The South Central Nevada Sage Grouse Conservation Plan

DRAFT 4.5

The South Central Planning Team

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1 PREFACE

The Sage Grouse Conservation Plan for the South Central Planning Area has been prepared as a result of a public planning process to analyze existing sage grouse habitat condition and concerns at the local level. The Plan represents a collaborative effort in the analyses, and recommendations for conservation of sage grouse in Eureka, Lander, and Nye counties in Nevada. The Strategy represents ideas and actions to manage sage grouse on public lands in a manner consistent with the *Management Guidelines for Sage Grouse and Sagebrush Ecosystems in Nevada* (BLM 2000) and the Western Society of Fish and Wildlife Agency (*WAFWA)* (Connelly et al. 2000) guidelines. Private lands, state/university of Nevada-owned lands, particularly, if federal funds are involved, are also encouraged to manage sage grouse populations in accordance with the *Management Guidelines for Sage Grouse and Sagebrush Ecosystems in Nevada* (BLM 2000) and the WAFWA (Connelly et al. 2000) guidelines. The South Central Planning Team (SCPT) is comprised of concerned citizens, private property owners, land users, land managers, local governments, and other interested parties, who have committed two full years to a successful collaborative process.

The present document is a work in progress. It reflects initial analysis of sage grouse populations and habitat in the Planning Area and prioritizes sub-areas for detailed evaluation and conservation actions. Battle Mountain and Fish Creek Population Management Units are identified and analyzed in more detail. Management actions for these populations are considered and procedures for implementation are described.

The SCPT recognizes that the analysis and management actions herein comprise the beginning of a long and thorough conservation effort and are dedicated to its success.

2 INTRODUCTION

2.1 Background

In some areas of Nevada, sage grouse populations have been declining for the last two decades. In many locales with declining populations, natural changes in climate and human impacts have degraded habitat and/or decreased sage grouse range. In recognition of the importance of sage grouse in Nevada and the need to balance conservation in conjunction with other existing land uses, a statewide sage grouse conservation plan program was initiated.

In August 2000, Nevada's Governor Kenny Guinn appointed a task force which became known as the "Governor's Sage Grouse Conservation Team." The team included representatives from agriculture, mining, Native Americans, conservation organizations, land management agencies, and legislators. This team prepared the Nevada Sage Grouse Conservation Strategy (NSGCS) (Neel, 2001) that offered tools, resources, and current scientific information to local planning groups to formulate a Nevada Sage Grouse Conservation Plan. The goals of the Governor's Sage Grouse Conservation Team are:

1) Create healthy, self-sustaining sage grouse populations well distributed throughout the species' historic range by:
    - maintaining and restoring ecologically diverse, sustainable, and contiguous sagebrush ecosystems;
    - implementing scientifically sound management practices; and

2) Throughout the sage grouse's range in Nevada, have locally functional, well-informed groups empowered to actively contribute to sage grouse conservation while balancing habitat, bird, and economic considerations.

Local planning groups were charged with developing workable solutions to specific on-the-ground challenges. These groups were asked to consider alternatives, develop strategies, and implement plans for natural resource management actions that will enhance and benefit sage grouse. The local plans are intended to form the cornerstones of a statewide conservation agreement.

The Governor's Conservation Strategy included formation of six local planning groups based upon geographic distribution of sage grouse in Nevada (Figure 2-1).

Sage Grouse Local Area Planning Units

The SCPT is comprised of participants from Eureka, Lander, and Nye Counties. The boundary of the South Central Planning Area is shown in Figure 2-1.The SCPT includes: Nevada Department of Wildlife biologists (NDOW) from Battle Mountain, Eureka, and Tonopah; personnel from the Battle Mountain and Elko field offices of the Bureau of Land Managment (BLM); local ranchers; natural resource managers from area counties; US Forest Service (USFS) administrators and field staff; Lander County Board to Manage Wildlife (LCBMW); and representatives from private businesses and consulting firms. The University of Nevada Cooperative Extension Educator from Lander County facilitated this group. Proceedings from the meetings were recorded by the BLM Battle Mountain Field Office and were distributed by NDOW.

2.2 MANAGEMENT FRAMEWORK

2.2.1 The Adaptive Management Model

The framework for the South Central Sage Grouse Conservation Plan is determined by a complex body of federal, state and local laws, regulations and policies. These laws, regulations, and policies are brought to bear on sage grouse conservation using an adaptive management model. A full discussion of the various authorities and responsibilities is beyond the scope of this local planning document; however, a basic understanding of what controls development of conservation actions and how the actions will be implemented is important. A brief summary follows.

Adaptive management is a planning approach that focuses on identifying uncertainties in a planning effort and minimizing risks that stem from not knowing whether management decisions will ultimately achieve a desired objective. The idea is that outcomes are monitored during implementation of a plan and subsequent management decisions may be changed in response to the new information. In the case of the SCPT, our adaptive management approach provides a flexible framework for the identification of key uncertainties and the development of a monitoring and evaluation system to address the uncertainties. When analysis of an on-the-ground sage grouse conservation action affirms the intended result, our confidence in future use that action is validated. If analysis shows that a conservation action does not provide the intended result, then plans to use apply similar actions at other times and in other places will be reconsidered. The cycle of conservation action, evaluation, analysis and potential program change is envisioned to continue until the SCPT can demonstrate that sage grouse populations are near their potential and habitat conditions are reasonably stable.

To initiate the adaptive management process, the SCPT intends to 1) discuss key uncertainties associated with each conservation action it undertakes, 2) develop monitoring plans for each conservation action that will facilitate data collection aimed at addressing the uncertainties, 3) provide project-level descriptions of how adaptive management will be implemented, including when and how decisions about program changes would be made, and 4) describe how the project-level adaptive management process interfaces with the SCPT participants as they carry out their roles and responsibilities.

2.2.2 BLM Laws, Policies, Land Use Plans, Standards and Guides, and Other Guidance

Management of public lands by BLM is guided by a collection of federal laws such as the Public Rangelands Improvement Act, the Federal Land Policy and Management Act, the Taylor Grazing Act, the Endangered Species Act, the Wild Free-Roaming Horse and Burro Act, the Wilderness Act, and by a number of Bureau policies and directives that address management of livestock, wildlife, special status species, wild horses, wild fire, recreation, and protection of archeological resources. BLM Field Office level Land Use Plans further refine management direction, and Regional Resource Advisory Councils (RACs) add guidance in the form of standards and guidelines for the management of public lands under BLM jurisdiction. Two RACs have relevance for the South-Central Nevada Sage Grouse Conservation Plan: The Northeastern Great Basin RAC and the Mojave-Southern Great Basin RAC (See Appendix A).

In 2000 both the BLM Nevada State Office and the Western Association of Fish and Wildlife Agencies promulgated guidelines for the management of sage grouse. These guidelines include recommendations addressing a wide range of potential impacts to sage grouse, including mining, mineral exploration, recreation, livestock grazing, transmission lines, fire, vegetation treatments, and use of pesticides.

The primary ground-level vehicle for management of public lands by the BLM is the Allotment Evaluation process. Allotment Evaluations assess range and habitat condition through standard monitoring procedures, and subsequently establish objectives for habitat condition, future desired plant communities and allowable utilization of vegetation. To achieve those objectives, Allotment Evaluations set grazing parameters such as livestock stocking rates and season of use, establish Appropriate Management Levels (AML) for wild horses and burros, and identify objectives, actions and projects for management of recreation, wildlife, wildfire, fuelwood harvesting, and other resources.

A complete listing of management actions associated with past Allotment Evaluations and the expected benefit of these actions for sage grouse conservation is presented in Table 2-2. The table includes a tentative schedule for upcoming Evaluations. All Evaluations completed after October 2000 were conducted in accordance with BLM's Interim Guidelines for Sage Grouse Management and strive toward meeting Standards for Rangeland Health. The need for monitoring and adaptive management notwithstanding, the management actions implemented or proposed in these Allotment Evaluations are likely to benefit sage grouse in the long-term. Habitat improvement projects associated with these Evaluations address a wide range of issues, including riparian protection fencing, retrofitting utility poles to prevent raptor and raven perching, studies of sage grouse habitat use, predation, population dynamics, wildlife water developments, pinyon-juniper thinning, and vegetation manipulation.

2.2.3 USFS Laws, Policies, Land Use Plans, Standards and Guides, and Other Guidance

The USFS has regulatory responsibilities including management of National Forest System Lands on the basis of multiple-use and sustained yield in accordance with existing laws, land use plans, regulations, directives, and policies. Sage grouse were added to the R-4 Forest Sensitive List in November 2003.

The USFS is responsible for management of the physical and biological environment, which includes wildlife habitat, on National Forest System Lands and is the ultimate authority for decision-making regarding affects on National Forest System Lands. The standards by which the USFS manages habitats are defined within the *Toiyabe National Forest Land and Resource Management Plan*, dated June 23, 1986.

The USFS manages the consumptive use of "habitat" only for specific uses, such as domestic livestock use and wild horses and burros, but has no regulatory control over wildlife populations or the amount of forage or water wild animals use. In order to ensure a consistent approach to wildlife and wildlife habitat management, the USFS policies provide for cooperation with state agencies in implementation of their policies and regulations.

Permitted livestock on USFS System Lands are managed within the suitability and capability of the resources in combination with other multiple-uses. The establishment of allowable utilization levels for livestock grazing on upland habitat, riparian habitat, wildlife key winter browse, and stream habitats has been determined to meet the LRMP resource objectives.

Majority of the active grazing allotments are managed with rotational or deferred grazing systems that provides for critical growing season rest and/or grazing every other year. An adjustment to annual livestock grazing management plans can be made with the permittee to work on management practices that accomplish desirable resource objectives and improve livestock management. Majority of the core sage grouse summer habitat within the Monitor PMU and portions of the Reese River PMU are within USFS vacant or closed allotments and receive no permitted livestock use.

The Toiyabe National Forest LRMP has sage grouse standards identified within their Forest-Wide Standards and Guidelines on page IV-49. Additional resource standards and guidelines for sage grouse habitat are identified in many of the other programs such as Range Management; Soil and Water; Timber; Wild Free-Roaming Horses and Burros; Riparian Areas; Wildlife and Fish; and Threatened, Endangered, and Sensitive Plant Species.

The Humboldt National Forest LMP has ongoing practices including: surveys, planning, prescriptions, monitoring, cooperation, and administration. The management direction of the ongoing practices will be to protect key sage grouse breeding complexes including strutting grounds and associated nesting areas on page IV-30. And under habitat improvements sagebrush

control will not be conducted on any known or identified key sage grouse range except to maintain or improve grouse habitats on page IV-30. Again as listed in the Toiyabe Plan sage grouse habitat are identified in many of the other program areas.

The National Forest Management Act of 1976 requires the Secretary of Agriculture to assess forest lands, develop a management program based on multiple-use, sustained-yield principles, and implement a resource management plan for each unit of the National Forest System. It is the primary statute governing the administration of national forests. The USFS will conduct short and long term vegetation monitoring in support of environmental analysis (NEPA), initiate Forest health initiates, goals and objectives as identified by forest plan, regional, and/or national direction, and continue to coordinate with NDOW as outlined in the existing MOU regarding the management of wildlife habitat and populations on the national forest. The USFS will continue to involve the public and other cooperating agencies in the decision making process as required under NEPA.

Over the past 2 years, administrative procedures and processes governing preparation of projects to reduce hazardous fuel and restore healthy ecological conditions on Federal land have undergone many changes. These changes have resulted from the Healthy Forests Initiative (HFI), launched in 2002 to reduce administrative process delays to implementation of such projects, and from the Healthy Forests Restoration Act (HFRA), passed in December 2003.

The HFRA provides improved statutory processes for hazardous-fuel reduction projects on certain types of at-risk National Forest System (NFS) and BLM lands and also provides other authorities and direction to help reduce hazardous fuel and restore healthy forest and rangeland conditions on lands of all ownerships.

The HFRA contains a variety of provisions to expedite hazardous-fuel reduction and forest-restoration projects on specific types of Federal land that are at risk of wildland fire or insect and disease epidemics. The act helps rural communities, States, Tribes, and landowners restore healthy forest and rangeland conditions on State, Tribal, and private lands.

The process for accomplishing hazardous-fuel reduction and vegetation-restoration projects on Federal lands can be improved, while maintaining appropriate environmental standards and collaborating with communities and interested publics. Agencies need to provide the time and opportunity for public collaboration. When undertaking projects, managers must focus on the ecological processes that provide healthy, resilient ecosystems and that support healthy human communities. Making some NEPA procedures more efficient does not reduce our obligation to complete appropriate environmental evaluation, nor must it shortchange the right of the public to understand agency proposals and provide their views to Federal agencies on matters affecting public lands. Collaboration with communities and the public is the cornerstone of A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment:

10-Year Comprehensive Strategy Implementation Plan (May 2002). While some procedural requirements have been expedited, all existing environmental statutes remain in place.

The Austin – Tonopah Ranger Districts have prepared a list of eleven potential hazardous-fuel reduction and forest-restoration projects in support of the HFRA and HFI programs. The proposed projects were ranked based on planning effort (clearances) and meeting Toiyabe National Forest Land and Resource Management Plan resource objectives. The primary objective for this first round of proposed projects is to move the pinyon pine communities from Condition Class II and III to Condition Class I (see Table 2-1). This will provide an opportunity for the sagebrush communities to be released and expand within the treatment areas. The Humboldt-Toiyabe National Forest is currently in the process of preparing a five year hazardous-fuel reduction and forest-restoration project plan across the forest.

Table 2-1: Austin – Tonopah Ranger District Potential Hazardous Fuel Reduction and Forest-Restoration Projects Rankings

Project	Acres
Elkhorn Canyon	2,200
McKinney Mountain	2,200
Clipper Gap	2,500
Mount Brock	2,000
Weeks Canyon	4,400
McCann Canyon	5,000
Big Ten/Hat Peak	4,000
Rutherford	1,400
Charnac Basin	2,400
North White Sage	2,500
Petes Canyon	1,800

ONGOING PRESCRIBED FIRE PROJECT
A research fire prescription project has been authorized for Underdown Canyon in the Shoshone Mountain Range (Reese River PMU). The purpose of the experimental burn is to determine the effects of watershed-scale, prescribed fire within the pinyon-juniper zone on (1) ecosystem response–vegetation recovery, soil erosion, stream channel dynamics, sedimentation and water quality, and (2) animals (bird species and butterfly taxa).

2.2.4 NDOW Laws, Policies, Wildlife Management Plans and Other Guidance

The State of Nevada has declared in NRS 501.00 that ‘wildlife in this state not domesticated and in its natural habitat is part of the natural resources belonging to the people of the state of

Nevada', and that the 'preservation, protection, management, and restoration of wildlife within the state contribute immeasurably to the aesthetic, recreational, and economic aspects of these natural resources'. NRS 501.00 charges the Nevada Wildlife Commision with the 'preservation, protection, management, and restoration of wildlife and its habitat.' Nevada Department of Wildlife is authorized in NRS 501.331 to 'administer the wildlife laws of the state', and NRS 501.337 authorizes the Administrator of NDOW to 'Carry out the polices and regulation of the commission. Specifically NDOW regulates the hunting of sage grouse, maintains a scientific database on sage grouse and issues scientific permits for universities or other researchers working on sage grouse.

2.2.5 County Laws, Policies, Land-Use Plans, and Other Guidance

County governments are charged with protecting the health, safety and welfare of citizens, including, but not limited to, economic opportunity, custom and culture, environmental health and property rights. County Master Plans are the primary legal vehicle for counties to pursue the interests of their citizenry in federal land-use and wildlife decisions. Title 14 of Eureka County Code, adopted as part of the Eureka County Master Plan, defines the County's policies related to the impacts of conservation actions. Title 14 guides County policy with respect to natural resource issues facing Eureka County, provides a framework to guide federal agencies in land-use planning on federal lands as per NEPA, FLPMA, ESA and other applicable laws and safeguards property rights and other customary usage rights of Eureka County citizens. Lander County maintains a similar land-use and wildlife policy contained in the October 1999 Revised Policy Plan for Federally Adminstered Lands.

2.3 Guiding Principles

The SCPT developed several principles to guide development of *South Central Sage Grouse Conservation Plan*. These guiding principles are:

- inclusive public process representing diverse interests;
- reasonable collaboration and consensus;
- compatibility with existing county land use plans, the Governor's Sage Grouse Strategy, federal land use plans and United States Fish and Wildlife Service (USFWS) Policy to Evaluate Conservation Efforts (PECE Policy);
- framed on adaptive management principles;
- based on a five-year review and update period;
- implementation depends on funding opportunities that may be outside the scope of state or federal government;
- require that all mitigation actions, agreements, etc. acknowledge and respect private property rights; and
- include a sunset clause at a point when all sage grouse populations are healthy and viable.

2.4 GOALS AND OBJECTIVES

The goals of the *South Central Sage Grouse Conservation Plan* are to:

- ensure stable sage grouse populations and healthy sagebrush ecosystems in the Planning Area;
- make listing of sage grouse under the Threatened and Endangered Species Act unnecessary;
- provide guidance to county officials, resource and land management agencies, private land managers, and conservation groups; and
- utilize local input and knowledge to identify where problems exist and to develop effective solutions.

The objectives of the SCPT Team are to:

- evaluate the overall health of sage grouse populations in the Planning Area;
- identify populations that are not presently viable;
- identify threats limiting the health of viable populations;
- determine appropriate actions to mitigate threats;
- develop a strategy for implementing mitigation actions;
- develop a methodology for evaluating success of mitigation actions;
- implement mitigation actions; and
- implement monitoring and evaluation to support adaptive management decisions.

3 CONSERVATION ASSESSMENT

3.1 Description of the South Central Planning Area

The South Central Planning Area lies within the central Nevada portion of the Great Basin physiographic province. Like the Great Basin itself, the South Central Planning Area is actually a collection of relatively high elevation, semi-arid valleys separated by north-south trending mountain ranges. Three generalized plant communities characterize the Planning Area and include: the salt desert shrub community, found at lower elevations; the Wyoming big sagebrush community that occupies middle elevations; and a mountain brush community at higher elevations.

Elevations in the Planning Area range from less than 4,500 feet above mean sea level (amsl) on some valley floors to almost 12,000 feet amsl in the Toiyabe and Toquima mountain ranges. Eight and nine thousand foot peaks are common in most of the other mountain ranges in the Planning Area, which include all or parts of the Battle, Fish Creek, Shoshone, Cortez, Roberts, Simpson Park, Diamond, Roberts, Monitor, Kawich, and Hot Creek mountain ranges.

The size of the South Central Planning Area is approximately 9.2 million acres or slightly less than 30 percent of the 31 million acres that comprise the six local sage grouse planning areas of Nevada and eastern California.

The Western Shoshone are the indigenous people of the area. Settlers of European extraction began arriving in the 1860s, though Jedediah Smith and other early explorers and trappers crossed the Planning Area as early as 1827. The area remains relatively sparsely settled, with the small towns of Eureka, Austin, Battle Mountain, and Tonopah being the main population centers. The Planning Area includes portions of Lander, Eureka, and Nye counties.

Most of the lands within the Planning Area are public lands administered by BLM, and the USFS, though private lands are interspersed throughout; Yomba Indian lands occupy the upper Reese River Valley.

Land uses include livestock grazing, wild horse management, mining and mineral extraction, hunting, hiking, horseback riding, fishing, and camping, along with some newer recreational pursuits such as mountain bicycling and paragliding.

The climate within the Planning Area is considered a continental temperature regime with semi-arid to arid conditions in the valleys and lower mountain slopes. Humidity in the Planning Area increases slightly toward mountain crests. Precipitation ranges from six inches on the valley floors to over 20 inches in higher elevations and is largely orographically

controlled. Most of the precipitation in the area occurs as snow in high elevations. The rain shadow effect created by the Sierra Nevada Range contributes to the aridity of the Planning Area. Mean annual temperatures range from 45° to 50°F with summer temperatures greater than 100°F and winter temperatures below 0°F.

A diversity of geology, soils, climate, and vegetation provides ample habitat for numerous wildlife species, wild horses, and livestock. Within the Planning Area, big game species include mule deer, pronghorn antelope, elk, desert bighorn sheep, and mountain lion. Game bird species include sage grouse, chukar, Hungarian partridge, mourning dove, blue grouse at higher altitudes, and waterfowl. Small game species, such as cottontail rabbit also inhabit the area. Fishing opportunities for brook trout, German brown trout, rainbow trout, and Lahontan cutthroat trout exist in most of the mountain ranges in the Planning Area.

The highest concentrations of sage grouse in Nevada reside in the northern and eastern parts of the state. The South Central Planning Area probably ranks third behind the North Eastern and the North Central planning areas in number of birds, with perhaps as much as 25 percent of the Nevada and eastern California total. (The accuracy of this percentage is degraded by the fact that the regional estimate of 98,000 and 128,400 birds does not include the 17 PMUs which population estimates have not yet been made.)

3.1.1 Population Management Units

The Governor's Conservation Strategy recommended delineation of Population Management Units (PMUs) within each Planning Area for compiling and organizing local information and knowledge on sage grouse populations and habitat conditions. The Governor's Conservation Strategy approach to delineating PMUs is given in Appendix C. A map depicting the South Central PMU delineations is shown in Figure 3-1.
The South Central Planning Area has been divided into the following ten PMUs.

- Battle Mountain
- Cortez
- Diamond
- Fish Creek
- Kawich
- Monitor
- Reese River
- Shoshone
- Three Bar
- Toiyab

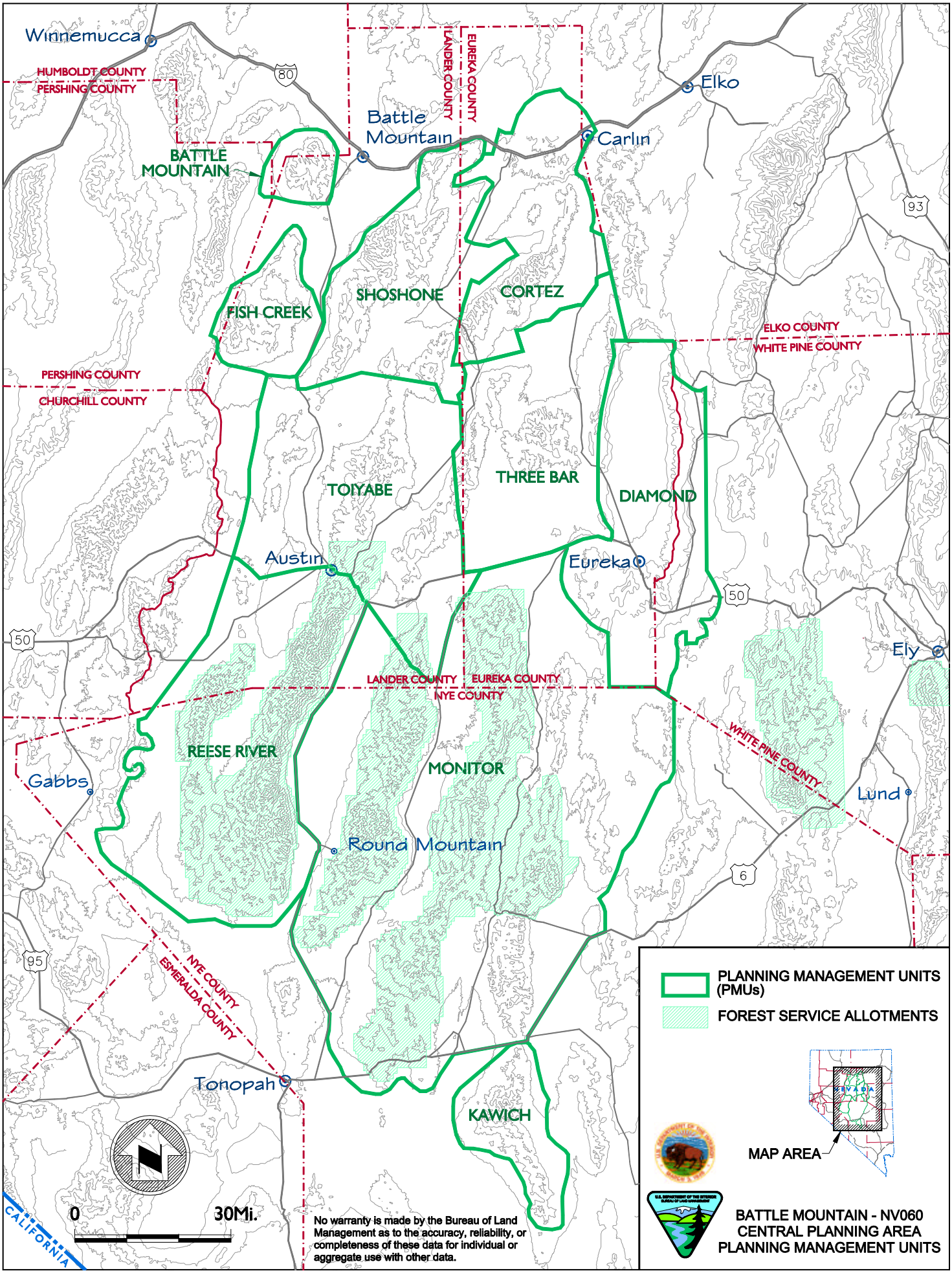
The PMUs in the Planning Area, with the exception of the Battle Mountain and Fish Creek PMUs, are contiguous in terms of habitat continuity. Movement between PMUs is likely. However, the Battle Mountain and Fish Creek PMUs are isolated with relatively small populations, limited amounts of existing habitat, and only a few leks. Movement from Battle Mountain and Fish Creek PMUs to other PMUs in the Planning Area is not likely. The Monitor PMU has a large population, extensive acreage of existing habitat, and over 70 known leks.

Table 3-1: Population Estimate and Number of Known Leks for Each Population Management Unit (PMU) within Nevada and Eastern California

PMU Name	Total Known Leks[1]	Low-end Estimate	High-end Estimate
South Central Local Planning Area			
Battle Mountain	5	270	310
Fish Creek	2	110	130
Shoshone	15	810	940
Cortez	25	1,860	2,480
Three Bar	49	3,640	4,850
Diamond	36	2,680	3,570
Toiyabe	64	3,440	4,010
Reese River	34	3,420	6,850
Monitor	73	7,840	13,720
Kawich	-	Insufficient data to estimate population size	
Totals	**303**	**24,070**	**36,860**
Nevada State Total	**2,254**	**98,890**	**128,410**

Source: Eureka, Lander, and Nye counties historic population data (Appendix B). For an example of how the sage grouse population estimates were derived please see Appendix B. *Low number of birds.

[1]The number of known leks includes active leks (i.e., leks where male birds have been observed during the strutting season within the last 5 years) and historic leks. Historic leks are either not currently active, or have not been visited in the last 5 years and their status is not known.


Winnemucca
HUMBOLDT COUNTY
PERSHING COUNTY
80
Battle Mountain
LANDER COUNTY
EUREKA COUNTY
Elko
Carlin
BATTLE MOUNTAIN
93
SHOSHONE
CORTEZ
FISH CREEK
ELKO COUNTY
WHITE PINE COUNTY
PERSHING COUNTY
CHURCHILL COUNTY
THREE BAR
TOIYABE
DIAMOND
Austin
Eureka
50
50
Ely
LANDER COUNTY
EUREKA COUNTY
NYE COUNTY
WHITE PINE COUNTY
REESE RIVER
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30Mi.
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data.
PLANNING MANAGEMENT UNITS (PMUs)
FOREST SERVICE ALLOTMENTS
NEVADA
MAP AREA
BATTLE MOUNTAIN - NV060
CENTRAL PLANNING AREA
PLANNING MANAGEMENT UNITS

3.2 PLANNING APPROACH AND PMU PRIORITIZATION

The SCPT will focus initial sage grouse population and habitat planning efforts on the Battle Mountain and Fish Creek PMUs. Conservation planning for the Diamond, Cortez, Kawich, Monitor, Reese River, Shoshone, Three Bar and Toiyabe PMUs will be deferred to later in conservation process.

The SCPT began meeting monthly beginning in December 2001. Austin, Nevada was selected as the meeting location due to its central location within the Planning Area. The SCPT generally followed the outline for Conservation Planning recommended by the Governor's Team which includes:

- PMU delineation;
- habitat evaluation;
- prioritization of PMUs for management action;
- population goals; and
- management recommendations, including timelines, budgets, evaluation procedures, and methodologies.

The preliminary effort to designate PMUs used the distribution and configuration of leks on the landscape. Following the initial delineation of PMUs, boundaries were adjusted based on seasonal sage grouse habitat and telemetry data (telemetry data for the Battle Mountain and Fish Creeks PMUs can be found in appendices B, C, and D respectively). The PMU delineations are based on the current, but limited, understanding of sage grouse distribution and population status. The PMU boundaries are not static but are anticipated to change as additional information becomes available.

A preliminary assessment of risks to sage grouse was conducted in order to prioritize PMUs for conservation planning efforts (Appendix F). Risk Factors Ratings were formulated as suggested in the Statewide Strategy and assembled in a Ranking Matrix. The preliminary risk assessment and PMU ranking matrix suggested the need to focus initial conservation efforts on the Fish Creek and Battle Mountain PMUs. Conservation planning for the Cortez, Diamond, Kawich, Monitor, Reese River, Shoshone, Three Bar and Toiyabe PMUs will follow in priority order.

Subcommittees were established to collect and/or analyze data and to make conservation strategy recommendations to the planning committee as a whole. Group consensus was used as the primary decision-making model.

3.2.1 Justification for PMU Priorities

Foremost among the reasons for immediate focus on the Battle Mountain and Fish Creek PMUs is that, unlike other Planning Area PMUs, they support small, isolated populations of sage grouse. Early results from radio telemetry studies suggest that these populations do not interact with surrounding populations. Sage grouse habitat in these two PMUs is of sufficient quantity and has high enough potential quality to expect that conservation actions will provide a dramatic sage grouse population response. Of particular importance

are extensive high-elevation meadow complexes that serve as mid to late brood rearing habitat. These habitats are likely to respond quickly and dramatically to management.

The Battle Mountain PMU includes large amounts of private land that potentially complicate management; however, landowners have expressed active interest in sage grouse conservation. Though local wildlife and recreational interest in the Fish Creek and Battle Mountains is high, past and current management attention has been directed to other parts of the Planning Area, largely because of high-profile wild horse management issues, to the exclusion of the Battle Mountain and Fish Creek PMUs.

Data from hunter harvest, trend leks, and brood surveys, indicate that sage grouse populations the Planning Area's other PMUs are, and have been, relatively stable over the past several decades. With the exception of the Kawich PMU, these other PMUs are largely contiguous, the habitats being geographically linked. PMU boundaries, though perhaps useful for management purposes, are probably more imaginary than real.

Many management actions, including institution of grazing systems, establishment of wild horse AMLs (although maintenance of horse populations at or below AML is unlikely in the present political climate), mining mitigations, fuels treatments, range improvement projects, fire rehabilitation and sage grouse research projects have been completed, planned, or are currently ongoing in these core PMUs (Tables, 4-2, 4-3, 5-2, 5-3). A list of ongoing projects expected to benefit sage grouse is shown in Table 2-2 and Appendix G. The SCPT has resolved to continue to implement projects in core PMUs that have already been identified in allotment evaluations, as well as projects of opportunity where they are expected to benefit sage grouse.

3.3 Biological Overview

A detailed biological overview providing information on sage grouse biology and habitat has been lifted from the State of Nevada Sage Grouse Conservation Strategy. The information in this appendix is applicable to sage grouse within the Planning Area. The sage grouse in the Planning Area do not diverge greatly from the information presented in Appendix H. Presented below is a brief discussion of a few of the biological principles detailed in the appendix where they vary when applied to the Planning Area.

DISTRIBUTION
Sage grouse are well distributed throughout the Planning Area. Populations are suspected to be isolated only in the Battle Mountain, Fish Creeks, and Kawich PMU's. The suitable habitats in these PMU's are well removed from other habitats capable of supporting sage grouse. The boundary lines for the other PMU's are based on known sage grouse lek distributions, however suitable habitat remains contiguous. Therefore interchange of birds between PMU's sharing boundary lines is reasonably expected.

Sage grouse have been observed to occur in sagebrush/salt-desert scrub transition zones to high elevation sagebrush habitats in the Planning Area, approximately 2,000 to 12,000 feet elevation. The birds are typically observed at lower elevations in during the colder

months and in higher elevations during warmer months. Local and elevational distribution is somewhat dependent on snow depth and distribution during colder months, and on availability of select forage and water during warmer months. Sage grouse have been observed to burrow in soft snow during winter in the Planning Area (Lusk 1999), most likely an adaptation to conserve energy.

HABITAT AND FORAGE REQUIREMENTS

Habitat requirements for sage grouse within the Planning Area are not known to- vary greatly from the information presented in the WAFWA and Nevada BLM Sage Grouse Management Guidelines, although little work has been done locally to support that conclusion. Please refer to the WAFWA, Nevada BLM Sage Grouse Management Guidelines, and Appendix H for further information on this complex subject.

MORTALITY FACTORS

Natural mortality factors affecting sage grouse in the planning unit are of a direct and indirect nature. Direct mortality factors are the proximate cause of death for the individual bird by its action alone. Direct factors include predation, hunting, fire, disease, starvation/malnutrition, exposure, and accidents. Indirect mortality factors are not the proximate cause of death for wildlife but condition the bird or its environment for the ultimate cause of mortality. Indirect factors include habitat quantity and quality (deterioration, destruction, fragmentation, alteration, and conversion), climate, weather, human impacts (agriculture, pesticides, power lines, trash dumps, weed management, grazing management, fire management, etc.), starvation/malnutrition, and population cycling. These factors are defined in Appendix F. Many of these factors play some role in sage grouse mortality in the Planning Area. The relative importance of individual factors and their inter-relationships are poorly understood. Detailed study of mortality factors must therefore be a primary subject for population-specific work.

3.4 SAGE GROUSE POPULATION DATA FOR THE SOUTH CENTRAL PLANNING AREA

Nevada's sage grouse are distributed northward from the approximate center of the state. The northeastern block of counties provides the most continuous habitat (NDOW, 2000). The sage grouse population for each of the ten PMUs was estimated based on methodology used in range-wide population studies. See Table 3-1.

3.4.1 Background

Traditionally, sage grouse survey and data collection has been conducted by NDOW on a county-by-county basis. Most of the data sets pertinent to the PMUs being considered under this plan are based in Eureka, Lander, and Nye counties. Because of this foundation, the potential for making direct analysis of data sets between PMUs is limited. Data collection methods will need to be modified where possible to support PMU-level analysis. At the same time, county-by-county data sets must be maintained at some level to allow for the analysis of long-term trends. Trend lek counts and harvest are the most consistent data sets for the analysis of population status and trend. Fall composition, as estimated from hunter harvested wings, is also a useful indicator. The summer brood data

that was collected annually for many years can be used to delineate summer distribution and use areas, but the relationship between summer brood data and fall populations is weak.

SUMMER PRODUCTION SURVEYS

Some of the summer surveys for sage grouse were established in the early 1950s. See Appendix B. Since that time, summer composition data has been collected from standard routes, random observations or both during most years. Survey routes have changed over time and the intensity of survey efforts has varied. Summer production surveys involve the driving and walking of areas favored by sage grouse in late June, July, and early August (late brood habitat). The sage grouse observed are classified by sex (adults) and age class (young). Locations are also recorded. Data sets derived from production surveys include ratios of young/100 adults, young/100 hens, brood size (all broods), brood size by age class (I, II, III, IV), % successful hens, number of birds classified (by sex and age), and unclassified. The samples obtained from summer surveys are greatly influenced by summer weather patterns and survey effort. As stated above, summer population composition has limited value in determining population trends. However, periodic resurvey of established routes can provide meaningful comparisons of relative numbers and bird use of specific areas. Summer production data is valuable in the identification of important late brood rearing habitats. Many years of data arising from summer surveys and random observations can be incorporated into a GIS layer to aid management decisions.

TELEMETRY SURVEYS

The attachment of radio transmitters to sage grouse is a technique widely used to delineate seasonal distribution and home ranges of sage grouse populations. The best times to capture sage grouse are during the breeding season (around leks) and during late summer, when grouse are concentrated on late brood rearing habitats. Standard (VHF) transmitters require periodic aerial survey follow-up which is labor and equipment intensive. Transmitters capable of relaying their location through a satellite are more expensive, but eliminate much of the labor involved in follow-up. Telemetry studies were initiated within the plan area during the 2003 brooding season. Nineteen radio collars were placed on sage grouse in the Battle Mountain and Fish Creek PMUs. (See telemetry study narrative in Appendix D and associated data in appendices D and E). In April 2004 a telemetry study was initiated in the Diamond PMU with 6 male sage grouse caught and radio collared. Monitoring the location of the radio collared birds will be initiated in May 2004 along with attempting to catch hens in the summer or spring of 2005. This project is designed to delineate the PMU boundary between the Diamond PMU and the adjoining PMU in the White Pine Planning area. Seasonal movements, distribution and additional data will be collected on all captured birds during this study.

LEK MONITORING

Annual lek surveys are conducted by the NDOW personnel from Battle Mountain, Eureka, and Tonopah with some assistance from BLM personnel and occasional volunteers.

Lek counts are conducted in the early morning from first light through about one half hour after sunup. Depending on factors such as location and cover, some leks may be easily counted from a distance while other leks require walking and flushing to obtain reliable counts. Usually, two to six leks can be checked for activity in one morning. Most monitoring is conducted from the ground although aerial surveys are sometimes used. Trend lek data is compiled by NDOW for annual evaluations of population trend. Evaluation of population trend through lek studies involves the intensive survey of the same leks from year to year. Each trend lek is visited several times throughout the breeding season in order to observe the peak in male attendance. This usually occurs in late April or early May in east-central Nevada and somewhat earlier in west-central Nevada. The resulting data are compared to the previous year's attendance on those same leks and are expressed as a percent upwards or downwards. Lek studies that qualify for trend analysis extend back at least ten years and many trend leks extend back to the 1960's and 1970's. See Appendix B. Additional trend leks may need to be established before population trend can be adequately measured in each PMU.

Monitoring by NDOW personnel is focused mainly on trend lek counts while the personnel from other agencies monitor additional leks for activity. Lek monitoring efforts begin in early March and end by mid May. Data is collected by NDOW from all participants for use in updating the database for each PMU. Over a dozen attributes are maintained for each lek including lek name, location (UTMs and TRS), date last active and number, date last checked, reporting agency, county, PMU, etc. Documentation of lek locations and intermittent counts stretch back to the early 1950s. See Appendix B. Additional leks continued to be located over the years by NDOW, BLM, USFS, USDA/APHIS personnel as well as the general public. Aerial surveys were utilized periodically from 1970 onward, which resulted in the location of many new leks. Consistent recording of lek data began around 1970. See Appendix B.

HISTORIC DATA

Lek counts in Eureka, Lander, and Nye counties have been performed annually since the late 1960s (Appendix B). Counts made on the same leks year after year in Eureka County show high numbers in the late 1970s with 72 cocks per ground in 1979 dropping to 16 cocks per ground in 1995 and increasing to 19 cocks per ground in 2002. The magnitude of decline can also be seen when looking at changes in individual grounds. A single lek in the Three Bar PMU went from 179 birds in 1979 to no birds observed on the lek in 1995. The lek was again active in 1998 with 12 males increasing to 32 males in 2000 before decreasing to 15 males in 2003. There are other leks that had no activity for many years. Some new lek locations have been discovered with more intensive survey effort in recent years. The yearly fluctuation of lek counts, movement of birds between leks, movement of leks, unknown leks, and incomplete data on known leks lessens the accuracy of lek counts as a precise estimate of trend. However, the lek data demonstrates the same trend pattern as the harvest data. Higher numbers of birds were observed in the 1970s with fewer birds observed in the 1980s. Bird observations increased in the late 1990s. The lack of annual trend lek data prior to 1969 again limits any estimates of sage grouse populations in earlier years.

Ten leks were surveyed in Eureka County in 2003 with 200 cocks observed for a ratio of 20 males/lek. This was a six percent increase from 2002 when 189 males were observed on these same ten grounds for a ratio of 18.9 males/lek. The twenty-year average (1983-2002) for comparable grounds was 28 males/lek and the ten-year average (1993-2002) was 22. In addition to trend lek counts, there were ten active leks surveyed by NDOW and UNR graduate students in Eureka County in 2003. The total number of active leks in Eureka County in 2003 was 19 with 310 males in attendance for an average of 16 males/lek. All leks were surveyed from the ground. In 2002, there were 24 active leks checked with 290 males observed for a ratio of 12 males/lek. There were two new leks or two new locations being used by sage grouse from adjacent older leks observed during the 2003 surveys. UNR graduate students are conducting baseline sage grouse surveys to determine the effects of a power line that is under construction between Battle Mountain and Ely. In addition to counting leks, they captured a total of 159 sage grouse (144 males, 15 females) that were leg banded; seven of which were outfitted with telemetry collars.

In Lander County, twelve leks were visited in 2003 with 169 cocks observed. Five of these leks are counted yearly for trend analysis. There was a 30 percent increase in male attendance from numbers recorded in 2002 that followed a six percent increase from 2001.

During the spring of 2003 a total of 25 known leks were visited in central Nevada resulting in a maximum count of 454 sage grouse, 372 of which were cocks (see Table 1). Thirteen of these leks have been identified as trend grounds. Of the thirteen trend grounds surveyed, six showed decreases in attendance from 2002, two showed no change, and five showed slight increases. 2003 survey data reflect a 7% decrease in overall attendance over the short-term, and a 9% decrease in attendance by cocks during the same time period. Due to the lack of identified trend grounds up until the 2001 survey season, long-term trends are difficult to track. The data that does exist show a decreasing trend in central Nevada over the long-term. Trend leks in central Nevada have shown a 33% decrease in cock attendance since 2001.

Harvest, as reported through 10% hunter questionnaires, has been estimated annually since 1952. The harvest in a given year is mainly dependent on population size although season dates, season length, bag limits, hunter participation and weather patterns prior to and during the hunt also influence harvest. Although changes to season dates, length and bag limits over time place some limitations on analysis, harvest data correlates well with lek trend data as another indicator of population trend.

In general, the annual harvest is dependant on the number of birds available, the bag limit, number of hunters, length of season, season dates, and weather prior to and during the hunt (Appendix B). In Eureka County the harvest shows low numbers in the late 1950s and 1960s with an increase in the 1970s with the record harvest of 2,820 birds reported in 1971. The harvest fluctuated from a low of 410 in 1977 to 1,906 in 1982 before the season was closed in 1985. The sage grouse seasons were shifted later into October following the 1985 closure to reduce harvest statewide. The strategy worked well, and the harvest was reduced. In Eureka County the harvest decreased to 123 birds in

1988 but increased to 824 in 1994. The 2002 harvest was 380 birds in Eureka County. Lander County shows similar trends with 3,247 birds harvested in 1974 and 3,085 birds in 1980. Only 224 birds were harvested in 1988. The harvest increased to 966 birds in 1990 and decreased to 71 birds in 2002.

The Nye County harvest was similar to Eureka in its trend. The general trend in the harvest of sage grouse in the South Central Planning Area is that many birds were collected in the 1970s with less in the 1980s and some increases in the late 1990s. The 1950s and 1960s harvest figures may not accurately reflect sage grouse populations due to the low number of hunters that hunted sage grouse at that time compared to the 1970s. The population may have been higher in the early days than harvest data reflects. The annual fluctuations in harvest due to availability of birds, timing of the hunting seasons, and weather conditions during the hunt reduces further direct statistical analysis of the data, but the data does support the broad general trend statements.

WING DATA

The collection of wings from hunter harvested birds provides a variety of information about the composition of the fall sage grouse population. This voluntary method of sampling is accomplished by distributing labeled "wing barrels" at key road intersections during the sage grouse hunting season. Wings can be classified by both sex and age (young, yearling, and adult). The rate of successful nesting can be estimated for hens and hatch dates can be determined for young of the year. Wing data collection has been intermittent over time, putting limitations on its value for long term trends. Low sample sizes resulting from low harvest under current season frameworks may be a limitation to analysis at the PMU level.

The initial population estimates for each PMU in the South Central Planning Area were used to assist in the prioritization of PMUs that are most at risk of extinction or decline. Based on the population estimates only two of the ten PMUs (Battle Mountain and Fish Creek) in the South Central Planning Area may not be able to sustain the population over the long term. The remaining eight PMUs have initial population estimates that are considered adequate for long-term stability. Despite the adequate populations in the remaining eight PMUs, assessments, and monitoring need to take place to ensure continued viability.

3.5 VEGETATION AND SOILS AS ATTRIBUTES OF SAGE GROUSE HABITAT

The word "habitat" is used throughout the text to indicate, in the general sense, those areas of rangelands that provide food, cover, and water to sage grouse. "Habitat" may be occupied by the birds either year round or seasonally. Food and cover, in turn, varies with location as a result of the vegetation presently or potentially supported by the soils. The following paragraphs describe the standards for site specific management that conform to the WAFWA guidelines calling for range ecologists and biologists to establish goals that are "...reasonable and ecologically defensible."

Goals and objectives for habitat management, rehabilitation, or development are based on the "site potential" at specific locations rather than the general description of habitat. Potential of a site or the natural potential plant community is the key feature of Ecological Sites as correlated during completion of the Soil Survey. Definitions of terms and applications of this technique are those described by the US Department of Agriculture-Natural Resource Conservation Service, *National Range Handbook* (1976). Plant species composition and several other site characteristics are the basis for determining whether a plant community is at the potential for an ecological site or if the present vegetation represents a "seral" stage. Habitat management goals may specify a "Desired Plant Community" (DPC) to best provide sage grouse habitat attributes that are available from a seral plant community.

Current approaches to describing rangeland plant ecological processes builds on the description of ecological site potential by using the term "state" to describe a self sustaining vegetative community along with the associated seral successional stages. "State and Transition Modeling: An Ecological Process Approach" by Stringham, Krueger, and Shaver is an article in the March 2003 Journal of Range Management; this article provides the concepts and terminology defining state, transition, and threshold for use as goals or objectives of sage grouse habitat management. State indicates a "resistant and resilient complex of two components, the soil base and the vegetation structure". Plant communities are constantly changing to some extent, but the seral plant composition within a given state is self-repairing through plant succession. On occasion, the change in a plant community may be so extensive that the end product of change is a new state. The process over time and direction of change is called the transition. As transition occurs it is generally reversible up to the point called the threshold; having passed the threshold the transition has become "irreversible" and a new state is formed. At this point, return to the original "state" is only possible at great cost of energy and money, or by passage of more time than is reasonable from a management perspective.

Examples of "state/threshold/transition" observations include areas where wildfires have occurred so frequently in sagebrush dominated plant communities (original state) they are now dominated by cheatgrass, an introduced annual grass (new state). In other locations, fires have occurred so infrequently that pinion and juniper trees have become dominant (new state) and through competition for soil moisture and nutrients effectively eliminated both the sagebrush and the associated herbaceous plant species (original state).

3.6 Habitat Condition Assessment and Mapping

As directed by the Governor's Sage Grouse Conservation Strategy (as modified per an intra-group meeting in 2002), the SCPT mapped the area's sage grouse habitats into five habitat condition categories as presented below.

- **R-0 or Key Habitats:** areas with desired species composition that have sufficient, but not excessive, sagebrush canopy and sufficient grasses and forbs in the understory to provide adequate cover and forage to meet the seasonal needs of sage grouse;

- **R-1:** areas with potential to produce sagebrush plant communities that have desirable understory consisting of desired grasses and forbs but lack sufficient sagebrush;

- **R-2:** existing sagebrush plant communities with insufficient desired grasses and forbs in the understory;

- **R-3:** areas with potential to produce sagebrush plant communities that are being encroached upon by pinion-juniper, but that have not crossed the threshold of cost-effective treatment; and

- **R-4:** areas with potential to produce sagebrush plant communities but are currently dominated by annual grasses, annual forbs, or bare ground.

Both the habitat condition map and risk table were produced for the purpose of achieving perspective on sage grouse problems and management priorities. They were produced using the best available information and professional judgment, but are known to contain inaccuracies, uncertainties, and gross generalizations. Use of these tools for purposes beyond their intent is inappropriate and invalid.

3.6.1 How Habitat Condition was Determined

Habitat was categorized using a combination of available resources, including the accumulated field knowledge of group members, Natural Resource Conservation Service (NRCS) soils maps and range site descriptions, precipitation maps, potential vegetation maps, and fire history maps. Inaccuracies and the need for ongoing refinement of the habitat condition map, both at broad and fine scales, is recognized. Especially needed are more accurate habitat condition maps for priority PMUs.

3.6.2 Fire Management

Historically, full suppression of wildfire has been the policy of the BLM in Nevada. In 2001 however, the Battle Mountain Field Office, realizing that full suppression is not always the proper response, developed a resource management plan (RMP) amendment for the more flexible management of fire. This amendment opened the door for the use of a number of vegetation manipulation tools, including prescribed fire, greenstripping, brush-beating, chaining and silvicultural thinning, for the purpose of achieving healthier, more productive, and more diverse plant communities. The new fire management amendment also provides for “wildland fire use” which allows for “management of natural ignitions” prescriptions in areas where fire is appropriate and healthy.

The Planning Area remains under a prescription of full wildfire suppression except where site-specific vegetation manipulation plans have been developed. The land use plan amendment itself proposes no specific management actions, but rather is a strategy document. Under the amendment, fire or other vegetation treatments are carried out only after careful planning to include scrutiny of potential effects to sage grouse and other special status species, on a site-specific, case-by-case basis.

Several wild land/urban interface projects have been undertaken, or are currently being planned. The purpose of these projects is to protect human habitation centers by reducing excessive nearby fuel loads. These projects are undertaken with sage grouse habitat in mind, and where practicable will be used to enhance sage grouse habitat, at least experimentally. Short- and long-term strategies and fire objectives are shown in Table 3-2.

4 BATTLE MOUNTAIN PMU

The Battle Mountain PMU in the Planning Area has been identified as high priority for review.

4.1 Topography and Vegetation

The Battle Mountain PMU is located in Battle Mountain of Lander County, Nevada. Battle Mountain has a base elevation of 4,750 feet amsl to 8,500 feet amsl at North Peak. The mountains are surrounded by salt desert shrub and Wyoming big sagebrush communities, and rise to the mountain shrub community. Two perennial streams flow to the valley floors. Several canyons have intermittent streams and several springs are scattered over the mountain.

4.2 Land Status and Administration

The PMU encompasses approximately 107,515 acres. Most of the land within the PMU is in the checkerboard pattern of private and public lands (Figure 4-1). The *Shoshone-Eureka Resource Management Plan* (RMP) 1986, established the multiple use goals and objectives which guide management of the public lands within the Shoshone-Eureka Resource Area. The *Rangeland Program Summary* (BLM, 1988) further identified land use plan goals by allotment.

4.3 Fire History

A fire of an unknown year in the 1980s burned the west flank of the Battle Mountain in the PMU. The area affected by the burn is depicted in Figure 4-1. The burn occurred primarily in the salt desert shrub community, but did burn some sagebrush habitat.

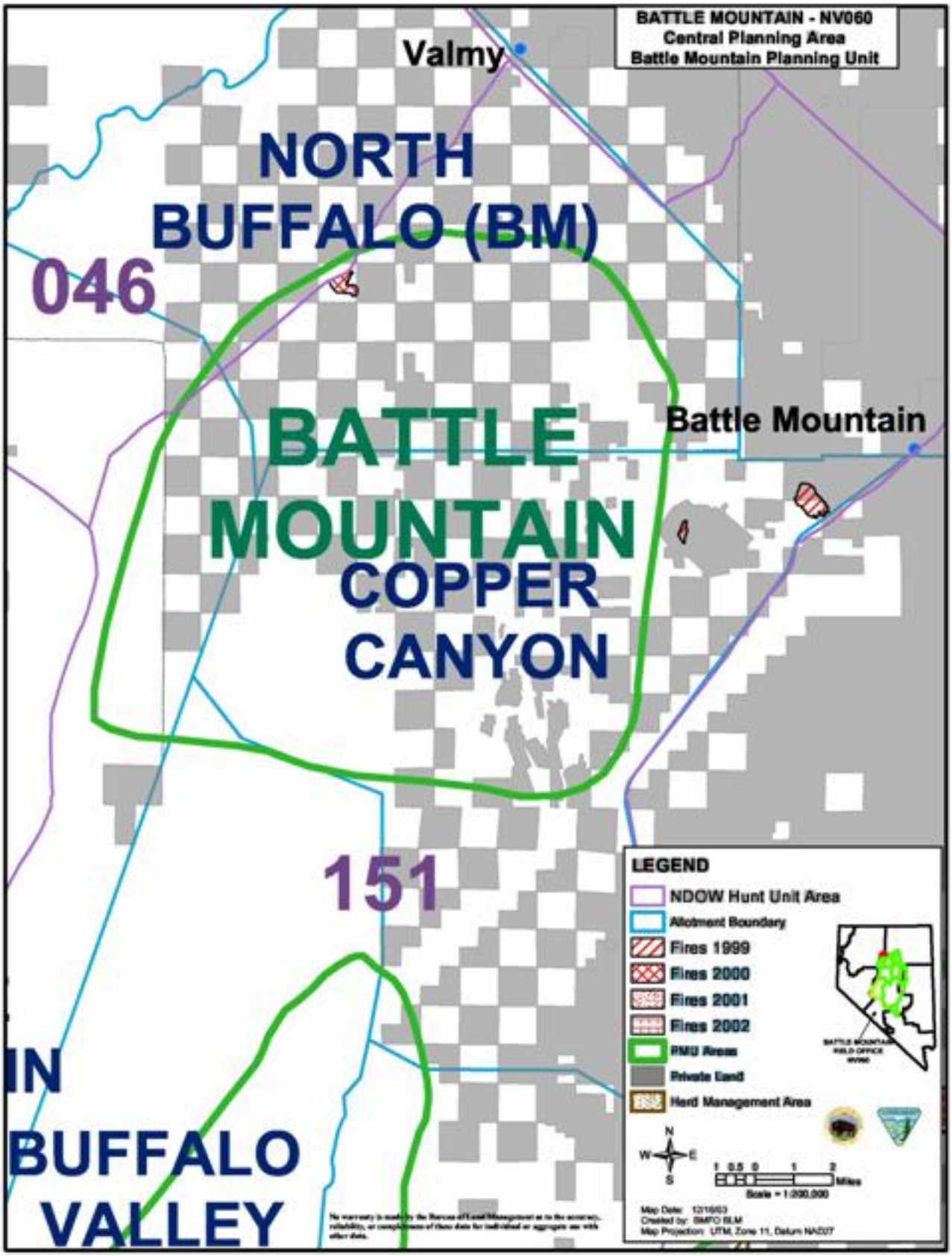
4.4 Land Uses

The principal land uses in the PMU are livestock grazing, mining, and dispersed recreation including big game and upland game hunting. Currently there are three active gold mines in the area with a third project scheduled to come on line in 2004.

Glamis Marigold Mining Corporation (GMMC) presently has an active operation in the Battle Mountain PMU. The GMMC operation, started in 1988, is located three miles south of Valmy and encompasses approximately 1,900 acres of private and public lands. GMMC's Millennium Expansion Project will disturb an additional 1,395 acres of which 136 acres are on public land. Approximately 1,124 acres would be reclaimed with a permanent loss of 270 acres of vegetation in pit areas.

The Trenton Canyon Mine is located to the south of GMMC in the Battle Mountain PMU.

Figure 4-1: The Battle Mountain PMU



The Copper Canyon Mining District is also located in the Battle Mountain PMU and has had a long history of mineral production dating back to 1864 (BLM, 2001). Mining operations have been conducted on public and private lands and existing disturbance covers approximately 2,778 acres.

The Phoenix Project proposed disturbance is approximately 7,073 acres.

The PMU falls within two BLM grazing allotments: the North Buffalo and Copper Canyon allotments (Figure 4-1). These allotments do not have allotment management plans in place. Both allotments are scheduled for rangeland health assessments evaluation in 2006. There are no wild horse Herd Management Areas in this PMU.

Wildlife within the PMU falls into NDOW's Area 15 Unit 151 big game management area. These management area designations have been in place for many years, and hunters are generally familiar with the boundaries. In several instances, the big game unit designations are also used to manage small game harvest (Figure 4-1).

4.5 Status of Sage Grouse in PMU

The current population estimate for the area is 260 to 280 birds (Appendix D). This estimate was derived by applying calculations to the number of known leks. Several assumptions were used in the estimate calculations and actual populations could be much smaller than the estimated values. Currently only five leks are known to be in this PMU, and these are at the higher elevations. Leks at high elevations make surveys difficult or impossible from the ground because access in the spring is weather dependent. These five leks were not discovered until 1995 and 1996. Four of the five were last surveyed in 2001, and only two leks were active at the time of the visit.

Little is known about the seasonal distribution of these birds. Brood surveys have shown birds using four different meadow areas. Random sightings of adults have been made at higher elevations. Specific harvest data is lacking because harvests are reported by county, not mountain range. Wing barrels were placed at Little Cottonwood Creek and the junction of State Route 305 and the Buffalo Valley turn off during the 2002 season. These barrels provided wings believed to have been from unit 151 but were not specific to the PMU. Sixteen wings were collected. The hunting season was closed in 2003.

In order to meet Objective 1 (see Table 4-1, and 5-1), a telemetry study was initiated in 2003 to better delineate the sage grouse populations in the Battle Mountains. This study is described in detail in Appendix D. Preliminary results support the premise that sage grouse populations in the Battle Mountain PMU are isolated (Appendix D). One new lek was also discovered in the Battle Mountains while conducting helicopter lek surveys

4.6 Impacts to Sage Grouse and Habitat

Risk factors and specific concerns related to sage grouse habitat and population are presented in Table 4-1.

Table 4-1: Risk Factors Affecting Sage Grouse in the Battle Mountain PMU[1].

Risk Factor	Specific concerns for the Battle Mountain PMU		
Habitat Quantity	Available habitat is limited to higher elevations	Available habitat is limited	Late brooding habitat is limited to four meadow complexes
Habitat Quality	Brood meadows need improvement	Meadows are starting to head cut	Heavy iris invasion of meadows
Habitat Fragmentation	Mining and exploration activities	Checkerboard land pattern	Existing recreational and pioneering roads
Changing Land Uses	Mining activities	Increased recreational and industrial use of public lands	Increasing development of private lands
Grazing	No allotment management plan in place	---	---
Fire Ecology	No fire plan in place	Large fires may substantially reduce habitat	---
Disturbance	Increasing OHV use	Existing recreational and pioneering roads	
Predation	BM landfill attracts ravens to PMU areas	---	---
Disease/Pesticides/Pests	The area suffers from periodic heavy Mormon cricket and grasshopper invasions	---	---
Hunting/Poaching	The area receives heavy hunting pressure due to its proximity to the town	Poaching is felt to be opportunistic	---
Cycles/Populations	Populations are low with an estimate of 260 to 280 birds	---	---
Climate/Weather	---	---	---
Pinion-Juniper Encroachment	---	---	---

[1]Due to limited data presently available, risk is not assessed or prioritized. Risks will be assessed as information is developed through implementation of habitat and population objectives.

4.7 HABITAT GOAL

The habitat goal for the Battle Mountain PMU is to maintain and restore ecologically diverse, sustainable, and contiguous sagebrush ecosystems by implementing scientifically-sound management practices. The objectives for the Battle Mountain PMU habitat goal are presented in Table 4-2.

Management Recommendations

The SCPT recommends that a working group consisting of BLM, NDOW, permittees, mining representatives, tribal representatives, other experts, and recreationists be formed for the Battle Mountain PMU for the purpose of:

- reviewing potential concerns addressed in each plan;
- truthing R factors addressed in plan;
- preparing mutually agreed upon solutions to the identified problems;
- providing an annual evaluation to the SCPT;
- procuring funding to accomplish agreed upon tasks; and
- developing a monitoring plan.

These recommendations are to be made to the SCPT by June 1, 2004. By addressing these issues it is hoped that management actions can occur prior to the regularly scheduled allotment evaluations. The SCPT will consider commissioning an independent review of threats and recommendations to sage grouse problems.

In order expedite on-the-ground management actions, the South Central Panning Group proposes to contract rangeland health assessments and management recommendations of the Copper Canyon, Buffalo Valley, and North Buffalo allotments, which collectively include the most important habitats of the Battle Mountain and Fish Creek PMUs. Management recommendations would be designed to meet the habitat and population objectives of the South Central Nevada Sage Grouse Conservation Plan.

These contracted rangeland health assessments and recommendations would not be limited to, but would focus largely on, improving the condition of riparian meadow complexes that the South Central Planning Group believes are crucial to sage grouse population growth and stability.

The contractor would specifically investigate possibilities for instituting grazing systems for these two PMUs that would improve sage grouse habitat quality and that would also be workable for the livestock operators. The feasibility of a consensus grazing system is extremely important because it could lead to substantial habitat improvement much earlier than would be possible with the scheduled BLM rangeland health assessment and multiple use decision process.

The South Central Planning Group originally intended to contract a more ambitious and broad-scale rangeland health assessment that would have encompassed all impacts and issues: mining, OHV use, proliferation of roads, checkerboard land status/land exchange

potential, predation, hunting/poaching, pinion-juniper encroachment, and fire. Lack of funding and support for such an effort however, leads us to a more tightly focused contract.

This not to say that the planning group is ignoring risks and impacts, but rather that the group will necessarily need to address many of these issues in-house. The group however, feels that it lacks expertise to assess grazing management. Moreover, the group is polarized over grazing issues, and an independent assessment of range condition, causes, and solutions is much more likely to be seen as unbiased.

4.8 POPULATION GOAL

The population goal for the Battle Mountain PMU is to create healthy, self-sustaining sage grouse populations that are well distributed throughout the species historic range. The objectives for achieving the population goal are shown in Table 4-3.

5 FISH CREEK PMU

The Fish Creek PMU is one of two PMUs within the Planning Area that has been identified as high priority for review.

5.1 Topography and Vegetation

The Fish Creek PMU is located in the Fish Creek Mountains of Lander County, Nevada. These mountains rise from base elevations of 4,800 feet amsl to 8,300 feet amsl at Mount Moses. The mountains are surrounded by a salt desert shrub community and rise to the sagebrush steppe shrub community. Three perennial streams flow to the valley floors. Several canyons have intermittent streams and several springs are scattered over the mountain.

5.2 Land Status and Administration

The PMU encompasses approximately 241,337 acres. Most of the land within the PMU is publicly owned and administered by the Battle Mountain Field Office of the BLM. Approximately 640 acres are privately owned (Figure 4-2). *The Shoshone-Eureka Resource Management Plan* (S-E RMP) established the multiple use goals and objectives which guide management of the public lands within the Shoshone-Eureka Resource Area. The *Rangeland Program Summary* (RPS, 1988) further identified specific objectives by allotment.

5.3 Fire History

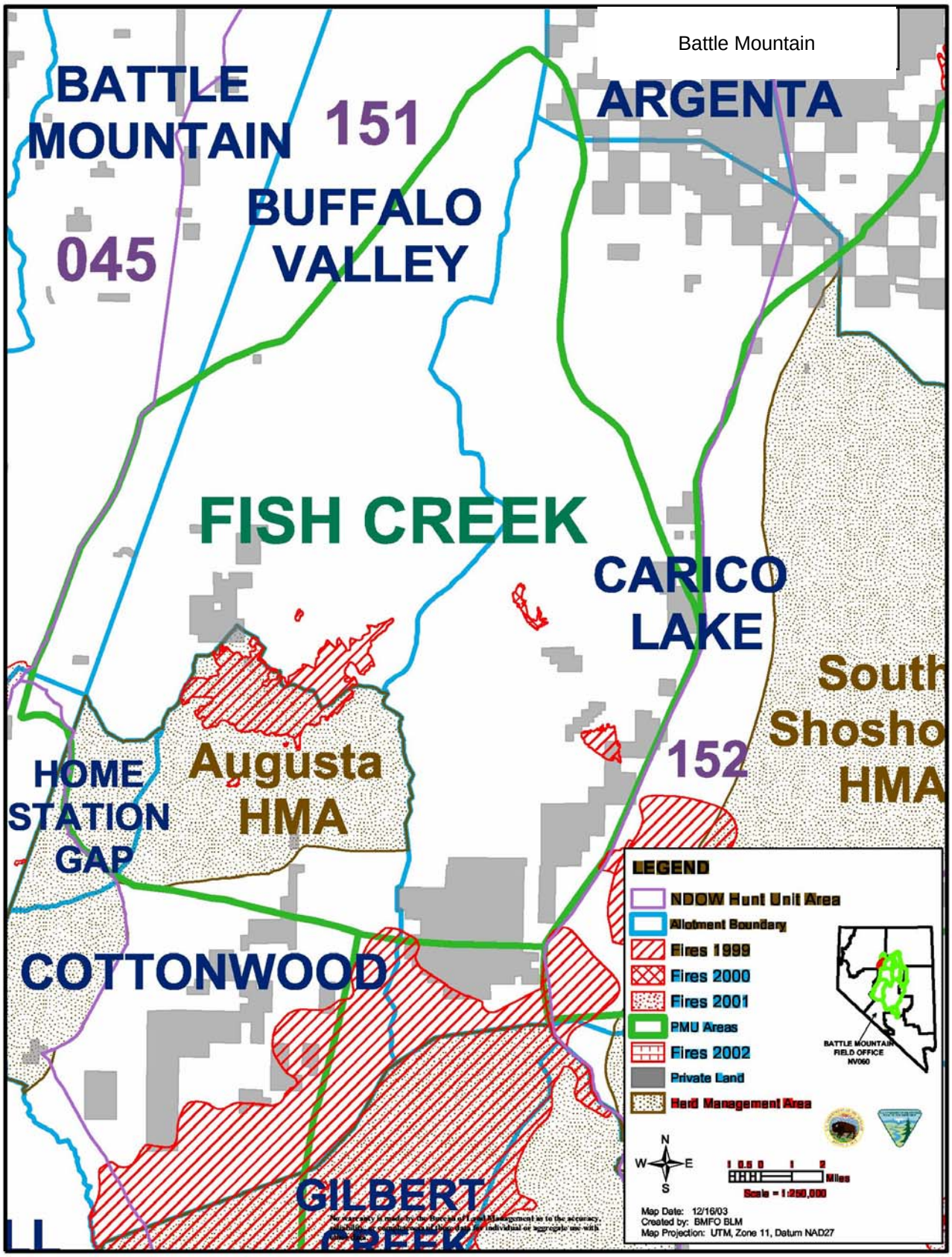
The most recent fire in the PMU was the Moses Fire of 1999. Approximately 5,175 acres burned within the Cottonwood Allotment, and 2,137 acres burned within the Buffalo Valley Allotment. The area of Moses Fire is depicted on Figure 4-2 as an R1 value due to the fire rehabilitation. An earlier fire (unknown year) burned acres the west flank of the Fish Creek Mountains.

5.4 Land Uses

The principal land uses in the PMU are livestock grazing and dispersed recreation including big game and upland game hunting. Several microwave towers are located at the highest elevations. Power lines exist in the PMU that provide power to mines. Just north of the PMU, historic mining occurred and one mine, Echo Bay Minerals, is presently in the closure and reclamation mode.

The PMU includes portions of four BLM grazing allotments. These are the Buffalo Valley, Home Station, Carico Lake, and Cottonwood allotments (Figure 4-2). The majority of the present sage grouse use falls within the Buffalo Valley Allotment. The northern portion of the Cottonwood Allotment also receives some use. The Cottonwood

Figure 5-1: The Fish Creek PMU



Allotment Management Plan was completed by BLM in 1994 and was later challenged in court. The permittee won the court case, which stipulated the allotment be reevaluated in 2006. The Carico Lake rangeland health assessment is scheduled for completion in 2004. The Buffalo Valley rangeland health assessment is scheduled for completion in 2007.

The Augusta HMA encompasses a portion of the PMU. The Appropriate Management Level, (AML) is 89 horses. The horse population estimate in December, 2002 was 195 horses (Figure 4-2). A gather was undertaken in the fall of 2003.

Wildlife in the PMU falls into NDOW's Area 15 Unit 151 big game management area (Figure 4-2). These management area designations have been in place many years and hunters are generally familiar with the boundaries. In several instances, the big game unit designations are also used to manage small game harvest.

5.5 Status of Sage Grouse in PMU

The current population estimate for the area is 105 birds. Presently only three leks are known and these are at the higher elevations. High elevations make lek surveys difficult or impossible from the ground because access in the spring is weather dependent. Two leks were not discovered until 1991 and the third lek was discovered and active in spring 2003. They were last surveyed in 2000, and only one lek was active at the time of the visit.

Little is known about the seasonal distribution of these birds. Brood surveys have shown birds using four different meadow areas. Random sightings of adults have been made at higher elevations. Specific harvest data is lacking because harvest is reported by county, not mountain range. A wing barrel was placed at Fish Creek during the 2002 season but no wings were collected. Another wing barrel was placed at the junction of State Route 305 and the Buffalo Valley turn off. This barrel provided wings believed to have been from unit 151 but was not specific to the PMU. The hunting season was closed in 2003.

In order to meet Objective 1 (see Table 4-1, and 5-1), a telemetry study was initiated in 2003 to better delineate the sage grouse populations in the Fish Creek PMU. This study is described in detail in Appendix D and the associated data for the Fish Creek PMU is found in Appendix E. Preliminary results support the premise that sage grouse populations in the Fish Creek PMU are isolated.

Preliminary findings indicate that the Fish Creek population is indeed a separate population spending an entire life cycles in the Fish Creek Mountains. Some movement to a previously undocumented portion of the Fish Creek Mountains has occurred. Two new leks were discovered in the Fish Creek Mountains as a result of the telemetry work and an additional lek was located while performing helicopter lek surveys.

5.6 Impacts to Sage Grouse and Habitat

Risk factors related to sage grouse habitat and population in the Fish Creek PMU is presented in Table 5-1.

5.7 Habitat Goal

The habitat goal for the Fish Creek PMU is to maintain and restore ecologically diverse, sustainable, and contiguous sagebrush ecosystems by implementing scientifically-sound management practices. The objectives for the Fish Creek PMU habitat goal are shown in Table 5-2.

Table 5-1: Risk Factors affecting sage grouse in the Fish Creek PMU[1]

Risk Factors	Specific concerns for the Fish Creek PMU			
Habitat Quantity	Available habitat is limited to higher elevations	Available habitat is limited	Late brooding habitat is limited to four meadow complexes	---
Habitat Quality	Brood meadows need improvement	Meadows are starting to head cut	Heavy iris invasion of meadows	The salt desert shrub community on the southwest side of the mountains is overtaken with halogeton
Habitat Fragmentation	Pinion-juniper encroachment threatens contiguous habitat	Checkerboard land pattern	Existing and pioneering recreational roads	---
Changing Land Uses	Mining and exploration activities	Increased recreational and industrial use of public lands	Increasing development of private lands	---
Grazing	No allotment management plan in place	---	---	---
Fire Ecology	Fires have affected the southern portion of the PMU with an increase of cheatgrass	Full suppression is recommended except for pinion-juniper areas	---	---
Disturbance	Roads allow access to all areas	Heavy OHV use	---	---
Predation	Not documented to be an issue	---	---	---
Disease/Pesticides/Pests	The area suffers from periodic heavy Mormon cricket invasions	---	---	---
Hunting/Poaching	The area receives heavy hunting pressure	Poaching is felt to be opportunistic	---	---
Cycles/Populations	Populations are low with an estimate of 100 birds	---	---	---
Climate/Weather	Known lek locations are near 5,500 and 8,000 feet in elevation and are subject to inclement weather	---	---	---
Pinion-Juniper Encroachment	Pinion-juniper encroachment may already have affected many acres that were formerly sage grouse habitat	---	---	---

[1]Due to limited data presently available, risk is not assessed or prioritized. Risks will be assessed as information is developed through implementation of habitat and population objectives.

Management Recommendations

The SCPT recommends that a working group consisting of BLM, NDOW, permittees, mining representatives, tribal representatives, other experts, and recreationists be formed for the Fish Creek PMU for the purpose of:

- reviewing potential concerns addressed in each plan;
- truthing R factors addressed in plan;
- preparing mutually agreed upon solutions to the identified problems;
- procuring funding to accomplish agreed upon tasks; and
- developing a monitoring plan.

These recommendations are to be made to the SCPT by June 1, 2004. By addressing these issues it is hoped that management actions can occur prior to the regularly scheduled allotment evaluations. The SCPT will consider commissioning an independent review concerns and recommendations to sage grouse problems.

In order expedite on-the-ground management actions, the South Central Panning Group proposes to contract rangeland health assessments and management recommendations of the Copper Canyon, Buffalo Valley, and North Buffalo allotments, which collectively include the most important habitats of the Battle Mountain and Fish Creek PMUs. Management recommendations would be designed to meet the habitat and population objectives of the South Central Nevada Sage Grouse Conservation Plan.

These contracted rangeland health assessments and recommendations would not be limited to, but would focus largely on, improving the condition of riparian meadow complexes that the South Central Planning Group believes are crucial to sage grouse population growth and stability.

The contractor would specifically investigate possibilities for instituting grazing systems for these two PMUs that would improve sage grouse habitat quality and that would also be workable for the livestock operators. The feasibility of a consensus grazing system is extremely important because it could lead to substantial habitat improvement much earlier than would be possible with the scheduled BLM rangeland health assessment and multiple use decision process.

The South Central Planning Group originally intended to contract a more ambitious and broad-scale rangeland health assessment that would have encompassed all impacts and issues: mining, OHV use, proliferation of roads, checkerboard land status/land exchange potential, predation, hunting/poaching, pinion-juniper encroachment, and fire. Lack of funding and support for such an effort however, leads us to a more tightly focused contract.

This not to say that the planning group is ignoring risks and impacts, but rather that the group will necessarily need to address many of these issues in-house. The group however, feels that it lacks expertise to assess grazing management. Moreover, the group is polarized over grazing issues, and an independent assessment of range condition, causes, and solutions is much more likely to be seen as unbiased.

5.8 Population Goal

The population goal for the Battle Mountain PMU is to create healthy, self-sustaining sage grouse populations that are well distributed throughout the species historic range. The objectives for achieving the population goal are shown in Table 5-3.

6 CORTEZ PMU

The preliminary data for the Cortez PMU has been compiled and a conservation plan has been drafted. The Cortez PMU write-up will be reviewed for consensus by the SCPT and affected parties.

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