new water developments.

Status: No action taken 2006/07 some planning initiated.

12.2. Action: Develop project planning tools (both printed material and on-the-ground examples) to illustrate successful, wildlife-friendly, water developments.

Status: No action taken 2006/07 some planning initiated.

13. Strategy: Maintain or improve breeding habitat quality in the Resource Area.

13.1. Action: Where appropriate, conduct vegetation manipulation to maintain open areas on lek sites.

Status: No action taken 2006/07 some planning initiated.

13.2. Action: Work with public and private partners to maintain nesting cover in crucial breeding areas.

Status: See sagebrush and p/j projects mentioned above.

13.3. Action: Work with public and private partners to minimize disturbance to crucial areas during lek and nesting seasons.

Status: Done through UPCD meetings and UPCD identified projects.

14. Strategy: Minimize the negative impacts of recreation on sage-grouse populations and their habitats.

14.1. Action: Work with local, county, state, and federal planners and managers to minimize impacts of OHV trails and undeveloped roads on crucial sage-grouse habitat.

Status: WDARM partners review all proposed projects and provide comments to avoid sage-grouse issues. USFS through the NEPA process is eliminating non system roads and trails.

14.2. Action: Work with law enforcement agencies to enforce existing and new laws, ordinances, and regulations specific to hunting/poaching, OHV recreation, and trespassing.

Status: WDARM partners posted signs to address poaching issues, identified sensitive areas where to avoid trails

14.3. Action: Work with OHV recreation groups to develop greater sensitivity and awareness to issues identified in this Plan.

Status: WDARM partners identified sensitive areas where to avoid trails and recreation uses. Worked with County trails committee to identify these areas. Worked with organized motorcycle groups to avoid recreation around critical nesting areas little Sahara.

14.4. Action: If appropriate, work with public and private partners to restrict lek viewing opportunities during crucial time-periods and in crucial areas.

Status: Lek locations are not advertised, private landowners restrict access.

e. Habitat Improvements and Completed Conservation Actions

Several habitat improvement projects in the Resource Area have been implemented by WDARM partners and were targeted at restoring or enhancing sage-grouse habitat. Treatments were generally aimed at reducing sagebrush canopy and enhancing native grass/forb cover in the understory. Additional habitat improvement projects were planned for 2006. The UPCD state and regional teams are currently addressing habitat issues with their statewide watershed initiative which focuses on the protection, management, and/or restoration of important sagebrush-steppe habitats. The UPCD is made up of a variety of partners including state and federal land management agencies, private landowners, universities and extension services, soil conservation districts, and county and local entities. The Central Region UPCD team has delineated focus areas within the Resource Area based upon critical sage grouse habitats, and is currently working on identifying projects and acquiring funding to implement restoration activities. Habitat restoration projects involving the reduction of expanding pinyon-juniper forests into sagebrush habitats have already begun in the Vernon subunit. Likewise, a project to enhance sage grouse wintering habitat on BLM lands was completed in the Deep Creek subunit in 2005. Several Big Game Range Trend sites were established in 2006 to monitor treatments. Most of these projects have been a combination of fence, water development, fuels reduction projects, and brush management. The locations of some projects conducted in the Resource Area are illustrated in Figure 32; acreage of past and proposed treatments is listed in Table 42.

Table 42. Habitat improvement projects completed to mitigate sage-grouse threats identified by the West Desert Adaptive Resources Management Sage-grouse Local Working Groups, 2004-2007.

Year	Project Name	Description	Acres
2005	Middle Pasture	Aerator, broadcast, and aerial seeding	1000
	Clover Creek	Bullhog, aerial seeding	400
	Iosepa	Bullhog, aerial seeding	400
	Bennion Ranch	Lop and scatter	150
2006	Sage Valley	Harrow, broadcast seeding	500
	Goshute Chaining	2-way chaining, aerial seeding	800
	Bennion Ranch	2-way chaining, aerial seeding	500
	Bennion Ranch	Spike	160
	St. John	Aerial seed, 1-way chain	1200
	East Onaqui	Harrow, broadcast seeding	200
2007 (funded)	East Onaqui	Bullhog, aerial seeding	500
	Big Hollow	Bullhog, aerial seeding	600
2007 (proposed)	Sage Valley	Lop and scatter	1300
	Clover Creek	Chaining and harrow, reseeding	550
	Ibapah	Harrow, broadcast seeding	250
	East Pasture	Harrow, broadcast seeding	150
	Stansbury Mtns. West slope	Bullhog, Rx burn	60

Spanish Fork District	Noxious weed control	650
Big Hollow	PJ thinning, reseeded	55

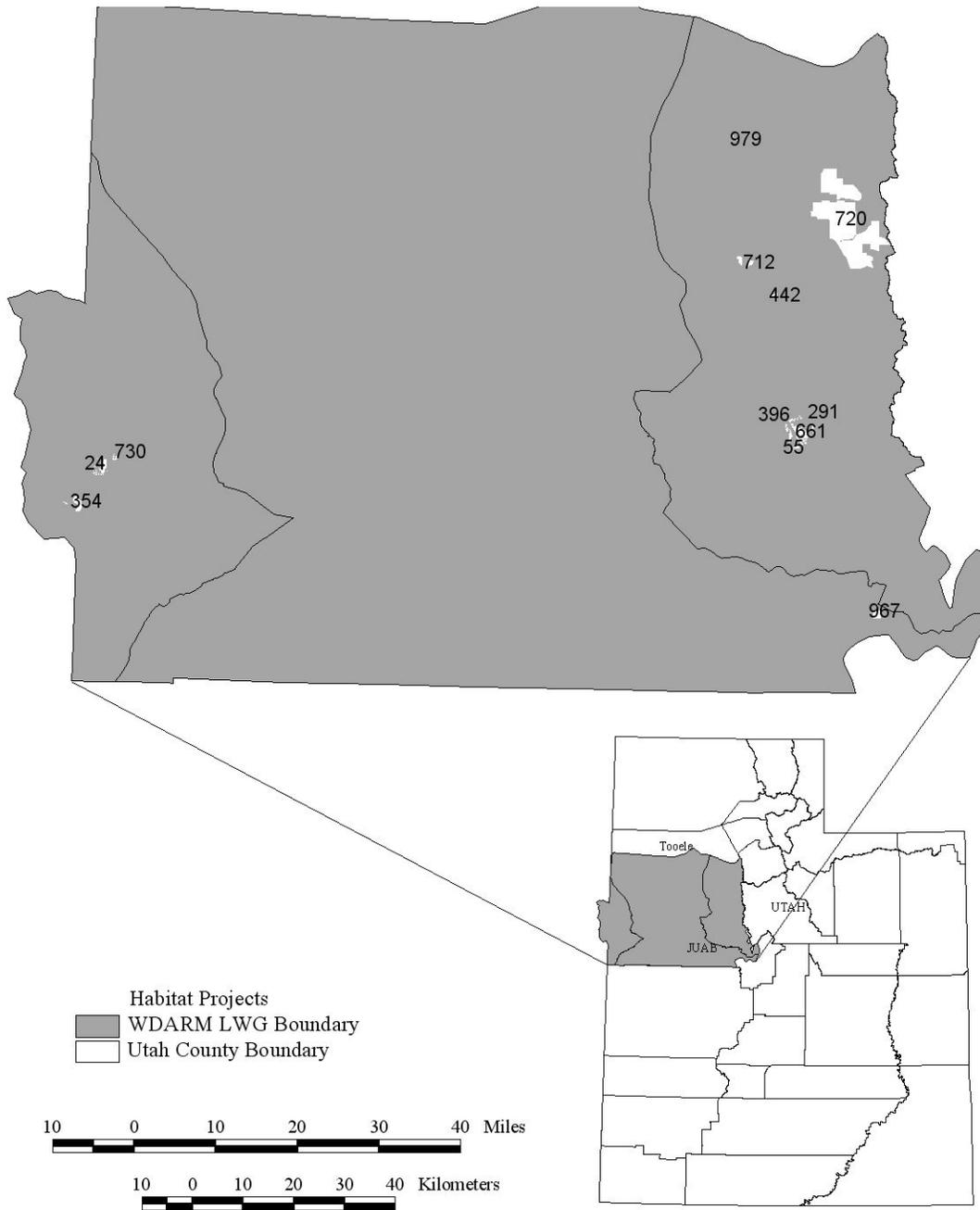


Figure 32. Location of habitat improvement projects within the West Desert Adaptive Resources Management (WDARM) Sage-grouse Local Working Group Resource Area, 2005-2007.

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