BI-STATE ACTION PLAN

Past, Present, And Future Actions

FOR CONSERVATION OF THE GREATER SAGE-GROUSE BI-STATE DISTINCT POPULATION SEGMENT

March 15, 2012

Prepared For The:

Bi-State Executive Oversight Committee For Conservation of Greater Sage-Grouse

Prepared By The:

Bi-State Technical Advisory Committee Nevada and California

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EXECUTIVE SUMMARY

A collaborative approach for conservation of the Bi-State greater sage-grouse (*Centrocercus urophasianus)* was initiated in 2002 by the Bi-State Local Area Working Group (LAWG) under the guidance of the Nevada Governor's Sage Grouse Conservation Team. Over the past ten years, resource management agencies and stakeholders have implemented actions for long-term conservation of greater sage-grouse in the Bi-State area consistent with the *Greater Sage-Grouse Conservation Plan for the Bi-State Plan Area of Nevada and Eastern California* (2004). The collaborative partnerships and efforts stemming from the LAWG have had a positive influence on sage-grouse conservation and management decisions in the Bi-State area.

In December 2011, the Bi-State Executive Oversight Committee (EOC), which includes resource agency directors from the US Fish and Wildlife Service, Bureau of Land Management, US Forest Service, Natural Resources Conservation Service, US Geological Survey, Nevada Department of Wildlife, and California Department of Fish and Game, was formed to leverage collective resources and assemble the best technical talent to direct and prioritize future conservation actions to ensure consistent regulatory oversight and achieve long-term conservation of the Bi-State greater sage-grouse Distinct Population Segment (DPS).

Recognizing that conservation efforts were already underway, the EOC directed the Bi-State Technical Advisory Committee to prepare the Bi-State Action Plan to summarize and document the record of conservation actions that have been completed to mitigate threats to the Bi-State DPS since 2004. Some of the threats that have been mitigated by recent actions include:

Urbanization. Land acquisitions have brought approximately 6,000 acres of sage-grouse habitat throughout the Bi-State area into public ownership to ensure continued conservation of continuous blocks of healthy habitat. Future development on approximately 12,500 acres of private land has been restricted or prevented by recorded conservation easements.

Infrastructure – Roads and Fences. Approximately 260 miles of road have been permanently closed on forest lands throughout the Bi-State area. Seasonal road closures have been enforced during the breeding season to reduce human disturbance on more than 1,100 acres of breeding habitat. Fences have been removed or modified in specific areas to eliminate or reduce the risk of sage-grouse mortality and to enhance management of late brood meadow habitat.

Grazing – Livestock. Livestock grazing permits have been modified on 35 allotments covering more than one-million acres to include terms and conditions that benefit sage-grouse habitat by adjusting seasons of use, modifying permit number, and limiting use levels.

Grazing – Wild Horses. Four wild horse gathers have been conducted since 2004 to maintain horse populations at the appropriate management level.

Pinyon and Juniper Encroachment. More than 14,000 acres of public and private land have been treated to remove trees from historic sagebrush habitat to restore habitat quality and connectivity between populations and between seasonal ranges.

Wildfire. Fuel reduction projects have occurred on 2,200 aces to reduce wildfire ignition risks, reduce the risk of catastrophic wildfire and extreme fire behavior, and enhance the success of suppression during initial attack.

Small and Isolated Populations. Within the past ten years a strong collaborative effort between USGS, resource management agencies, and universities has focused research in the Bi-State area on documenting seasonal use areas, movement patterns, nest survival, brood survival, adult survival and the environmental factors that characterize variation in population vital rates. This knowledge is essential to the management of the small, localized breeding populations in the Bi-State area.

The second objective of the Bi-State Action Plan was to develop a comprehensive set of strategies, objectives, and actions to accomplish specific goals and objectives for effective long-term conservation of the Bi-State sage-grouse and their habitats.

The Bi-State Action Plan is designed to achieve conservation of sustainable habitats for the Bi-State DPS by prioritizing actions where the results will be most beneficial. The near-term focus will be on protecting continuous blocks of unfragmented habitat, restoring historic habitat that has been impacted by pinyon-juniper encroachment and wildfire, reestablishing habitat connectivity, and securing permanent habitat conservation of important private lands. At the landscape scale, emphasis will be placed on ecological functions. Resource management agencies will be moving forward immediately to continue ongoing work and initiate new projects without the scientific certainty that would be preferred.

To reduce uncertainty in the long-term, the Bi-State Science-Based Adaptive Management Plan (SAMP) approach will be used based on the results of comprehensive research and monitoring. Habitat monitoring will be standardized between resource agencies and linked to supporting agency decisions. The cornerstone of the SAMP is development of a Conservation Planning Tool (CPT) that incorporates predictive models to evaluate the effectiveness of completed conservation actions, validate population and habitat risk assumptions, and provide managers with quantitative science-based information for making risk-based decisions. The steps for development of the CPT include:

1. Capture and fit grouse with VHF or GPS transmitters.

2. Monitor collared grouse. Locate and monitor nests to determine nest fate (hatched, depredated, or abandoned), Monitor females with broods to determine locations used by broods and brood fate.

3. Measure vegetation and other characteristics at grouse relocation sites (sites used by grouse) and random sites (sites not used by grouse).

4. Acquire high-resolution imagery (e.g., 5-m RapidEye multispectral satellite). Use vegetation measurements to truth spectral classes for remote sensing and develop high-resolution land cover maps.

High resolution imagery and data from monitoring habitats and populations on the ground will be integrated into GIS and statistical analyses to provide accurate and predictive habitat maps and other tools to better refine plans and decisions to meet specific needs in each Population Management Unit. Updates to the CPT will be made on a continuing basis. As new information becomes available, the CPT may eventually allow future analysis of habitat sustainability and resilience under alternative environmental conditions related to climate change.

The Bi-State Plan identifies areas where regulatory effectiveness and consistency for discretionary agency actions can be improved. Recommended revisions to BLM and USFS manuals and management plans support effective conservation.

The Bi-State Action Plan will be implemented in a collaborative and scientifically sound manner. The Technical Advisory Committee will continue to provide leadership and encourage collaborative conservation approaches through continued involvement of the LAWG where private landowners and other stakeholders will be partners with state and federal resource management agencies. The Technical Advisory Committee and LAWG will develop an annual work plan each year based on updated risk assessments and assessments of completed actions that might influence habitat priorities and available funding. The work plans will also outline needed scientific support such as inventory, monitoring, and research.

We the undersigned, members of the Executive Oversight Committee for Conservation of the Bi-State Greater Sage-grouse DPS, have reviewed and concur with this Action Plan for conservation of the Bi-State sage-grouse Distinct Population Segment.

May 30, 2014

Ren Lohoefener, R8 Regional Director
US Fish and Wildlife Service Pacific Southwest Region

Ted Koch, Nevada State Director
US Fish and Wildlife Service

Ed Armenta, Forest Supervisor Inyo National Forest
US Forest Service

Bill Dunkelberger, Forest Supervisor Humboldt-Toiyabe National Forest
US Forest Service

Amy L. Lueders, Nevada State Director
Bureau of Land Management

James G. Kenna, California State Director
Bureau of Land Management

Bruce Peterson, Nevada Sate Conservationist
Natural Resources Conservation Service

Carlos Suarez, California State Conservationist
Natural Resources Conservation Service

Tony Wasley, Director
Nevada Department of Wildlife

Charles H. Bonham, Director
California Department of Fish and Game

Keith Miles, Western Ecological Research Center Acting Director
US Geological Survey

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RESOURCE CONCEPTS INC.
340 N. Minnesota St.
Carson City, NV 89701
(775) 883-1600
www.rci-nv.com

List Of Acronyms

BLM	Bureau of Land Management
CDFG	California Department of Fish and Game
CPT	Conservation Planning Tool
DOD	Department of Defense
DPS	Distinct Population Segment
EOC	Executive Oversight Committee
ESA	Endangered Species Act of 1973, as amended
FWS	United States Fish and Wildlife Service
GIS	Geographic Information System
HTNF	Humboldt-Toiyabe National Forest
INF	Inyo National Forest
LADWP	Los Angeles Department of Water and Power
LAWG	Local Area Working Group
LOP	Limited Operating Period
LTA	Long-term Average
LRMP	Land and Resource Management Plan (USFS)
MOU	Memorandum of Understanding
NDOW	Nevada Department of Wildlife
NDF	Nevada Division of Forestry
NRCS	Natural Resources Conservation Service
PMU	Population Management Unit
RMP	Resource Management Plan
RMRS	Rocky Mountain Research Station
RSF	Resource Selection Function
S & Gs	Standards and Guidelines
SAMP	Science-Based Adaptive Management Plan
SOP	Standard Operating Plan
ST	Strategy Team
TAC	Technical Advisory Team
USFS	United State Forest Service
USGS	United States Geological Survey
WNV	West Nile Virus
WUI	Wildland/Urban Interface

1.0 INTRODUCTION

In March 2010, the US Fish and Wildlife Service (FWS) determined that the Bi-State population of greater sage-grouse constitutes a valid Distinct Population Segment (DPS). This distinction allows the Bi-State DPS to be listed as threatened or endangered under the Endangered Species Act (ESA) independently from the range-wide population and allows conservation management of the Bi-State DPS to be planned and implemented independently from the range-wide sage-grouse planning approach.

In June 2000, Nevada Governor Kenny Guinn convened the **Nevada Governor's Sage Grouse Conservation Team** (Governor's Team) to provide a forum for coordinating a landscape level approach to greater sage-grouse conservation and management. The **Bi-State Local Area Working Group** (LAWG) was formed under the guidance of the Governor's Team. The LAWG includes biologists from the Bureau of Land Management (BLM), US Forest Service (USFS), Natural Resources Conservation Service (NRCS), Nevada Department of Wildlife (NDOW), Californian Department of Fish and Game (CDFG), Department of Defense (DOD), private property owners, and other key stakeholders such as Nevada Division of Forestry, California State Parks, University of Nevada Cooperative Extension, Nevada Wildlife Federation, US Geological Survey, Washoe Tribe of California and Nevada, and the Los Angeles Department of Water and Power. The Bi-State LAWG developed the first edition of the *Greater Sage-Grouse Conservation Plan for the Bi-State Plan Area of Nevada and Eastern California* in 2004 (2004 Plan). The 2004 Plan identified a strategy for sage-grouse conservation, identified and prioritized risks, and specified projects to address the risks as they were known at that time.

In 2011, an **Executive Oversight Committee for Greater Sage-Grouse Conservation, Bi-State DPS** (EOC) was formed consisting of the Directors of State and Federal land resource agencies in Nevada and California with regulatory authority in the Bi-State DPS area. Members of the EOC include the FWS R8 Regional Director, CDFG State Director, NDOW State Director, BLM California State Director, BLM Nevada State Director, USGS Western Ecological Research Center Director, NRCS California State Conservationist, NRCS Nevada State Conservationist, USFS R4 Forest Supervisor Humboldt-Toiyabe National Forest, USFS R5 Forest Supervisor Inyo National Forest. The purpose of the EOC according to the signed MOU (2012) is to provide a framework to facilitate interagency cooperation among the parties that will ensure a consistent and coordinated multi-jurisdictional effort to conserve greater sage-grouse populations and habitats based on population and habitat conservation goals rather than land ownership or jurisdictional boundaries. Among other things, each of the participating agencies agreed to:

1. Provide leadership representation on the Bi-State Executive Oversight Committee.

2. Provide staffing assistance and support to the Bi-State Strategy Team, the Bi-State Technical Advisory Team, and the Bi-State Local Area Working Group.

3. Share technical expertise and data regarding greater sage-grouse populations and habitats within the Bi-State DPS.

4. Identify and implement management actions that will provide for the long-term conservation of greater sage-grouse populations and habitats within the Bi-State DPS [area].

5. Support the review, update, and continued implementation of the Greater Sage-Grouse Conservation Plan for the Bi-State Plan Area of Nevada and Eastern California.

6. Consider the identification and implementation of greater sage-grouse conservation actions within the Bi-State DPS a priority for their agency.

In December 2011, the EOC assigned biologists from each of the participating agencies to form the **Technical Advisory Committee** (TAC)**.** Individual members of TAC are identified in Appendix A. The TAC is responsible for providing technical expertise and guidance, and identifying and prioritizing actions necessary for conservation of the Bi-State DPS sage-grouse. The TAC conservation recommendations, as they are understood at this time, are presented herein as the **Bi-State Action Plan** (Action Plan). The Action Plan was conceived as a "living document" that will be updated at a minimum of every three years with monitoring, inventory, and research results. The Action Plan incorporates a strategic, science-based adaptive management approach for future project planning based on development of a Conservation Planning Tool (CPT) for evaluation of the effectiveness of completed actions and updated analyses of specific risks to each life stage of the population.

Annual work plans for resource agencies will be prepared separately and coordinated through the EOC based on recommendations from the Bi-State TAC and LAWG, consistent with the Bi-State Strategic Action Plan (Section 7.0).

1.1 Purpose of the Bi-State Action Plan

This plan has been prepared to document the coordinated effort of the Bi-State TAC and their consensus on recommended strategies and actions for conservation of the Bi-State Greater Sage-grouse DPS. Conservation actions that have been completed for the Bi-State DPS by the participating agencies and landowners who belong to the Bi-State LAWG are compiled in this report as evidence of their past and continued commitment to implement the recommended actions from the 2004 Conservation Plan and to seize opportunities to execute additional conservation actions when opportunities arise.

The Bi-State Strategic Action Plan for ongoing and future conservation (Section 7.0) lays out a comprehensive framework of administrative actions, regulatory mechanisms, habitat improvement treatments, monitoring, and research actions in a science-based adaptive management approach. The overarching principle of the Bi-State Action Plan depends on development of the Conservation Planning Tool (CPT) for science-based evaluation of the effectiveness of completed actions, quantifying population vital rates, confirming population risk assumptions, validating seasonal use areas and habitat maps, and identifying priority locations for improving habitat connectivity and expanding available use areas to reduce habitat-based risks. (Details of the CPT are included in Section 6.5).

Recommended revisions and additions to federal agency regulatory mechanisms are provided to promote consistency in evaluating and permitting discretionary actions in sage-grouse habitat in the Bi-State area.

2.0 USFWS 2010 LISTING DECISION

On March 23, 2010 the FWS published their finding that listing the Bi-State DPS as threatened or endangered was warranted but precluded by higher priority listing actions; and as such was designated a candidate species (75 FR 13910). In response to a recent settlement agreement regarding the potential listing of more than 200 candidate species, the FWS is scheduled to issue a final rule regarding listing of the Bi-State DPS by September 2013.

2.1 Endangered Species Act Listing Factors And FWS Findings

The Endangered Species Act §424.11(c) identifies the basis for listing or reclassifying a species as threatened or endangered on the basis of the best scientific and commercial data available. The 2010 warranted, but precluded finding for the Bi-State DPS was driven by four of the five listing factors specified in the Endangered Species Act (49 FR 38908 §424.11). In the 2010 finding, the FWS identified the following concerns for the Bi-State DPS.

Factor A: Present or Threatened Destruction, Modification, or Curtailment of Habitat or Range

Urbanization, infrastructure (fences, powerlines, and roads), mining, energy development, grazing, invasive and exotic species, pinyon-juniper encroachment, recreation, wildfire, and the likely effects of climate change were the major threats to current and future destruction, modification, or curtailment of habitat in the Bi-State area. FWS acknowledged that individually, any one of these threats appears unlikely to severely affect persistence across the entire Bi-State DPS. Cumulatively, however, these threats interact in such a way as to fragment and isolate populations.

Factor B: Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

FWS did not find Factor B to be a significant threat to Bi-State DPS greater sage-grouse.

Factor C: Disease and Predation

Disease (West Nile virus) and predation facilitated by fences, powerlines, and roads, are threats in the Bi-State area. However, the impact is thought to be relatively low and localized at this time compared to other threats.

Factor D: Inadequacy of Existing Regulatory Mechanisms

The 2010 finding states that existing regulatory mechanisms appear to be implemented in a manner that is inconsistent with life history requirements, reaction to disturbances, and currently understood conservation needs. Existing regulatory mechanisms are ineffective at

ameliorating habitat-based threats and may not be able to address certain threats such as disease, drought, and fire.

Factor E: Other Natural or Manmade Factors Affecting the Species' Continued Existence

FWS found the small size and relative isolation of the Bi-State population to be problematic. When coupled with mortality stressors related to human activity and significant fluctuation in annual population size, long-term persistence of small populations is always problematic.

2.2 Summary of Actions Completed To Address The ESA Listing Factors

Actions and treatments that have been implemented on public and private lands to reduce threats to Bi-State sage-grouse populations and habitats are summarized in Table 1. The current database of actions completed within the Bi-State DPS is given in Appendix B.

Table 1. Conservation actions that have been completed for sage-grouse conservation in the Bi-State area.

RISK ADDRESSED Project Type	ESA Listing Factor[1]	Number of Projects	Miles (mi) or Acres (ac) Treated	PMU[2]
URBANIZATION				
Land Exchange/ Purchase/Donation	A	7	6,075 ac	B,DCF,MG,SM
Conservation Easements	A	15	12,538 ac	B,DCF,SM,WM
INFRASTRUCTURE				
Fences: Modification / Removal	A	4	78 mi	B,SM
Fences: Fence marking	A	5	5 mi	B,DC,MG
Tall Structures: Windmill Removal	A,C	2	n/a	B,SM
Roads: Permanent Road Closures	A,, D, E	9	262 mi	ALL
Roads: Permanent Road Closures	A	3	1,245 ac	SM
Roads: Seasonal Road Closures	A,	3	1,175 ac	SM
Powerlines: Removal	A,C	1	n/a	B
GRAZING				
Livestock Management: Permit Terms and Conditions	A, D	35	1,008,442ac	B,PN,SM
Livestock Facilities: Wildlife Ramps	A	2	n/a	B,DCF
Livestock Exclusion	A	14	54 ac	B,SM
Wild Horses: Herd Gathers and Contraception	A	5	n/a	B,MG,PN,SM
INVASIVE AND NOXIOUS SPECIES				
Invasive and Noxious Weed Control	A	3	90 ac	DCF,MG,PN, WM
PINYON-JUNIPER ENCROACHMENT				
Pinyon-Juniper Removal Mechanical and Burning	A, C	19	14,345 ac	B,DCF,PN, MG, SM
WILDFIRE				
Wildfire: Fuels Reduction	A	8	2,200 ac	PN
Wildfire: Fire Closure Crowley Lake 4th of July	A	1	8,163 ac	SM
Wildfire: Rehabilitation	A	6	5,565 ac	PN,SM

RISK ADDRESSED Project Type	ESA Listing Factor[1]	Number of Projects	Miles (mi) or Acres (ac) Treated	PMU[2]
HABITAT-BASED THREATS				
Riparian Meadow Quality: Livestock Exclusions	A	14	54 ac	B,SM
Riparian Meadow Quality: Irrigation	A	1	249 ac	B
Riparian Meadow Quality: Prescribed Fire	A	3	297 ac	B,DCF
Riparian Meadow Quality: Mechanical Treatments	A	3	45	B
Riparian Meadow Quality: Chemical Treatments	A	1	26ac	B

[1] USFWS Listing Factors
Factor A: Present of Threatened Destruction, Modification, or Curtailment of Habitat
Factor C: Disease and Predation
Factor D: Regulatory Mechanisms
Factor E: Other Natural of Manmade Factors Affecting the Species Continued Existence

[2] PN – Pine Nut PMU
DCF – Desert Creek-Fales PMU
B – Bodie PMU
MG – Mount Grant PMU
WH – White Mountains PMU

SM – South Mono PMU

Actions Completed To Address Factor A: Destruction, Modification, or Curtailment of Habitat

Urbanization

Conservation easements are legal agreements that restrict or prevent future development on private land. Fifteen conservation easements have been recorded in the Bi-State area for preservation of more than 12,500 acres of sage-grouse habitat.

Land acquisitions of approximately 6,000 acres by BLM, USFS, CDFG and the DOD have been made that resulted in public or state ownership or federal control of important sage-grouse habitat to ensure continued maintenance of high quality habitat conditions into the future.

Infrastructure-Fences

Fence removal and modification actions completed in the Bi-State area reduce the risk of direct mortality of sage-grouse from fence strikes. Approximately 78 miles of fence have been converted to let-down-style in four locations. Approximately five miles of fences have been marked with diverters to improve visibility of fences by sage-grouse during flight (Stevens et al. 2011). Two hog-wire livestock exclosures, one at Indian Spring in the South Mono PMU and another at Stringer Meadow in the Bodie PMU, were also converted to two-

strand barbed wire fences to improve sage-grouse access to nineteen acres of key brooding habitat in those areas.

Infrastructure-Roads

Seasonal and permanent road closures are enforced on all federal lands in the Bi-State area to reduce human disturbance during the sage-grouse breeding and nesting seasons. The Humboldt-Toiyabe and the Inyo National Forests have completed travel management planning that includes closure of approximately 260 miles of roads in the Bi-State area. All areas within PMUs are closed to off-road travel. Physical closure of the roads is ongoing. Permanent and seasonal road closures in the South Mono PMU protect an additional 2,400 acres of breeding habitat.

Grazing-Livestock

Livestock grazing on federal lands in the Bi-State area is managed by USFS and BLM. Livestock grazing permits on 35 allotments covering more than one-million acres throughout the Bi-State area have been updated to include terms and conditions that benefit sag-grouse and /or avoid impacts to grouse and their habitat by adjusting season of use, modifying permit numbers, and limiting utilization levels in upland and meadow habitat. All grazing permits within the Bi-State area are monitored annually to document utilization levels and permit compliance.

Escape ramps have been installed in 15 livestock water troughs in the Bodie and Desert Creek-Fales PMUs to provide sage-grouse safe access to developed water sources.

Grazing-Wild Horses

Four wild horse gathers have occurred since 2004 to restore horse populations to Appropriate Management Levels (AML). The most recent treatment used by Carson BLM for horse herd population control was contraception which was administered to mares in the Pine Nut HMA. Maintaining horse herds at AML has become increasingly difficult for BLM due to persistent legal actions from special interest groups and available funding.

A wild horse gather was conducted in 2007 by the INF in the Silver Peak and White Mountain Wild Horse Territories to maintain horse populations within the AML. A population survey conducted in 2009 by the Ridgecrest BLM confirmed that the wild horse population was still within AML. A wild horse gather in the Powell Mountain Horse Herd was conducted in 2009.

Invasive Species-Noxious Weeds

Weed treatment to eradicate and limit the spread of noxious weeds is occurring throughout the Bi-State area when infestations are discovered. Approximately 90 acres have been treated to date. Perennial pepperweed (*Lepidium latifolium)* control has been conducted along the East Walker River in Lyon County and in the Pine Nut PMU. Russian knapweed (*Acroptilon repens)* has been targeted in the Pine Nut and White Mountains PMUs. Iris (*Iris missouriensis)* control has been done in the Bodie PMU. INF has reduced populations of salt cedar (*Tamarix ramosissima)* and white sweet clover (*Melilotus alba*) in the White Mountains PMU.

Pinyon and Juniper Encroachment

Approximately 14,350 acres of rangeland encroached with pinyon juniper on nineteen project area have been treated to remove trees and reestablish sagebrush habitat. Projects have been conducted by the BLM and a permittee in the Pine Nut PMU; by private landowners and USFS in the Desert Creek PMU; by private landowners and BLM in the Bodie PMU; and by USFS in the Mount Grant and South Mono PMUs.

Wildfire Presuppression and Rehabilitation

Eight fuel reduction projects have been completed, or are in progress on 2,200 acres in the Pine Nut PMU. Fuel reduction treatments not only reduce ignition risks on the treated areas but also reduce the risk of extreme fire behavior that would jeopardize thousands of additional adjacent acres. Fuels reduction treatments in the wildland/urban interface reduce the threat of catastrophic wildfires spreading from urban areas into the wildlands.

In addition to limiting the risk of wildfire by removing pinyon and juniper, the Bishop BLM implemented a fire and fuels Interim Memo. This IM delineates the guidelines for wildfire suppression based on the location of key grouse habitat.

Approximately 5,565 acres of public and private land on six areas that were burned by wildfire within the Pine Nut and South Mono PMUs have been reseeded with native and adapted species to prevent cheatgrass invasion, reduce the threat of sagebrush habitat conversion to annual grassland, and reestablish sagebrush habitat.

Meadow and Sagebrush Habitat Condition

Meadow habitat condition has been improved on approximately 370 acres at seven project locations within the Bodie and Desert Creek-Fales PMUs. Various treatments have been used including mechanical removal of shrubs, chemical control of invasive species, and prescribed fire.

Actions Completed to Address Factor C: Disease and Predation

The Nevada Department of Agriculture has implemented a surveillance program to monitor the reemergence and spread of West Nile virus (WNV) in the state to assist state and local agencies in reducing the impact of this disease. Surveillance includes monitoring for WNV in wild and domestic horses, sentinel chicken flocks, migratory wildlife, dead Corvids and raptors, and mosquitoes throughout the state. (Nv Dept Ag 2012).

The *California Mosquito-borne Virus Surveillance and Response Plan* includes a comprehensive mosquito-borne disease surveillance program that has monitored mosquito abundance and mosquito-borne virus activity since 1969 and is an integral part of integrated mosquito management programs conducted by local mosquito and vector control agencies. Detection of arboviral transmission within bird populations is accomplished by 1) using caged chickens as sentinels and bleeding them routinely to detect viral antibodies (seroconversions), 2) collecting and bleeding wild birds to detect viral antibodies (seroprevalence), and 3) testing dead birds reported by the public for WNV. (Ca Dept Public Health 2011).

Predation on sage-grouse has not been quantified in the Bi-State area but ravens have been found to contribute to nest destruction. Pinyon and juniper removal and transmission line

removal in sage-grouse habitat reduces predation risks by removing avian predator perches in sagebrush habitat.

The Nevada Department of Wildlife (NDOW) currently holds a Federal Migratory Bird Depredation Permit that allows take of up to 2,000 common ravens for the protection of sage-grouse and other game bird species. Under the conditions of the permit, lethal take is not to be the primary means of control. Active hazing, harassment or other non-lethal techniques such as natural habitat improvement and modifications of anthropogenic artificial habitat provisions (such as transmission lines and landfills) must continue in conjunction with any lethal take of migratory birds. Other administrative stipulations in the permit include an annual report to the FWS Migratory Bird Permit Office identifying the county in which birds were taken, and a specific description of the damage or other interests harmed over the past year, and an estimate of economic loss suffered. Raven control could be considered under this permit in the Nevada portion of the Bi-State area if determined to be warranted by FWS.

Actions Completed to Address Factor E: Small and Isolated Populations

In the 2004 Plan, the lack of information about sage-grouse populations, movements, and habitat was identified as a risk factor for most PMUs. The prelude to sage-grouse management to sustain small populations is site-specific research and monitoring to gain knowledge of population vital rates, population risks, habitat selection factors, and the interaction of these factors.

Since 2004, applied research studies have been conducted in the Desert Creek-Fales, Mount Grant, Bodie; and White Mountains PMUs. Recently, NDOW, Carson BLM and USGS entered into a collaboration to study demographic rates and risks within the Pine Nut PMU. All research actions are a result of substantial field and laboratory efforts, which include radio-marking more than 100 sage-grouse and collecting thousands of telemetry points, conducting lek counts over four decades, surveying habitat at hundreds of plots at multiple spatial scales year-round, and using multiple software programs to conduct various Geographic Information System (GIS) and statistical analyses. Substantial funding has been provided by numerous sources and, collectively, the results have been instrumental in guiding management practices.

2.3 Summary of Research Completed in the Bi-State DPS

Scientific literature presenting research results from the Bi-State area that have been published in peer-reviewed journals and articles that are currently in review for publication in scientific journals are summarized below.

Casazza, M. L., P. S. Coates, and C. T. Overton. 2011. Linking habitat selection to brood success in greater sage-grouse. Pages 151 - 167 In Ecology, Conservation, and Management of Grouse, B. K. Sandercock, K. Martin, and G. Segelbacher (Eds.). University of California Press.

Objectives:

Use a multi-scale approach to identify habitat of sage-grouse broods. Estimate brood survival and identify factors that explain variation in survival estimates. Link fitness of sage-grouse to habitat based decisions.

Results and Management Implications:

Sage-grouse with broods selected areas with greater perennial forbs and higher plant species richness, and avoided areas encroached by Utah juniper *(Juniperus osteosperma)* and single leaf pinyon pine *(Pinus monophylla).* The probability of fledging a brood increased as sage-grouse females selected habitats with greater densities of perennial forbs and higher meadow edge (perimeter to edge ratio). These results suggest that land managers should discourage tree encroachment and preserve and enhance sagebrush stands interspersed with perennial forbs and a mixture of small upland meadows.

Gibson, R. M., V. C. Bleich, C. W. McCarthy, and T. L. Russi. 2011. Hunting lowers population size in greater sage-grouse. Pages 307 - 315 In Ecology, Conservation, and Management of Grouse, B. K. Sandercock, K. Martin, and G. Segelbacher (Eds.). University of California Press.

Objectives:

Examine the effects of hunting on population size of greater sage-grouse using a lek count time series from an intermittently hunted and relatively isolated population in eastern California (Long Valley, South Mono PMU).

Results and Management Implications:

The number of males on leks in the spring decreased significantly as harvest during the previous autumn increased. This pattern indicates that hunting mortality is additive and should *become* the default assumption for wildlife managers when setting hunting regulations for greater sage-grouse.

Kolada, E.J., J. S. Sedinger, and M. L. Casazza. 2009. Nest site selection by greater sage-grouse in Mono County, California. J. Wildl. Mng. 73:1333-1340.

Objective:

Identify microhabitat of nesting sage-grouse in the Bi-State DPS.

Results and Management Implications:

Nest sites were characterized by 42.4 percent (s.e.1.3.) shrub cover and this was substantially higher than randomly selected sites. Habitat selection in the Bi-State DPS differs from studies range-wide. Land managers in the Bi-State area should manage sage-grouse nesting habitat for higher shrub cover than currently called for in other parts of the

species' range (i.e. Connelly Guidelines). Management for sage-grouse habitat may need to be tied more closely to local conditions.

Kolada, E.J., M. L. Casazza, and J. S. Sedinger. 2009. Ecological factors influencing nest survival of greater sage-grouse in Mono County, California. J. Wildl. Mng. 73:1341-1347.

Objective:

Estimate nest survival and identify microhabitat factors that explain variation in survival estimates.

Results and Management Implications:

The overall nest survival estimate in Mono County was 43.4 percent. Percent cover of shrubs other than sagebrush was the variable most related to nest survival. Nest survival increased with increasing cover of shrubs other than sagebrush. A diversity of shrub species within sagebrush habitats may be important to sage-grouse nest success in Mono County.

Torregrosa, A., Casazza, M.L., Caldwell, M.R., Mathiasmeier, T.A., Morgan, P.M., Overton, C.T. 2010. Science in the public sphere; Greater Sage-grouse conservation planning from a transdisciplinary perspective: U.S. Geological Survey Open-File Report 2010-1049, 31 pp. [http://pubs.usgs.gov/of/2010/1049/].

Objective:

Conduct a genetic survey across 46 populations of over 1000 individuals using mitochondrial and nuclear data to determine genetically distinctive populations on the southwestern edge of the species' range.

Results and Management Implications:

Populations within Lyon County, Nevada, and Mono County, California, appear to be geographically isolated from other sage-grouse populations. Populations within those two counties were found to be sufficiently genetically distinct and warranted protection and management as a separate unit.

Bradbury, J. W., S. L. Vehrencamp, and R. M. Gibson. 1989a. Dispersion of displaying male sage grouse. Part I. Patterns of temporal variation. Behav. Ecol. Sociobiol. 24:1-14.

Objective:

Examine the distribution in lek sizes by males within three populations (Fales, Bodie, and Long Valley) in the Bi-State DPS and identify factors that explain lek size variation.

Results and Management Implications:

Variation in male attendance was correlated to weather variables, female attendance, and raptor harassment. Females were found to visit nest sites before visiting leks. Males appear to choose areas for lek settlement in areas with relatively high female traffic (hotspot

settlement). Managers should encourage protection and conservation of areas where females are most likely to occur to promote male dispersion of leks.

Farinha et al. 2012. *Greater sage-grouse survival in relation to habitat use, phenologically associated seasons and spatial variation in Mono County, California*. In Review.

Objective:

Examine the effects of individual habitat use on survival rates within the Bi-State DPS.

Results and Management Implications:

Annual survival varied among PMUs from 0.76 (s.e.0.08) to 0.15 (s.e. 0.10) and 0.88 (s.e. 0.06) to 0.40 (s.e.0.17) for adult and subadult females, respectively, and 0.08 (s.e. 0.08) to 0.68 (s.e.0.11) and 0.28 (s.e. 0.18) to 0.88 (s.e.0.06) for adult and subadult males, respectively. Survival was negatively related to areas with riparian zones used during the summer-fall season, singleleaf pinyon (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*) (pinyon-juniper), and non-sagebrush shrub. In addition, survival was lowest during the summer-fall season and greatest in winter. A reduction of tree encroachment and protection of water resources within sagebrush uplands would likely increase survival of local greater sage-grouse populations.

Coates et al. 2012. *Avoidance of pinyon pine and juniper tree encroachment into a sagebrush ecosystem by greater sage-grouse in the Bi-State area* (In Review).

Objective:

Monitor sage-grouse and identify sources of variation in the avoidance of conifers. Determine appropriate spatial scale. Identify the size of a patch of trees where evidence of avoidance was greatest.

Results and Management Implications:

Adult sage-grouse showed more evidence of avoiding trees than did yearling sage-grouse and this effect was strongest during the breeding season. Grouse avoided trees at the 159.2 ha (393 ac) scale. Management directed at preventing the width of a Phase I pinyon patch from exceeding 200 m in an area will likely reduce avoidance behavior of those areas by sage-grouse.

Coates et al. 2012. *Analysis of seasonal utilization distributions of sage-grouse in relation to lek sites: implications for regulating surface occupancy* (In Review)**.**

Objective:

Estimate the year-round probability of use using utilization distribution analyses and nest locations at differing buffered distances from a lek sites within the Bi-State DPS. Provide information to land managers as a basis for regulating surface occupancy.

Results and Management Implications:

Ninety five percent of the nests were located within 3.2 miles of leks and the proportion of utilization distributions encompassed diminished substantially after three miles. Land managers should be encouraged to regulate surface occupancy of energy development and other anthropogenic structures at up to approximately three miles to capture the most amount of year-round use by sage-grouse populations.

Wiechman Master's Thesis – University of Idaho. 2012*. Population demographics and movement patterns of sage-grouse in Mono County, California* (In Progress).

Objective:

Estimate population demographic parameters and identify patterns of space-use of radio-marked female grouse within the Bi-State DPS. Analyses to estimate population demographics are in progress. These analyses are focused on explaining variation in nest initiation, nest survival, brood survival (based on radio-marked chicks). Survival analysis will be conducted on females in the Bodie Hills and Long Valley subpopulations. Results will also include estimates of seasonal home-range sizes and links between vital rates and home-range estimation.

Tebbenkamp, Master's Thesis – University of Idaho, 2012. Landscape effects on genetic structure and vital rates of greater sage-grouse in Mono County, CA. (In Progress)**.**

Objective:

Investigate genetic structure and gene flow in Mono County and along the state border. Genetic samples were gathered from blood, eggs, feathers, and scat from 2007-2011 and will be used to: 1) Determine if levels of genetic diversity are associated with population trends and vital rates between subpopulations, 2) Determine if natural and anthropogenic landscape features within the Mono County population are affecting gene flow more than would be expected by an isolation by distance model, 3) Use genetic data to estimate the effective population size for subpopulations if there is limited gene flow between demes, 4) Evaluate the boundaries for the Population Management Units (PMUs) based on genetic structure and landscape genetic analysis.

3.0 BI-STATE DPS POPULATIONS

The Bi-State DPS comprises a genetically unique meta-population of greater sage-grouse that defines the far southwestern limit of the species' range. This genetic distinction may be the result of natural geologic events and subsequent long-term geographic isolation based on prevailing physiographic and habitat conditions.

The range of the Bi-State DPS occurs over an area approximately 170-miles long and up to 60 miles wide. It includes portions of five counties in western Nevada: Douglas, Lyon, Carson City, Mineral, and Esmeralda; and three counties in eastern California: Alpine, Mono, and Inyo.

The Bi-State DPS is characterized by available genetic, population, and habitat data as a genetically diverse, locally adapted meta-population consisting of several relatively small, localized breeding populations distributed among suitable sagebrush habitats throughout the Bi-State area. In 2001, the Nevada Governor's Sage-grouse Conservation Team delineated six Population Management Units (PMUs) in the Bi-State area as shown in Figure 1.

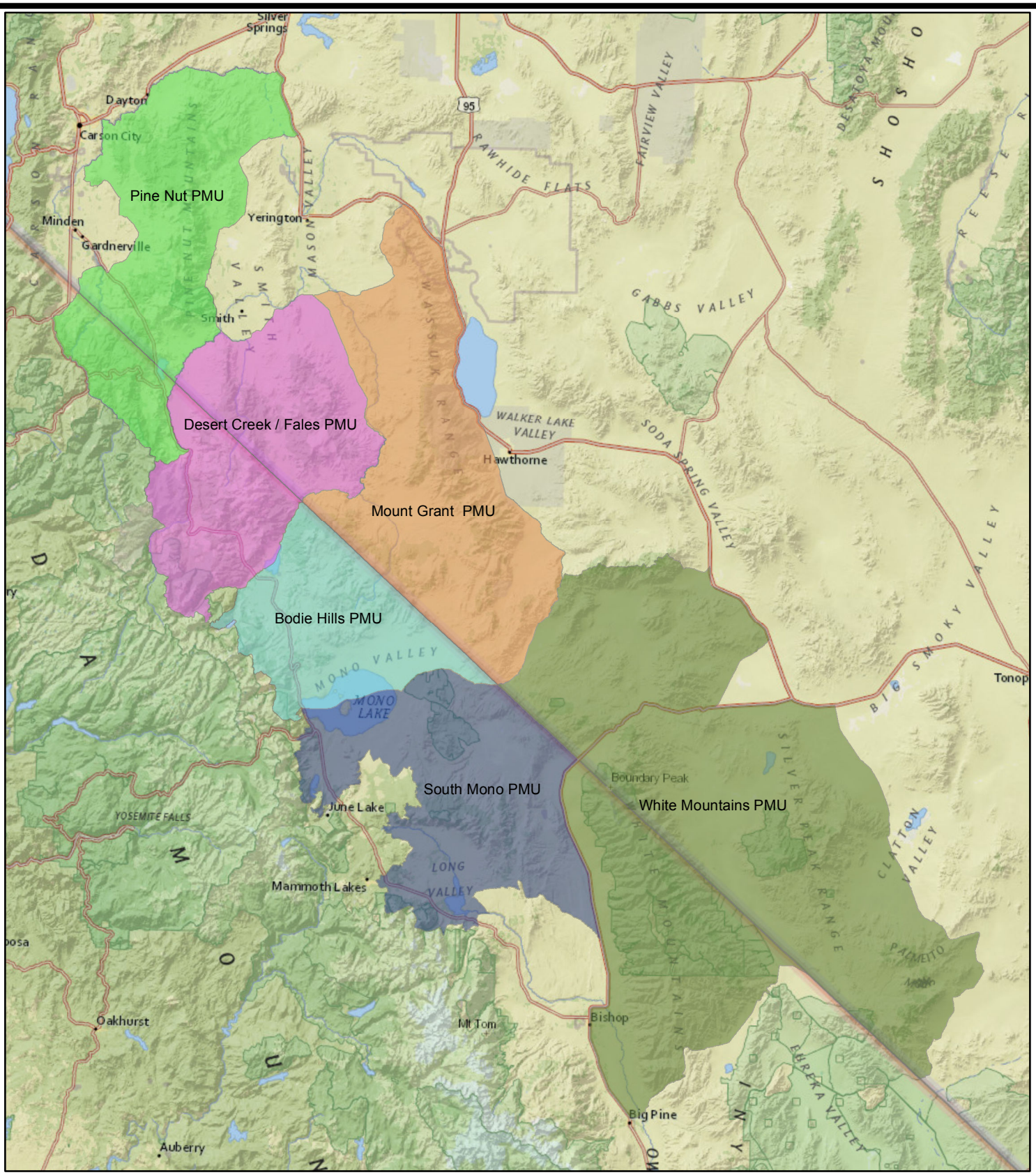
Two core sage-grouse populations, Bodie Hills and Long Valley, occur in the Mono County portion of the Bi-State area. These core areas annually comprise approximately 94 percent of all strutting males counted during annual lek surveys in California.

Public lands administered by the BLM and USFS and private lands in the Bi-State DPS area provide important habitat for populations of greater sage-grouse. Land ownership and extent are summarized in Table 2 for each PMU.

Wilderness Study Areas in the Bi-State area include the Burbank Canyon WSA in the Pine Nut PMU, the Bodie, Bodie Mountain and Mt Biedeman WSAs in the Bodie PMU, and the Silver Peak Range and Pigeon Spring WSAs in the White Mountains PMU. In 2009, approximately 206,760 acres of wilderness were designated as the White Mountain Wilderness on lands administered by the INF in the White Mountains PMUs.

Other special land use designations in the Bi-State area include Bodie State Park, the California Wildlife Management Area – Burcham-Wheeler Flats, Mono Basin Scenic Area, and Hawthorne Army Depot.

Wild horses and designated Herd Management Areas and Wild Horse Territories that occur throughout the Bi-State Area ate summarized in Table 3.



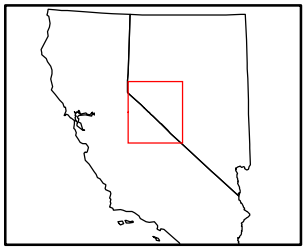


Figure 1

General Location of Population Managment Units (PMU)

Bi-State 2012 Action Plan

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Table 2. Population Management Units and land management status in the Bi-State DPS area.

PMU Name (In Geographic Order from North to South)	Size	Land Management / Ownership Distribution (acres)					
		BLM	USFS	Native American	Private	State / County	Dept. of Defense
Pine Nut	574,373	344,791	70,492	60,000 (approx.)	144,798	13,758	
Desert Creek - Fales	567,992	6,110	493,612		65,716	2,552	
Bodie	349,630	180,022	81,382	40	58,952	6,081	
Mount Grant	699,079	279,916	300,910	27,963	41,945		48,936
White Mountains	1,753,875	1,455,716	245,542		52,616		
South Mono	579,483	1200,775	312,084	441	17,662	3,944	

Table 3. Wild Horse Management Areas and Territories within the Bi-State area.

Herd Management Area (HMA) or Wild Horse Territory (WHT)	Location	Responsible Agency
Pine Nut Mountains HMA	Pine Nut PMU	Carson BLM
Wassuk HMA	Mt Grant PMU	Carson BLM
Montgomery Pass WHT	South Mono and White Mountains PMUs	INF
Powell Mountain WHT	Mount Grant PMU	HTNF
White Mountain WHT	White Mountains PMU	INF
Marietta Burro Range	White Mountains	Carson BLM
Fish Lake Valley HMA	White Mountains	Tonopah BLM
Piper Mountain HMA	White Mountains	Ridgecrest BLM

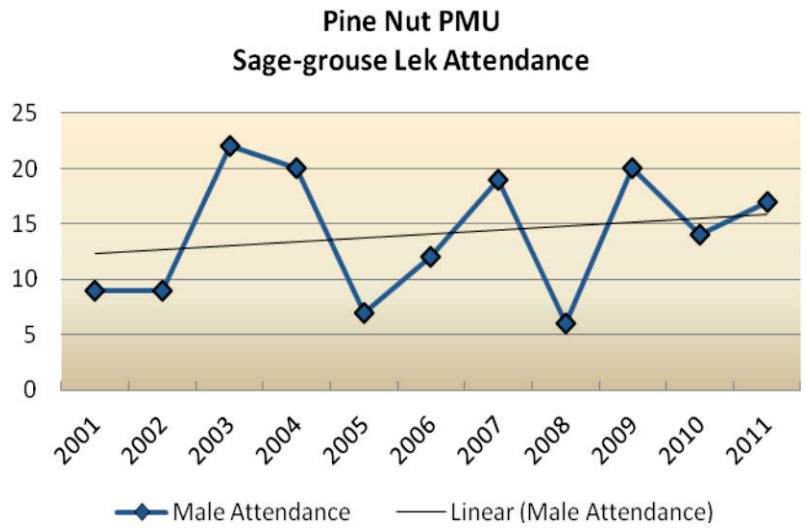
3.1 Pine Nut PMU

Population Summary

The Mill Canyon Dry Lake lek located in the northern portion of the Pine Nut Mountains is the only known, consistently reliable lek in the Pine Nut PMU. (This is a correction to the 2004 Plan). The long-term average (LTA) male attendance at this lek over the last 11 years is 14.1. The maximum number of 22 males was counted in 2003 and the minimum number of six males was counted in 2008. The 11-year data set is insufficient for making inferences on population trend. However, an increase in the number of males in attendance has been observed.

An ongoing telemetry study recently initiated by Carson BLM and USGS in the Pine Nut PMU indicates the potential for additional leks in the south-central part of the Pine Nut Mountains. Preliminary USGS data shows birds travel substantial distances (more than 20 miles) in June from the north Pine Nut Range to brood-rearing/summer habitat in the south Pine Nut Range. Exact movement corridors are not currently known. Intensive helicopter survey and inventory flights in 2012 may lead to the discovery of new leks in the south Pine Nuts.

Historically occupied sage-grouse habitat occurred in south western Storey County between Virginia City and Washoe Lake. NDOW biologists conducted brood surveys in the 1980s in the vicinity of McClellan Peak. This area has been burned numerous times by wildfire and no sage grouse have been seen here in recent years.



Risk Assessment

The risks and relative threat levels for the Pine Nut PMU are summarized in Table 4.

Wildfire, Pinyon-Juniper Encroachment, and Invasive Species

Wildfire and pinyon-juniper encroachment are considered relatively high risks in the Pine Nut PMU. Important nesting habitat near the Mill Canyon Dry Lake lek was burned during the 2007Adrian Fire. The potential for additional lightning-ignited wildfires is high. Pinyon-juniper encroachment into existing sagebrush habitats has reduced available nesting habitat, decreased habitat connectivity, and increased fuel loading and the overall risk of wildfire within the Pine Nut PMU. The synergistic effect of wildfire and pinyon-juniper encroachment substantially increases the risk of cheatgrass establishment and expansion in the PMU. As a result, the potential for cheatgrass invasion in the Pine Nut PMU is also considered to be relatively high risk. Wildfire history in the Pine Nut PMU is shown in Appendix C Figure C-1.

Energy Development

The potential for wind energy development in the Pine Nut Mountains is a relatively high risk for both direct and indirect mortality. An application to reauthorize a wind energy testing project area right-of-way is currently being processed within the Pine Nut PMU by Carson BLM. The proposed project area is approximately 4,000 acres. Currently there are three met towers in operation and four additional towers could be erected upon application approval. The project area and met tower sites overlap nesting, summer, and winter habitat for sage-grouse. The project area is more than five miles from the Mill Canyon lek in the north Pine Nut Range, but may be closer to an unknown but suspected lek in the south Pine Nut Range based on recent USGS information. Exact movement corridors between the breeding and nesting habitat around Mill Canyon and brood rearing habitat in the south Pine Nuts are not currently known, but the wind testing project area likely overlaps the movement corridor(s). Development into a wind energy facility would be a serious concern. Development activities would likely result in installation of associated infrastructure (transmission lines and roads) and increase threats such as habitat loss/modification, vehicle traffic, human disturbance, potential for road kill, introduction/expansion of invasive species, and an increase in avian predators.

Urbanization

Suburban and exurban development is also considered a relatively high risk in the Pine Nut PMU. The PMU is not characterized as “remote” or “rural.” The Hot Springs Range/Johnson Lane area just north of Gardnerville was once utilized by sage-grouse during certain times of the year; however, subdivision in this area has all but eliminated use of this area and sage-grouse are rarely, if ever, recorded there today. In addition to direct habitat loss, human activity associated with residential development has the potential to exacerbate other risks in the PMU. The presence of nearby subdivisions and associated OHV use, transmission lines, and roads increases the probability of wildfire, cheatgrass invasion, and human disturbance impacts.

Seasonal Habitat and Habitat Connectivity

The availability of quality nesting habitat, brood rearing/late-summer meadow habitat, and water are likely limiting factors in the Pine Nut PMU. Recent large scale wildfire and loss of habitat connectivity primarily due to woodland encroachment and urbanization both within the

PMU and with the Desert Creek-Fales PMU to the south is a concern for long-term conservation.

Disease and Predation

Predation likely poses the greatest risk of direct mortality to sage-grouse in the Pine Nut PMU. WNV is also considered a direct mortality risk to sage-grouse in the PMU. The relative threat level of WNV to the Pine Nut PMU will be determined from continued monitoring for this disease. Available population data indicate that the Pine Nut PMU supports the smallest sage-grouse breeding population in the Bi-State area and direct mortality factors likely pose a significant risk for the long-term conservation of sage-grouse in this PMU. Additional data need to be collected, but the current assumption that predation is a moderate to high risk within the Pine Nut PMU is reasonable.

Table 4. Risks and relative threat levels in the Pine Nut PMU.

RISK	THREAT LEVEL
Wildfire	High
Pinyon-Juniper Encroachment	High
Invasive Species - Cheatgrass	High
Urbanization-Human Disturbance (OHV)	High
Infrastructure (Linear)	High
Energy Development - Wind	High
Predation	Moderate
Grazing -Wild Horses	Moderate
Disease - West Nile Virus	To Be Determined
Grazing - Permitted Livestock	Low
Wind Energy Testing	Low

Examples of Completed Conservation Actions

The Carson BLM has completed several projects to reduce pinyon-juniper encroachment, hazardous fuels conditions, and address the risk of wildfire in the Pine Nut PMU. Approximately 7,370 acres have been treated for pinyon-juniper removal by mechanical treatment and prescribed fire. Fuel reduction treatments completed on approximately 3,600 acres in the wildland-urban interface (WUI) reduce the risk of fire escaping from residential areas into the Pine Nut Mountains. The Carson BLM also recently completed the NEPA analysis and decision for an additional 7,000 acres of pinyon juniper removal for the Buckskin Valley Vegetation Treatment Project. Archaeological clearances are still required prior to project implementation if heavy equipment is used. A NRCS EQIP contract was used to remove pinyon juniper on approximately 380 acres of the Buckskin Valley project area in 2011.

Working in cooperation with the California Department of Fish and Game (CDFG) and the California Deer Association, the Bishop BLM treated 1,148 acres of pinyon encroached

sagebrush steppe habitat in historic sage-grouse range within the Slinkard Valley Wildlife Area over the last few years.

Seeding projects for wildfire rehabilitation have been implemented to deter cheatgrass invasion and permanent conversion of sagebrush habitat to annual grassland. The Nevada Division of Forestry (NDF) recently seeded 1,000 acres of private land in the Ray May fire that burned into the Pine Nut PMU in the fall of 2011. Carson BLM seeded 1,902 acres of the Ray May fire in early February 2012. Locally collected sagebrush seed was seeded at a rate of 0.15 pounds per acre and mixed with other native and adapted grass and forb species. A minimum three-year establishment period is required following seeding to evaluate seeding success.

Priority Conservation Strategies

Substantial conservation benefits in the Pine Nut PMU would be realized through implementation of actions designed to:

1. Minimize large scale habitat loss due to wildfire by implementing fuel reduction treatments using greenstrips in strategic locations to protect sage-grouse habitat and by prioritizing sage-grouse habitat for aggressive initial attack;

2. Reseed burned sagebrush habitats in late fall or winter following fires and incorporate locally collected sagebrush seed whenever possible. Seeding should be timed to coincide with collection of annual crops of sagebrush seed which can be collected in late November to December. Sagebrush seed remains viable for one year;

3. Take additional steps to plant sagebrush islands in older burns where sagebrush has not reestablished to provide a seed source for natural seed dispersal and sagebrush expansion;

4. Treat pinyon-juniper encroachment in potential nesting and connectivity habitats and around historic springs and meadows where surface flows may be restored by tree removal;

5. Conserve and improve available meadow habitats to benefit late brood rearing;

6. Minimize direct habitat loss and increased human disturbance associated with OHV use; and

7. Maintain wild horse numbers at AML and within designated herd boundaries.

Additional benefits could be realized through implementation of conservation actions and measures designed to:

1. Control and minimize the spread of cheatgrass;

2. Reduce the impacts of current infrastructure;

3. Minimize potential sources of direct mortality;

4. Reduce human disturbance in important seasonal use areas; and
5. Improve grazing management practices in site-specific areas.

A general location map of the Pine Nut PMU is shown in Figure 2.

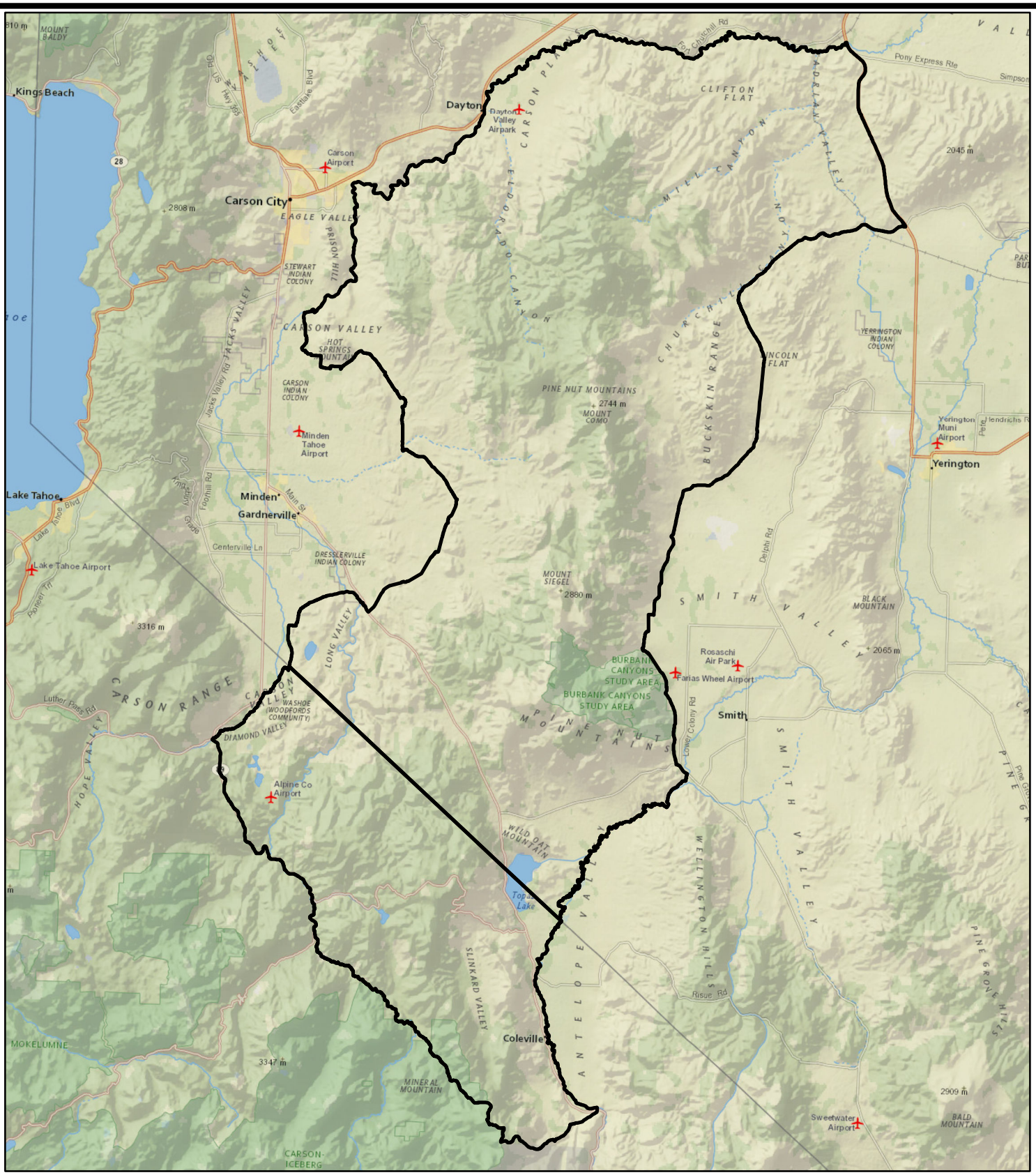


Figure 2

Pine Nut PMU

Bi-State 2012 Action Plan

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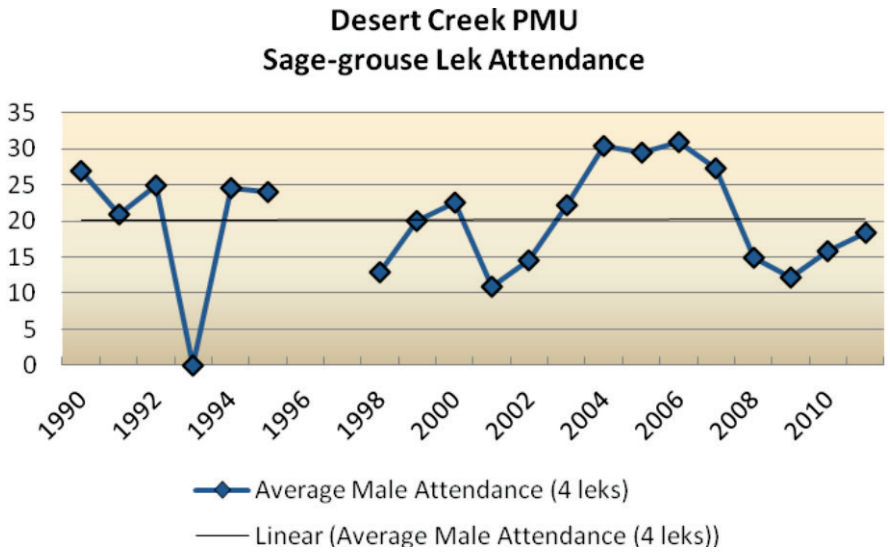
3.2 Desert Creek – Fales PMU

Population Summary - Nevada (Desert Creek)

There are four leks in the Desert Creek breeding complex. The LTA male attendance for all four leks is 24.2. In 2011, the average male attendance was 18.3, or 24.4 percent below the long-term average. A decrease in attendance at the Sweetwater #2 lek is concerning. In 2005 and 2006, 31 males and 30 males, respectively, were observed at the Sweetwater #2 lek. No males have been observed over the last two years and it is not clear why this lek has seemingly been abandoned.

The potential for additional undiscovered leks to occur in Desert Creek is high, especially within the upper elevations of the Pine Grove Hills. Intensive helicopter survey and inventory flights in 2012 may lead to the discovery of new leks.

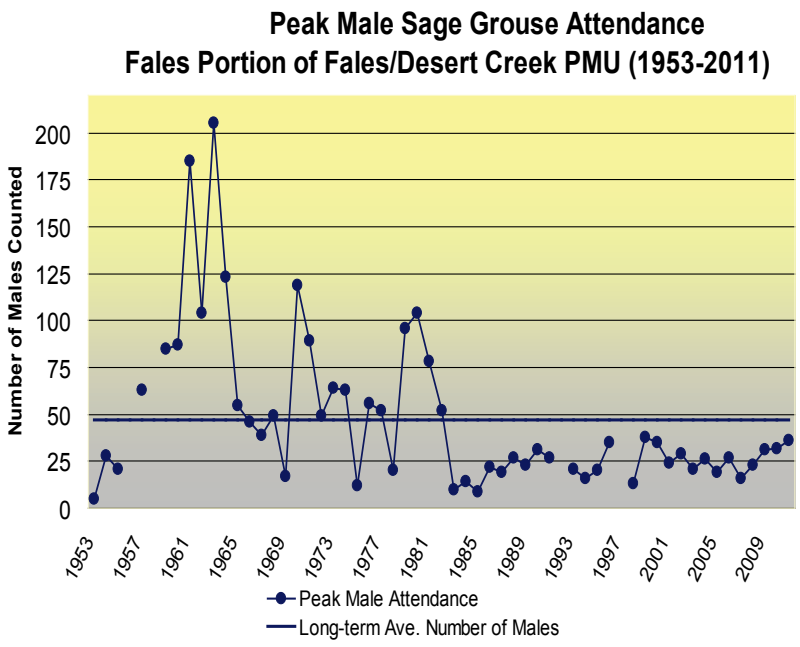


Population Trend - California (Fales)

The Fales portion of the Desert Creek-Fales PMU is located in northern Mono County in the general vicinity of Sonora Junction near the intersection of Highways 395 and 108. The Fales breeding complex includes two active and two inactive trend leks located on Burcham and Wheeler Flats. One lek occurs on Jackass Flat located in the extreme northeast corner of Mono County near the California-Nevada state line.

Initial population monitoring efforts in the Fales area began in 1953 with the counting of Lek #1. Lek #2 and Lek #3 were added to the survey in 1957 and Lek #4 in 1961. From 1953 to1980 the average number of males attending on all four leks was 78. The maximum count during this period was 205 males in 1963. Of these 205 males, nearly 50 percent were counted on Lek #1, located just 50 meters west of Highway 395. Annual male attendance on Lek #1 averaged 36 birds from 1957 to 1970. From 1971 to 1980 use declined to an average of nine males. By 1981, grouse use of Lek #1 had ceased entirely and no birds have been

observed on this lek since that time. From 1981 to 2011, after the disappearance of Lek #1, the average number of males counted within the Fales breeding complex was 27 birds. Lek #4 was last active in 2003 when one strutting male and three hens were observed. This lek became permanently inactive in 2006 when a home was built within 50 meters west of the lek. Recent peak male count data from the last decade suggests that although the Fales population is very small compared to historic levels, it has remained relatively stable.



Risk Assessment

The risks and relative threat levels for the Desert Creek-Fales PMU are summarized in Table 5.

Urbanization

Currently, many of the remaining lower elevation brood rearing/summer habitats occur on private lands predominately used for agricultural purposes. Because of proximity to Minden, Gardnerville and Smith Valley, these areas are subject to subdivision and ranchette development pressures. The conservation of many of the private ranches through the State Route (SR) 338 corridor is paramount to sage-grouse persistence because they provide the majority of the late-brood habitat within the Nevada portion of the PMU. As a result, changing land use and development is considered a relatively high risk, if not the highest risk in the Nevada portion of the Desert Creek-Fales PMU. Changing land use and development is also considered a relatively high risk in the California portion of the PMU, particularly in the vicinity of the Fales breeding complex where development has already adversely affected breeding habitat to some degree.

Pinyon-Juniper Encroachment

In the Desert Creek portion of the PMU, pinyon-juniper encroachment has occurred in both upper and lower elevations adversely affecting nesting and winter habitats. In many cases, pinyon-juniper encroachment has also decreased spring and riparian size, adversely affecting brood rearing/summer habitat quantity and quality. This reduction in brood rearing/summer habitat may have led to an almost complete reliance of sage-grouse on private irrigated meadows within the Nevada portion of the PMU. In California, pinyon-juniper encroachment is a significant risk in the Huntoon Valley (Swagger Creek) and Mount Jackson areas where connectivity with the Bodie PMU to south has likely been compromised.

Wildfire and Invasive Species

Overall, wildfire and invasive species currently pose a moderate risk in the Desert Creek portion of the PMU, with site-specific areas where these risks may be classified as high. Wildfire at the lower elevation valley bottoms and benches is considered a high risk. Extreme fuel hazard conditions occur on Humboldt-Toiyabe forest lands west of the Sweetwater Ranch. An ignition in this area and a wind-driven fire from the west or southwest could jeopardize existing sagebrush habitat near the Sweetwater Flat and Desert Creek breeding habitat. SR 338 and some exurban development increase human-caused ignition risk. Cheatgrass stands near Desert Creek lek #2 could potentially result in habitat conversion if a hot fire under dry conditions were to occur. Fire in the lower elevation valleys and benches would negatively affect sage-grouse habitat.

In the Fales area, wildfire is also considered a relatively high risk in the lower to mid-elevation areas of the PMU. The fuel load in the dense sagebrush-bitterbrush stands that provide the majority of quality nesting habitat in the Fales breeding complex are susceptible to a large scale fire event. A large fire in this area would likely have a significant adverse effect on the Fales breeding population. Cheatgrass, while present, is considered a relatively low risk in comparison to other factors in the California portion of the PMU at this time.

Human Disturbance and Infrastructure

The majority of known breeding and brood rearing habitat in the Desert Creek area is located along the SR 338 corridor and is easily accessible; therefore, human disturbance is also considered a relatively high risk. The Desert Creek Lek #2 also receives numerous visitations to the lek during breeding season. In the Fales area, existing linear infrastructure (transmission lines, roads and fences) contribute to human disturbance factors. Overall, human disturbance is likely a moderate risk in the Desert Creek-Fales PMU. It is currently unknown if human disturbance is having an adverse effect on sage-grouse vital rates within this population; however, additional planned radio telemetry research will help understand this more clearly.

Disease and Predation

Predation likely poses the greatest risk of direct mortality to sage-grouse in the Desert Creek-Fales PMU. West Nile virus is also a documented direct mortality risk in the PMU. Available population data indicate that the sage-grouse breeding population in the Desert Creek-Fales PMU is measurably reduced from historic levels, particularly in the Fales portion of the PMU. As a result, predation and disease likely pose a moderate risk to sage-grouse in the Desert Creek-Fales PMU.

Seasonal Habitat and Habitat Connectivity

The availability of brood rearing/late-summer meadow habitat is likely a limiting factor throughout the Desert Creek-Fales PMU. The availability of quality nesting habitat at the lower elevations, which is predominantly low sagebrush, may also be limiting in the Desert Creek portion of the PMU. Loss of habitat connectivity primarily due to woodland encroachment, both within the PMU, as well as with adjacent PMUs to the north (Pine Nut PMU) and the south (Bodie-Mount Grant PMUs) is a concern for long-term conservation.

Table 5. Risks and relative threat levels in the Desert Creek-Fales PMU.

RISK	THREAT LEVEL
Urbanization	High
Pinyon-Juniper Encroachment	High
Wildfire	High
Infrastructure (Linear)	High
Human Disturbance	Moderate
Predation	Moderate
Sagebrush Habitat Conditions	Moderate
West Nile Virus	Moderate
Invasive Species	Low
Grazing - Permitted Livestock	Low

Examples of Completed Conservation Actions

Projects in the Desert Creek PMU focused on the Sweetwater Summit area of the PMU. Pinyon and juniper were removed over a 3,000 acre area to improve breeding habitat on USFS lands. Additional projects to remove pinyon, juniper, and rabbitbrush were completed on private lands. Approximately three miles of fences adjacent to leks were marked to prevent grouse fatalities. Wildlife escape ramps were installed in all operational watering troughs on the USFS administered lands.

In October 2006, the State of California purchased 1,160 acres on Burcham and Wheeler Flats in northern Mono County for the protection of important sage-grouse habitat. The acquisition included sage-grouse breeding, brood rearing and wintering habitat encompassing the last two remaining active leks in the Fales portion of the PMU. The 1,160 acres will be protected into perpetuity and managed as a California State Wildlife Area to provide optimal benefits to sage-grouse and other wildlife.

In 2010, the DOD purchased 78 acres located near the junction of Highways 395 and 108 (Sonora Junction). Habitat on the property is comprised of a mixture of sagebrush scrub and wet meadow that provides important summer brood rearing habitat for sage-grouse. The land will be retained as open space. More than 400 acres of private land within the Desert Creek-Fales PMU has been protected by conservation easements.

Priority Conservation Strategies

Substantial conservation benefits would be realized in the Desert Creek-Fales PMU through actions designed to:

1. Minimize direct habitat loss due to development;
2. Treat pinyon-juniper encroachment in potential nesting and connectivity habitats and around historic springs where spring flow may be restored by tree removal;
3. Minimize large scale habitat loss due to wildfire by implementing fuel reduction treatments, using greenstrips in strategic locations to protect sage-grouse habitat, and by prioritizing sage-grouse habitat for aggressive initial attack;
4. Conserve and improve available meadow habitats and connectivity to them; and
5. Reduce human disturbance in key seasonal use areas.

Additional benefits could be realized through implementation of conservation measures designed to:

1. Reduce the impacts of current infrastructure;
2. Minimize potential sources of direct mortality;
3. Minimize the spread of noxious weeds and cheatgrass; and
4. Improve grazing management practices in site-specific areas.

A general location map of the Desert Creek-Fales PMU is shown in Figure 3.

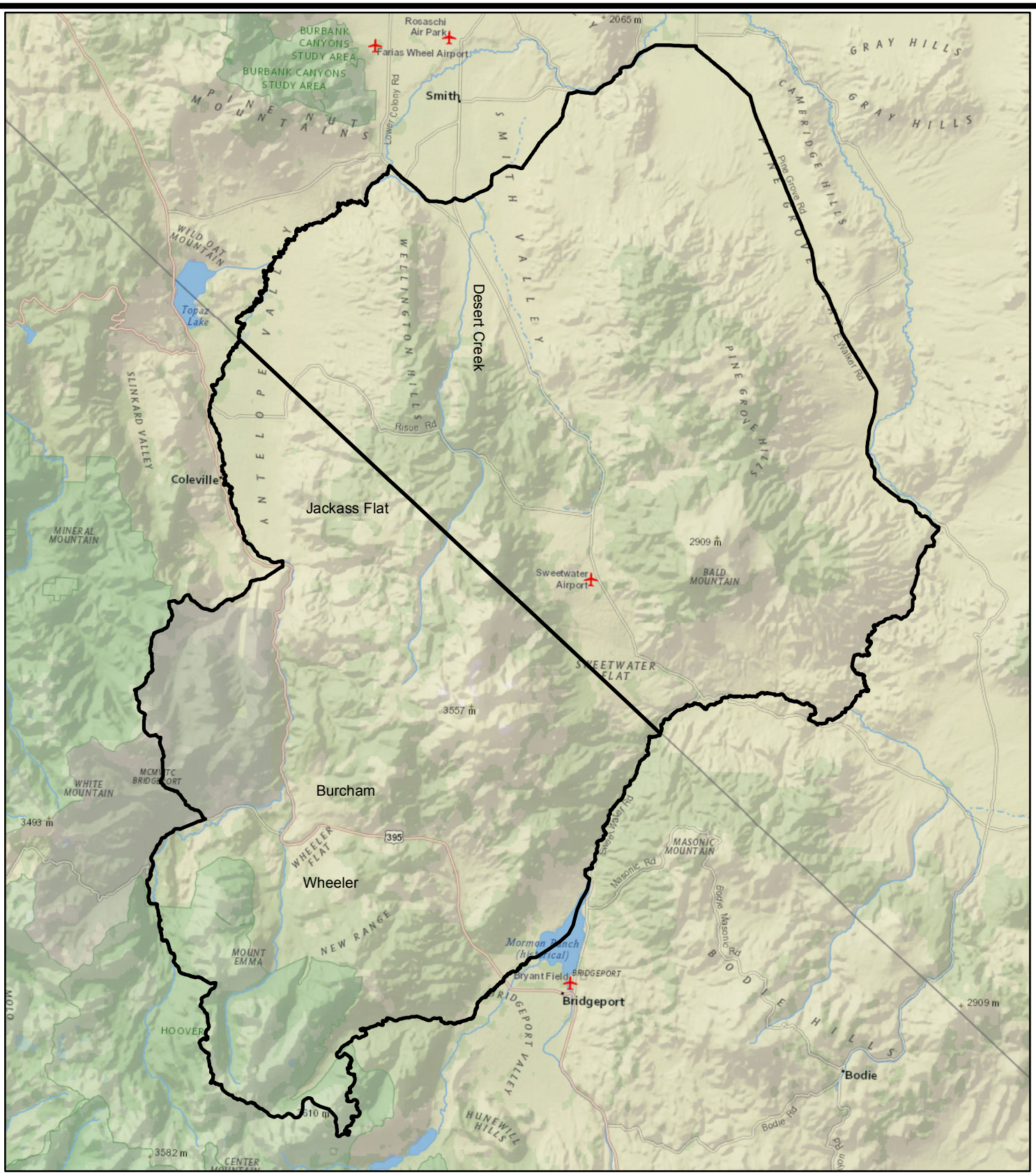


Figure 3

Desert Creek / Fales

Bi-State 2012 Action Plan

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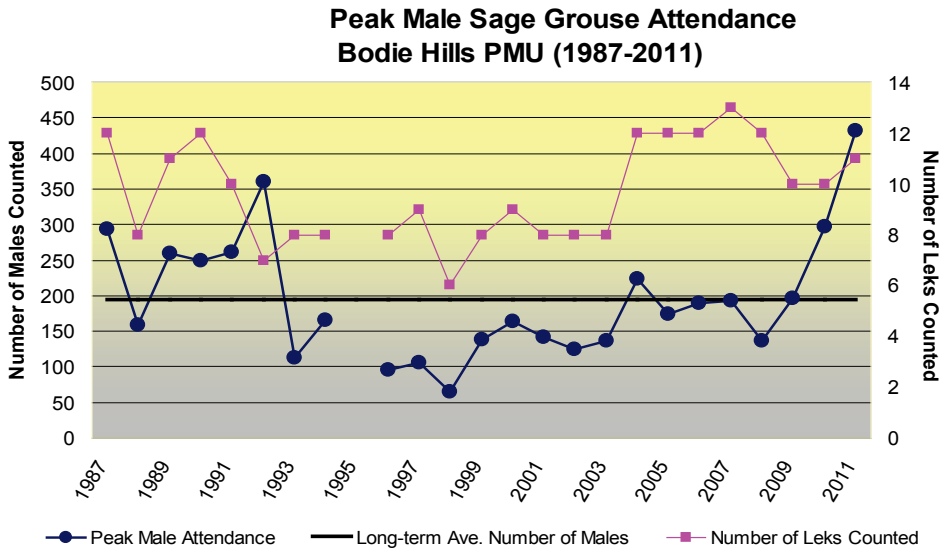
3.3 Bodie PMU

Population Trend

A total of eight dependable long-term leks and numerous associated satellite grounds have been identified in the Bodie PMU. The majority of these leks are located in the Bodie Hills east of Hwy 395. One trend lek and several satellite grounds occur west of the highway. The LTA peak male attendance for the period between 1987 and 2011 is 194 grouse counted on an average of 10 leks. A maximum count of 432 males from 13 leks occurred in 2011. The minimum count was 64 males counted on six leks in 1998.

The period from 1987 to 2011 is marked by four distinct population cycles. From 1989 to 1992, the trend in strutting males remained high, ranging from 128 to 185 percent of the LTA. Between 1993 and 2003 the trend was reversed when the average number of males ranged between 33 and 84 percent of the LTA. Between 2004 and 2009 the trend in strutting males remained relatively stable, fluctuating between 90 and 115 percent of the LTA. The period from 2010 to 2011 was characterized by peak male counts that ranged from 153 percent and 222 percent above the LTA. The 2011 count of 432 males was the highest peak male count recorded in the Bodie Hills since 1953. Lek count data for the period from 1987 to 2011 indicates that the Bodie Hills population has remained relatively stable.



Risk Assessment

The risks and relative threat levels for the Bodie PMU are summarized in Table 6.

Wildfire

Wildfire is considered a relatively high risk, if not the greatest risk, to sage-grouse habitat in the Bodie PMU. Wildfire history in the Bodie PMU is shown in Appendix C. Essentially all sagebrush associated habitats in the PMU are subject to some fire related risk and wildfire is recognized as a risk to several known sage-grouse seasonal use areas and important habitats in the PMU. The risk of natural ignition and large fires is generally restricted to the summer fire season (May-October). The risk of human caused fires is also greatest during the summer fire season. Recreational use and development in the wildland-urban interface contribute to the risk of human caused fires in the Bodie PMU. Habitat risks associated with uncontrolled fire include direct loss of important habitats, habitat fragmentation, and the potential for long-term changes in habitat quality.

Wildfire in recent years in the Bodie PMU has been limited and no large scale impacts to important sage-grouse habitats have been documented. No landscape scale fires have occurred over the last 40 years and even the largest contemporary burns in the PMU can be characterized as small (less than 1,000 acres). Nonetheless, the potential for a large uncontrolled wildfire to adversely affect important sage-grouse seasonal use areas is clearly recognized.

Invasive Species

Cheatgrass composition in some sagebrush habitats in the Bodie PMU adds to the risk of altered fire cycles and increased cheatgrass abundance in the event of wildfire. To date, no landscape scale fires or type conversion of sagebrush dominated habitats to non-native annual grasslands has occurred in the Bodie PMU. However, some limited risk of type conversion does exist, especially in the lower elevation Wyoming big sagebrush habitats adjacent to Bridgeport Valley. This risk is greatest on dryer, south and west facing slopes and sites where pinyon encroachment has increased the fuel hazard and the potential for a catastrophic wildfire.

Pinyon-Juniper Encroachment

Pinyon-juniper encroachment is also considered a relatively high risk in the Bodie PMU. Significant stands of pinyon, and to a lesser extent juniper, are found adjacent to several important sage-grouse use areas and habitat types in both the Bodie Hills and the Sierra Nevada portions of the PMU. Pinyon-juniper encroachment into currently occupied breeding, summer, fall and winter habitats is of most concern. Increased tree density and expansion into adjacent sagebrush habitat types that reduces habitat connectivity is also a concern. The increased fuel load from pinyon-juniper also increases the risk of a large catastrophic fire. The potential for long-term plant community type conversion following fire accentuate this risk in the Bodie PMU.

Infrastructure

There are no major, multi-line, high voltage utility corridors in the Bodie PMU, but several smaller utility lines currently exist in known important sage-grouse habitat use areas. Poles for above ground utility lines provide perches for avian predators and may cause sage-

grouse to avoid the immediate area where they are placed. Roads developed for the installation and maintenance of utility lines often result in the long-term direct loss of extended linear segments of habitat. The extent to which predators use utility poles as perches within the Bodie PMU is currently unknown, but sage-grouse may instinctively avoid such tall objects regardless of raptor activity. Utility lines may also cause direct mortality if sage-grouse strike the wires during flight. To date, no utility wire strikes have been documented in the Bodie PMU.

Fences are relatively common in, and adjacent to, a variety of sage-grouse habitats on both public and private lands within the Bodie PMU. The construction of new fences in the PMU is likely in the foreseeable future. Principal habitats of concern include lek, night roost, nesting, early brood, late brood and summer habitats. Poorly designed and sited fences can be detrimental to sage-grouse habitat quality. Though fence construction may not result in direct habitat loss, fences can cause sage-grouse to avoid traditional use areas and cause direct mortality due to fence strikes. Properly designed and sited fences are recognized as an important management tool that may be used to improve sage-grouse habitat quality.

Urbanization

Similar to existing infrastructure, land use change and development is currently considered a moderate risk in the Bodie PMU. To date, the extent of habitat loss and fragmentation attributable to land use change and development in the PMU has been limited. Private lands are scattered throughout the PMU and include all sage-grouse habitat types. The existing land ownership pattern is a result of historic ranch settlement and mining, with numerous, often small and isolated, private parcels distributed throughout the PMU. Many of the private parcels in the PMU are associated with perennial water and provide important sage-grouse habitat. The largest block of private land occurs in Bridgeport Valley. The majority of private lands in the PMU are still characterized as rangeland and the potential for commercial, residential or recreational development of these private rangelands is a concern for sage-grouse conservation. In addition to the direct loss of habitat that could occur from development, the construction of roads, fences, utility lines and other infrastructure required to support such development would magnify the extent of habitat loss and fragmentation.

Seasonal Habitat and Habitat Connectivity

The availability of brood rearing/late-summer meadow habitat is likely a limiting factor in the Bodie PMU. The availability of early brood rearing habitat due to dominance of late-seral shrub communities is also potentially limiting. Loss of habitat connectivity primarily due to pinyon-juniper encroachment, both within the PMU, as well as with adjacent PMUs to the north (Desert-Creek Fales PMU), east (Mount Grant PMU), and south (South Mono PMU) is a concern for long-term conservation.

Disease and Predation

Predation likely poses the greatest risk of direct mortality to sage-grouse in the Bodie PMU. West Nile virus and fence strikes are also documented direct mortality risks in the PMU. Licensed hunting contributes an additional direct mortality in the PMU; however, the level of take is heavily regulated and not considered to be a risk to the population at this time.

Table 6. Risks and relative threat levels in the Bodie PMU.

RISK	THREAT LEVEL
Wildfire	High
Pinyon - Juniper Encroachment	High
Existing Infrastructure (Linear)	Moderate
Urbanization	Moderate
Invasive Species – Cheatgrass	Low
Mineral Exploration and Development	Low
Predation	Low
Grazing - Wild Horses	Low
Grazing - Permitted Livestock	Low
West Nile Virus	Low
Licensed Hunting	Low
Recreation	Low

Examples of Completed Conservation Actions

The Bishop BLM has completed numerous projects to address pinyon-juniper encroachment and wildfire in the Bodie PMU. In 2010 alone approximately 1,163 acres of pinyon-juniper encroached sagebrush steppe was treated to remove encroaching trees and improve nesting, roosting, brooding, and connectivity habitat in the Bodie PMU. Treatments occurred on 870 acres in the vicinity of the Lower Summers Meadow-Stringer Meadow lek complex in the western portion of the PMU, and 293 acres of sagebrush habitat improvement in the upper Aurora Canyon/Big Flat vicinity in the north part of the Bodie PMU.

An existing electric fence along upper Bodie Creek was replaced with a “grouse friendly” let-down barbed wire fence designed to improve livestock control and enhance brooding habitat on 43 acres of riparian meadow. Bishop BLM continues to perform annual maintenance on let-down barbed wire fences that are used to exclude livestock from several small spring-associated meadows that provide important late-brood and summer habitat for sage-grouse in the Bodie PMU. The Bishop BLM also actively irrigates approximately 250 acres of important brood rearing habitat on Kirkwood Meadow in the western portion of the PMU. Additional meadow habitat restoration work has occurred on private lands in the Aurora Canyon, Mormon Meadows, and Warm Springs areas.

Priority Conservation Strategies

Substantial conservation benefits would be realized in the Bodie PMU through actions designed to:

1. Minimize large scale habitat loss due to wildfire by implementing fuel reduction treatments using greenstrips in strategic locations to protect sage-grouse habitat, and by prioritizing sage-grouse habitat for aggressive initial attack;

2. Treat pinyon-juniper encroachment in potential nesting and connectivity habitats;
3. Conserve and improve available meadow habitats;
4. Reduce the impacts of current infrastructure; and
5. Minimize direct habitat loss due to changing land use and potential exurban development.

Additional benefits could be realized through implementation of actions designed to:

1. Minimize the spread of noxious weeds;
2. Provide early to mid-seral shrub communities in targeted areas;
3. Maintain wild horse numbers at AML and within designated territory boundaries;
4. Improve grazing management practices in site-specific areas;
5. Minimize potential sources of direct mortality; and
6. Reduce human disturbance in key seasonal use areas.

A general location map of the Bodie PMU is shown in Figure 4.

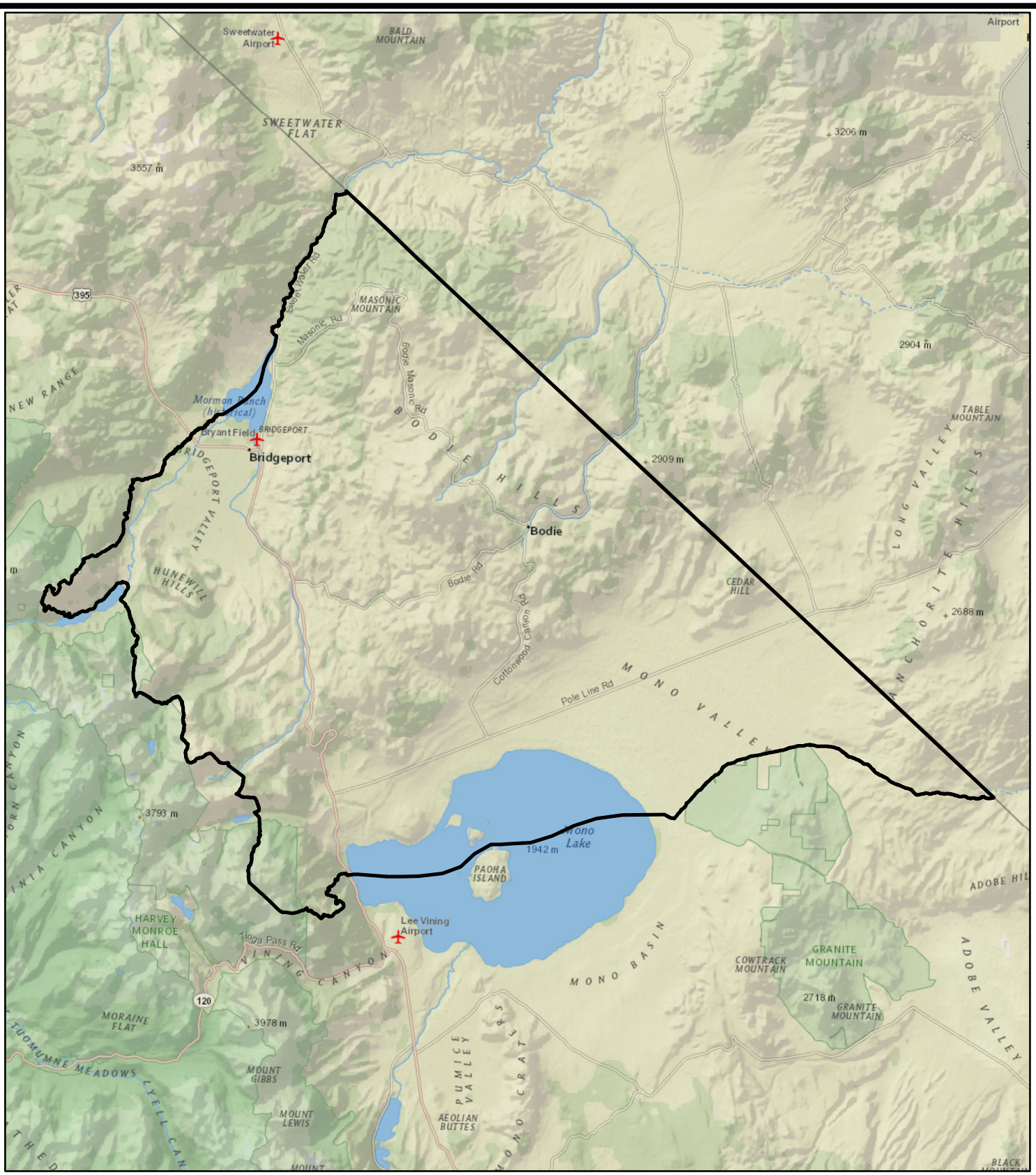


Figure 4

Bodie Hills PMU

Bi-State 2012 Action Plan

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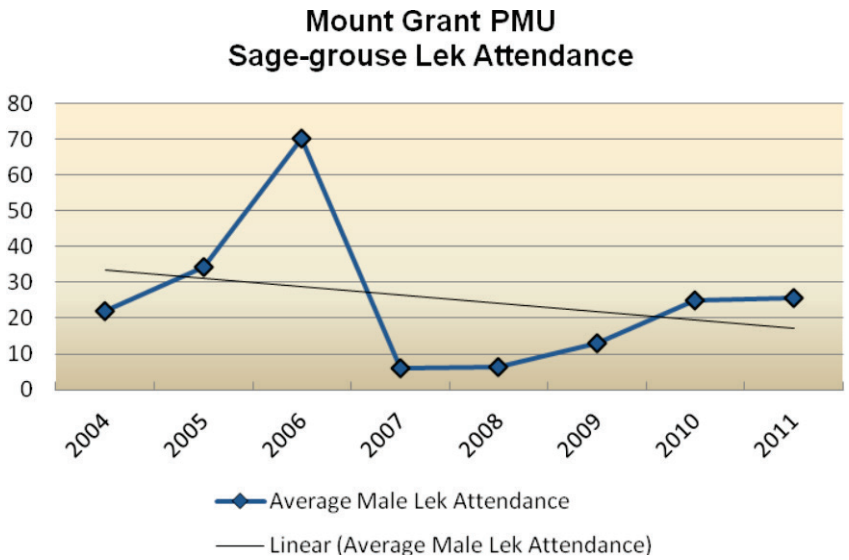
3.4 Mount Grant

PMU Population Summary

The Mount Grant PMU is used in conjunction with the Bodie PMU. A portion of the sage-grouse population that inhabits the Bodie Hills in California, utilize habitats in Nevada during the winter. There are three reliable leks in the Mount Grant PMU that have been counted annually from 2004 through 2011. The LTA for this time period is 20.6 males per lek.

The largest known active lek in the Mount Grant PMU is the Aurora lek situated between Aurora Peak and the Brawley Peaks along the Nevada-California border. The average attendance at this lek is 24.8 males. The maximum number of 94 males was observed in 2006. Fifty-two male sage-grouse were observed in 2011. This lek is difficult to survey because of its high elevation and limited vehicle access due to snow and mud. It is normally surveyed by helicopter.

Five lek locations have been identified in the Wassuk Range through helicopter survey, but are currently unsubstantiated as there have been just two years with positive data recorded for these leks (2005 and 2006). Intensive helicopter survey and inventory flights in 2012 may verify these lek locations and lead to the discovery of new leks.



Risk Assessment

The risks and relative threat levels for the Mount Grant PMU are summarized in Table 7.

Wildfire

Wildfire is considered a relatively high risk, especially in the lower elevations of the Mount Grant PMU. Wildfire history in the Mount Grant PMU is included in Appendix C. In the vicinity of China Camp and Nine-Mile Flat, the risk of fire is exacerbated by the presence of cheatgrass and pinyon-juniper encroachment. The low elevation and aridity of the area increase the challenge of successful post fire restoration. Like the Desert Creek-Fales PMU, upper elevation fires within pinyon-juniper encroached mountain big sagebrush sites may improve sage-grouse habitat over the long-term.

Pinyon-Juniper Encroachment

Pinyon-juniper encroachment into sagebrush habitat is considered a relatively high risk in the Mount Grant PMU. Pinyon-juniper encroachment presents a high risk in several lower elevation sagebrush habitats and transitional zones, particularly between the Bodie Hills and the East Walker River, China Camp, lower Rough Creek, and lower Bodie Creek. Some upper elevation habitats (e.g., Aurora lek and Baldwin Canyon) have also been impacted by pinyon-juniper encroachment. An on-going project at China Camp has been implemented to help alleviate this threat.

Mining and Renewable Energy Development

On-going mining and potential geothermal development pose relatively high risks in the Mount Grant PMU. Existing activities associated with the current ore processing facility at Aurora have already contributed to the development of additional transmission lines and increased vehicle traffic in portions of the PMU that are important to sage-grouse. A proposed clay mine near the East Fork of the Walker River and potential geothermal leasing and development activities in the same general area are likely to increase indirect threats such as increased vehicle traffic, potential for road kill, and a subsequent increase in avian predators. Associated infrastructure (roads and transmission lines) would further contribute to the current risk level.

Human Disturbance

Military activities on the portion of the Hawthorne Army Depot within the Wassuk Range have the potential to be a risk to sage-grouse populations seasonally. Increased human activity during certain times of the year could affect use patterns and may affect survival; however, no empirical data exist to scientifically defend this argument.

Seasonal Habitats and Habitat Connectivity

In the lower elevations of the Mount Grant PMU, the availability of quality nesting and brood rearing habitat are likely limiting factors. Habitat quality and productivity is better in the upper elevations of the PMU, especially near Mount Grant and Lapon Meadows, but is limited in overall extent. Loss of habitat connectivity primarily due to pinyon-juniper encroachment, both within the PMU, as well as with adjacent PMUs to the north (Desert-Creek Fales PMU) and the west (Bodie PMU) is a concern for long-term conservation.

Disease and Predation

Predation likely poses the greatest risk of direct mortality to sage-grouse in the Mount Grant PMU. West Nile virus is also considered a direct mortality risk to sage-grouse in the PMU. Poaching may also be a source of direct mortality in the PMU, although the level of take is believed to be low at this time. Available population data do not provide a clear indication of the current status or trend for the sage-grouse breeding population in the Mount Grant PMU.

Table 7. Risks and relative threat levels in the Mount Grant PMU.

RISK	THREAT LEVEL
Wildfire	High
Pinyon-Juniper Encroachment	High
Infrastructure (Linear)	High
Mineral Exploration and Development	High
Geothermal Leasing and Development	High
Invasive Species - Cheatgrass	Moderate
Grazing - Wild Horses	Moderate
Poaching	Low
Grazing - Permitted Livestock	Low
Predation	Low
West Nile Virus	Low
Recreation	Low
Human Disturbance	Low

Examples of Completed Conservation Actions

The China Camp Project (700 acres) was designed to address pinyon and juniper encroachment and wildfire threats by removing pinyon in and near breeding and brood rearing habitat. Implementation began in 2009 and is ongoing. In that same area, approximately one mile of fence was marked with flight diverters to reduce the strike hazard. Eighty horses were gathered in the Powell Mountain Wild Horse Territory. The USFS travel management plan closed 128 miles of roads in the Mount Grant PMU. Physical closure of the roads is ongoing. Travel management also closed the entire USFS portion of the Mount Grant PMU to off-road travel.

Priority Conservation Strategies

Substantial conservation benefits would be realized in the Mount Grant PMU through actions designed to:

1. Minimize large scale habitat loss due to wildfire by implementing fuel reduction treatments, using greenstrips in strategic locations to protect sage-grouse habitat, and by prioritizing sage-grouse habitat for aggressive initial attack;

2. Minimize direct habitat loss and disturbance due to mineral and geothermal development;

3. Conserve and improve available meadow habitats;

4. Treat pinyon-juniper encroachment to increase the availability of nesting habitat especially at lower elevations and to facilitate connectivity within and among populations; and

5. Reduce the impacts of current infrastructure.

Additional benefits could be realized through implementation of conservation measures designed to:

1. Minimize the spread of noxious weeds;

2. Maintain wild horse numbers at AML and within designated territory boundaries;

3. Improve grazing management practices in site-specific areas;

4. Reduce human disturbance in key seasonal use areas; and

5. Minimize potential sources of direct mortality.

A general location map of the Mount Grant PMU is shown in Figure 5.

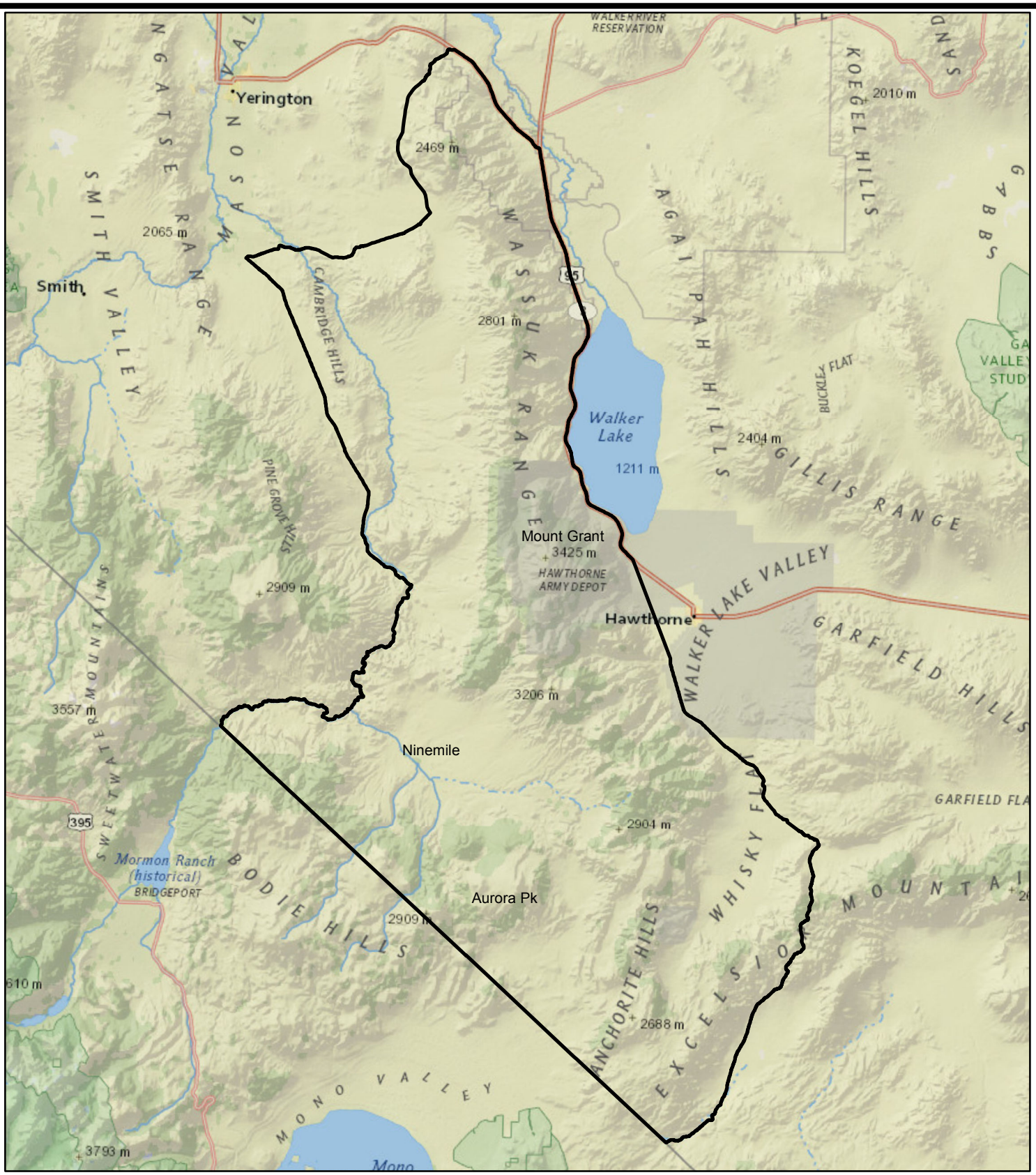


Figure 5

Mount Grant PMU

Bi-State 2012 Action Plan

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3.5 White Mountains

Population Summary

CDFG conducted lek discovery helicopter flights in the White Mountains PMU in March 2006 and again in April 2008. During the March 2006 flight, a total of 206 sage-grouse (males and females) were observed. Grouse were observed in high elevation (2,875 meters) sagebrush scrub habitat located in the vicinity of Bucks Peak, Red Peak, Iron Mountain, Tres Plumas Flat, and Chatovitch Flat. Because it was still early in the breeding season and snow conditions were quite deep, these observations do not necessarily reflect the locations of lek sites. In April 2008, a total of 33 grouse were observed southwest of Crooked Creek in the vicinity of Sagehen Flat and Blanco Mountain. Intensive helicopter survey and inventory flights in 2012 may lead identification of active leks.

Risk Assessment

The risks and relative threat levels for the White Mountains PMU are summarized in Table 8.

Pinyon-Juniper Encroachment

Pinyon-juniper encroachment into suitable nesting, brood-rearing, and potential wintering habitat is currently considered the highest risk in the White Mountains PMU. Notable levels of pinyon-juniper encroachment have occurred in the Trail Canyon, Sagehen Flats, Kennedy Flat, Mustang Mountain, McBride Flat, Sagehen Spring, Truman Meadows, and Palmetto Mountain areas. Pinyon-juniper encroachment likely restricts sage-grouse movement between these areas, as well as between known high elevation summer habitat and potential low elevation winter habitat. Pinyon-juniper encroachment may also be adversely affecting connectivity with occupied habitat to the north in the South Mono PMU.

Wild Horses

Wild horses occur within the White Mountains PMU in both the White Mountains and the Truman Meadows areas. Excessive wild horse use can reduce both the quality and quantity of meadow and spring areas suitable for brood-rearing and summer habitat. Concentrated wild horse use can also cause potential disturbance in nesting habitat. In the White Mountains, wild horse numbers are currently at or just above AML and this population is expected to increase over time. In the lower Trail Canyon and Rock Creek areas, wild horse use may be having impacts on breeding and early rearing habitat and is considered a moderate risk at this time.

Wild horses in the Truman Meadows portion of the White Mountains PMU are part of the Montgomery Pass Herd. Available data indicate that this herd has increased in both numbers and overall range during the past 25 years. Currently available information also indicates that sage-grouse may have been extirpated from this area. A notable increase in pinyon-juniper extent and density combined with known wild horse use are the only documented risks that may have adversely affected sage-grouse in this portion of the White Mountains PMU. As a result, wild horse use may have been a relatively high risk to sage-grouse in this area.

Wildfire

To date, large scale wildfire has not occurred in the White Mountains PMU. Wildfire history in the White Mountains PMU is included in Appendix C. While the upper elevations of the White Mountains above tree line are considered to be relatively resistant to large scale wildfire; fire is considered to be a relatively high risk in the lower elevations of the PMU, particularly in Wyoming big sagebrush habitat and areas of increased fuel load from pinyon-juniper encroachment. Wildfire in these lower elevation areas has the potential to spread into known occupied and potential sage-grouse habitat under extreme fire behavior. Wildfire may also lead to the spread of invasive species such as cheatgrass. Overall, wildfire is considered a moderate risk in the White Mountains PMU at this time.

Urbanization

Development is also considered a moderate risk in the White Mountains PMU at this time. Some development has occurred in the lower elevations of Chiatovich Creek creating many roads and housing pads that have fragmented potential sage-grouse habitat. Development in the lower elevations of the PMU has led to direct habitat loss and fragmentation along with the introduction of predators (i.e. pets and ravens).

Invasive Species

Conversion of sagebrush habitat to annual grasses, such as cheatgrass, is currently a low risk in the White Mountains PMU. While cheatgrass does occur in the lower elevations of this PMU; no large-scale fires have occurred in this PMU which have led to habitat conversion.

Table 8. Risks and relative threat levels in the White Mountains PMU.

RISK	THREAT LEVEL
Pinyon-Juniper Encroachment	High
Grazing - Wild Horses	Moderate
Wildfire	Moderate
Urbanization	Moderate
Invasive Species - Cheatgrass	Low
Infrastructure	Low
Predation	Low
West Nile Virus	Low
Grazing - Permitted Livestock	Low
Human Disturbance	Low
Energy Development - Wind	Low

Examples of Completed Conservation Actions

Projects that have been completed in the White Mountains PMU focus primarily on recreation, livestock grazing management, and addressing the current lack of information. USFS travel management planning closed 42 miles of roads, or are in the process of being

closed. Off-road travel is closed on all USFS lands in the PMU. Livestock permits were revised to include measures to improve meadow and sagebrush habitats by establishing key areas, as defined in Amendment Six to the LRMP. A key area will be established within upland sagebrush habitat surrounding a meadow system that will allow the forest to gather current information on vegetation and watershed conditions. Data gathered over several years will be used to evaluate and modify livestock management, if necessary. Management changes could include a reduction in use, changes in allowable use, or changes in season of use. A Limited Operating Period (LOP) was implemented that changed the season of grazing. Livestock are not permitted in suitable sage-grouse habitat until after nesting season. Tonopah BLM completed mapping potential sage-grouse habitat in Nevada. Telemetry studies and continued aerial and ground surveillance of leks were initiated to better understand sage-grouse use of this PMU. Conservation easements were completed on 1,182 acres of private land.

Priority Conservation Strategies

Substantial conservation benefits would be realized in the White Mountains PMU through actions designed to:

1. Treat pinyon-juniper encroachment in potential nesting and connectivity habitats;
2. Conserve and improve available meadow habitats;
3. Maintain wild horse numbers at AML and within designated territory boundaries;
4. Minimize large scale habitat loss due to wildfire by implementing fuel reduction treatments using greenstrips in strategic locations to protect sage-grouse habitat, and by prioritizing sage-grouse habitat for aggressive initial attack; and
5. Minimize direct habitat loss and increased human disturbance associated with development.

Additional benefits could be realized through implementation of conservation measures designed to:

1. Minimize the spread of noxious weeds and cheatgrass;
2. Reduce the impacts of current infrastructure;
3. Reduce human disturbance in key seasonal use areas; and
4. Avoid impacts associated with wind energy exploration and development.

A general location map of the White Mountains PMU is shown in Figure 6.

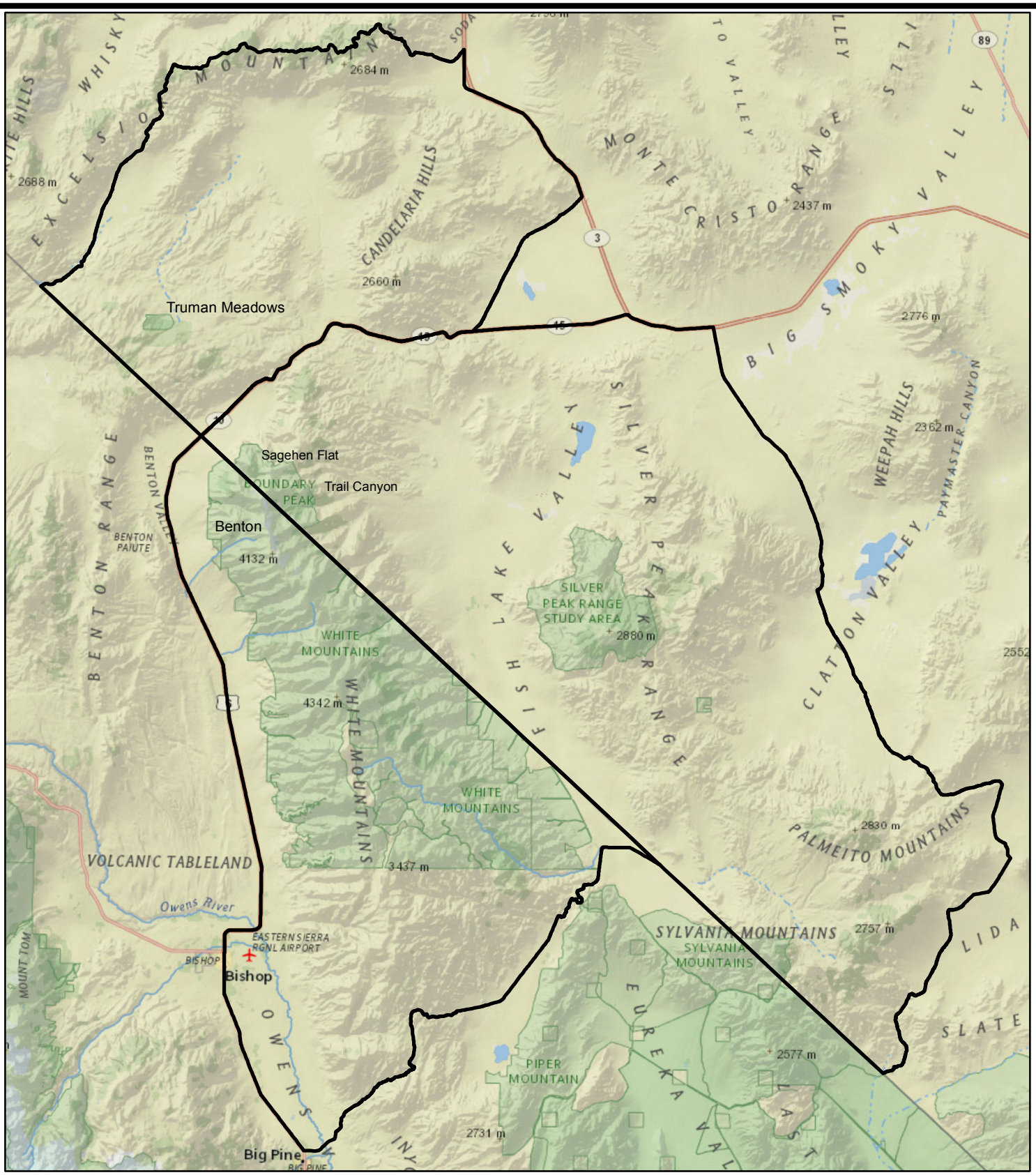

Figure 6

White Mountains PMU

Bi-State 2012 Action Plan

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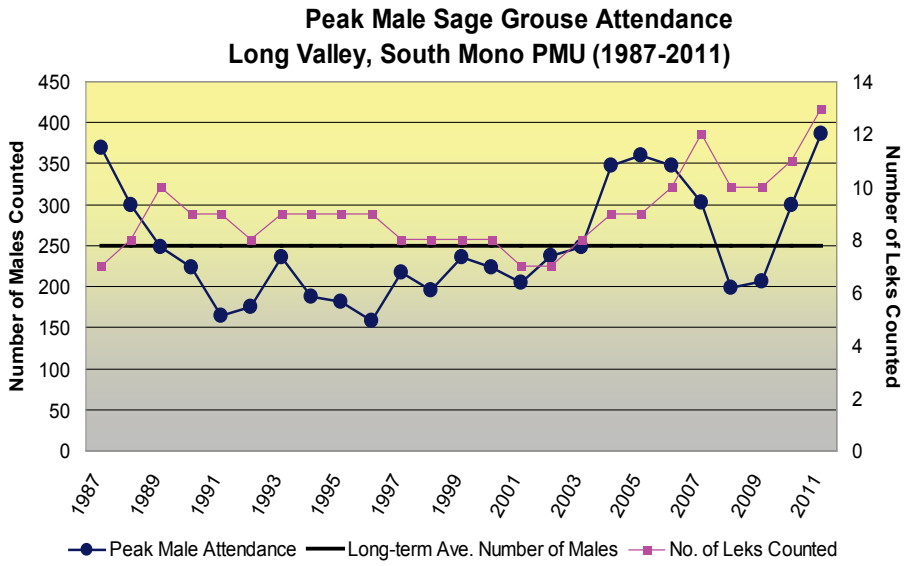
3.6 South Mono PMU

Population Trend

The South Mono PMU is comprised of three breeding complexes including Long Valley, Granite Mountain, and Parker. The Long Valley breeding complex includes eight trend leks and associated satellite leks along the upper Owens River drainage and the Crowley Lake basin. The Granite Mountain breeding complex includes two inactive trend leks located east of the Mono Basin in the Adobe Valley and Sage Hen Summit areas. The Parker breeding complex includes one trend lek located in Parker Meadow at the northwest end of the June Lake Loop.

Maximum male attendance counts occurred in Long Valley in 1962, 1963 and 1986, when 408, 405 and 406 males were counted, respectively. The LTA peak male attendance from 1987 to 2011 is 250 grouse counted on an average of nine leks. The maximum male count during this period was 370 males in 1987 and the minimum was 165 males in 1991. Male lek attendance during the 13-year period from 1989 to 2003 remained either at or below the LTA of 250 birds. Beginning in 2004, peak male lek attendance in Long Valley increased to 140 percent of the LTA and this trend continued through 2007. Male attendance again declined below the LTA in 2008 and 2009, but increased to 154 percent of the LTA in 2011. Lek count data collected from 1987-2011 indicates that the Long Valley sage-grouse population is stable to moderately increasing.

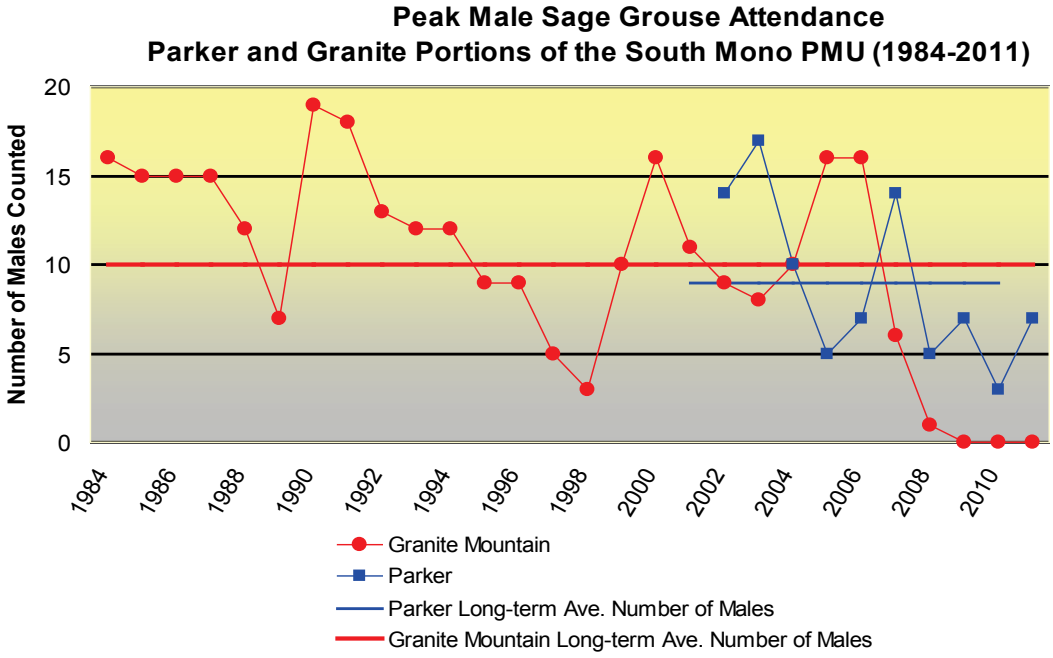


The two trend leks in the Granite Mountain breeding complex, Adobe and Gaspipe, have been monitored since 1984. Between 1984 and 1994 the Adobe lek averaged 11 males. In 1995 the number of males at this lek began to steadily decline until it became inactive in 2001.

The Gaspipe lek was discovered in 1990. However, no strutting males have been observed on this lek since 2008. From 1990 to 2011 the LTA male attendance at the Gaspipe lek was six birds. Overall, the LTA number of males counted in the Granite Mountain breeding complex from 1984 to 2011 is 10 males.

Although no strutting males have been counted on the Gaspipe lek since 2008, a group of 16 grouse was observed in close proximity to the lek in October of 2010 and fresh grouse sign was observed in fall 2011. These data indicate that at least some seasonal grouse use of the area is occurring and that birds from the Gaspipe lek may have changed their strutting location.

Sage-grouse have been known to inhabit the Parker area since the 1950s. Lek monitoring began in 2002. This is a very small population with one active trend lek and a few sporadically used satellite leks. The nine-year LTA number of strutting males at Parker (2002 to 2011) is nine birds. The maximum count was 14 males observed in 2002 and 2007. The minimum was three males counted in 2010. Recent telemetry data suggests that nest success may be the vital rate most limiting this population.



Risk Assessment

The risks and relative threat levels for the South Mono PMU are summarized in Table 9.

Wildfire

Wildfire is considered a relatively high risk to sage-grouse habitat in the South Mono PMU. Wildfire history in the South Mono PMU is included in Appendix C. Similar to the Bodie PMU, essentially all sagebrush associated habitats in the South Mono PMU are subject to some fire related risk. Wildfire is recognized as an especially high risk in the Long Valley portion of the PMU where the overall availability of sagebrush is limited. Uncontrolled wildfire is of particular concern for known wintering habitat along the base of the Glass Mountains, east of Lake Crowley and the Owens River. In the Mono Basin portion of the PMU, the risk of wildfire is also high, although the relative availability of sagebrush is substantially higher. The risk of natural ignition and large fires is generally restricted to the summer fire season (May-October). The risk of human caused fires is also greatest during the summer fire season. Recreational use and development in the wildland-urban interface contributes to the risk of human caused fires in the South Mono PMU. Habitat risks associated with uncontrolled fire include direct loss of important habitats, habitat fragmentation, and the potential for long-term changes in habitat quality.

Invasive Species

The relative composition of cheatgrass in some sagebrush habitats in the South Mono PMU adds the risk of altered fire cycles and increased distribution of cheatgrass. To date, no type conversion of sagebrush dominated habitats to non-native annual grasslands has occurred in the South Mono PMU, despite the occurrence of some larger fires in the Mono Basin. Nonetheless, some limited risk of type conversion does exist, primarily in the Long Valley portion of the South Mono PMU where soils conditions are more susceptible to cheatgrass invasion. This risk is greatest on lower elevation south and west facing slopes.

Urbanization

Land use change and potential development is currently considered a moderate to high risk in the South Mono PMU. To date, the extent of habitat loss and fragmentation attributed to land use change and development in the South Mono PMU has been limited; however, extensive development in the Mammoth Lakes and Crowley Drive areas exerts additional land use pressures in the PMU. The majority of private land in the South Mono PMU is owned and managed by the Los Angeles Department of Water and Power (LADWP). Most of these parcels are associated with perennial water and provide important sage-grouse habitat. The largest block of non-LADWP private land occurs adjacent to key sage-grouse habitat west of Crowley Lake. The remaining private lands in the PMU are still characterized as rangeland and the potential for commercial, residential or recreational development of these private rangelands is a concern for sage-grouse conservation. Development, including road construction, fences, utility lines and other infrastructure, would magnify the extent of habitat loss and fragmentation.

Urbanization - Landfill

The Benton Crossing landfill in Long Valley is the only “open pit” landfill in Mono County. The landfill accepts refuse from four Mono County transfer stations as well as the Town of Mammoth Lakes. Garbage in the landfill is readily available to ravens and subsidizes a large

local raven population. Ravens are known predators of both sage-grouse nests and fledglings; and increased raven populations from anthropogenic subsidies have been implicated in increased sage-grouse nest depredation by ravens. Sage-grouse nest depredation by ravens in Long Valley has been previously documented using videography, but the extent that raven depredation has on overall nest success has not been quantified. Because the landfill subsidizes a large raven population, along with other known sage-grouse predators, it currently poses a high risk in the Long Valley portion of the South Mono PMU.

Human Disturbance

Human disturbance from recreation is present year-round in the Long Valley portion of the South Mono PMU and is considered a high risk to sage-grouse. Long Valley is an attractive location for a wide-range of outdoor recreation activities because of its proximity to the Town of Mammoth Lakes, open public lands, and relatively gentle topography. The primary risk associated with most recreational use is disturbance and displacement of birds from important use areas, such as leks and brood habitats. Sage-grouse are particularly vulnerable to disturbance during the breeding and brood rearing seasons, as well as the winter period when birds concentrate in large flocks. Because grouse in Long Valley are non-migratory, spending their entire life cycle in proximity to leks, the impact of dispersed recreational activities on seasonal habitat use is of particular concern. Some recreational activities, (hot springs (hot tub) and camping, have been documented to cause disturbance to important sage-grouse habitat use areas, such as leks and brood meadows, and can adversely affect sage-grouse habitat quality and quantity. Fishing and hunting seasons and holidays intermittently increased visitation to the South Mono PMU.

Pinyon-Juniper and Jeffrey Pine Encroachment

Woodland encroachment, both by pinyon-juniper and Jeffrey pine, is also considered a relatively high risk in the South Mono PMU. Significant stands of pinyon are found adjacent to several important sage-grouse use areas and habitat types in the vicinity of Granite Mountain and on both slopes of the Glass Mountain Range. Pinyon-juniper encroachment into currently occupied breeding, summer, fall, and winter habitats is of most concern. Increased tree density and expansion into adjacent rangelands and potential connectivity habitats is also a concern. High density pinyon-juniper increases the fuel load and the risk of large catastrophic wildfire and the potential for long-term plant community type conversion in the South Mono PMU.

Infrastructure

Multiple high voltage utility lines as well as several smaller utility lines currently exist in known sage-grouse use areas and important habitat in the South Mono PMU. Poles for above ground utility lines provide perches for avian predators and may cause sage-grouse to avoid the immediate area where they are placed. Roads developed for the installation and maintenance of utility lines often result in the long-term direct loss of extended linear segments of habitat. The extent to which predators use utility poles as perches within the South Mono PMU is currently unknown, but sage-grouse may instinctively avoid such tall objects regardless of raptor activity. Utility lines may also cause direct mortality if sage-grouse strike the wires during flight. To date, no utility wire strikes have been documented in the South Mono PMU.

Fences are relatively common in, and adjacent to, a variety of sage-grouse habitats on both public and private lands within the South Mono PMU. In addition, the construction of new fences in the PMU is likely in the foreseeable future. Principal habitats of concern include lek, night roost, nesting, early brood, late brood and summer habitats. Though fence construction may not result in direct habitat loss, fences can cause sage-grouse to avoid traditional use areas and cause direct mortality due to fence strikes. Fence strikes have been documented as a source of mortality in the vicinity of Lek #2 in the Long Valley portion of the South Mono PMU.

Seasonal Habitat and Habitat Connectivity

The availability of brood rearing/late-summer meadow habitat is likely a major limiting factor in Mono Basin portion of the South Mono PMU. In this portion of the PMU, sagebrush habitat is extensive but the availability of wet meadows, streams, and springs is lacking. In contrast, available nesting habitat is more likely to be a limiting factor in the Long Valley portion of the PMU. In this portion of the PMU an extensive network of irrigated meadows combined native meadows, streams, and spring provides abundant brood rearing/late summer habitat; while sagebrush habitat is somewhat patchy and irregularly distributed. Loss of habitat connectivity primarily due to woodland encroachment, both within the PMU, as well as with adjacent PMUs to the north (Bodie PMU) and south/southeast (White Mountains PMU) is a concern for long-term conservation.

Disease and Predation

Predation likely poses the greatest risk of direct mortality to sage-grouse in the South Mono PMU. Research in the South Mono PMU indicated that anthropogenic factors related to increasing raven numbers coupled with poor nesting habitat was likely responsible for the low nesting survival. In recent years, abandonment rates have been unusually high at nests located near Parker Creek. Fine-scale mechanistic studies that employ videography techniques would be beneficial for providing information about increasing reproduction for these populations and help guide management decisions.

Licensed hunting contributes additional direct mortality in the PMU; however, the level of take is heavily regulated and not considered to be a risk to the population at this time. West Nile virus is also considered a potential risk in the South Mono PMU, though no document occurrences in sage-grouse have been confirmed to date.

Table 9. Risks and relative threat levels in the South Mono PMU.

RISK	THREAT LEVEL
Wildfire	High
Benton Crossing Landfill	High
Recreation and Human Disturbance	High
Urbanization	High
Existing Infrastructure (Linear)	Moderate
Pinyon-Juniper and Other Woodland Encroachment	Moderate
Surface Water Management	Moderate
Predation	Low
Invasive Species - Cheatgrass	Low
West Nile Virus	Low
Energy Development - Geothermal and Wind	Low
Grazing - Permitted Livestock	Low
Grazing - Wild Horses	Low
Licensed Hunting	Low

Examples of Completed Conservation Actions

In FY 2010, the Bishop BLM removed several miles of abandoned rangeland fencing that posed a potential strike hazard to sage-grouse in the South Mono PMU and modified fences at Indian Spring to enhance sage-grouse use of twelve acres of late brood habitat.

INF travel management planning permanently closed 36 miles of road. Lek monitoring data in the South Mono PMU indicate that seasonal road closures have effectively reduced human disturbance in three core lek areas (Lek #1, Lek #5, and Lek #8) and have protected an estimated 1,175 acres of breeding habitat annually.

Land exchanges and donations have brought approximately 1,500 acres of habitat into BLM and INF land coverage and conservation easements have restricted future develop on 2,300 acres in the South Mono PMU.

Priority Conservation Strategies

Substantial conservation benefits would be realized in the South Mono PMU through actions designed to:

1. Minimize large scale habitat loss due to wildfire by implementing fuel reduction treatments, using greenstrips in strategic locations to protect sage-grouse habitat, and by prioritizing sage-grouse habitat for aggressive initial attack;

2. Remove the existing landfill from Long Valley;

3. Reduce human disturbance in key seasonal use areas;
4. Minimize direct habitat loss due to changing land use and potential development;
5. Reduce the impacts of current infrastructure; and
6. Treat woodland encroachment in potential nesting and connectivity habitats.

Additional benefits could be realized through implementation of conservation measures designed to:

1. Conserve and improve available native and irrigated meadow habitats;
2. Minimize the spread of cheatgrass;
3. Improve grazing management practices in site-specific areas;
4. Maintain wild horse numbers at AML and within designated territory boundaries;
5. Minimize potential sources of direct mortality; and
6. Avoid impacts associated with geothermal or wind energy exploration and development.

A general location map of the South Mono PMU is shown in Figure 7.

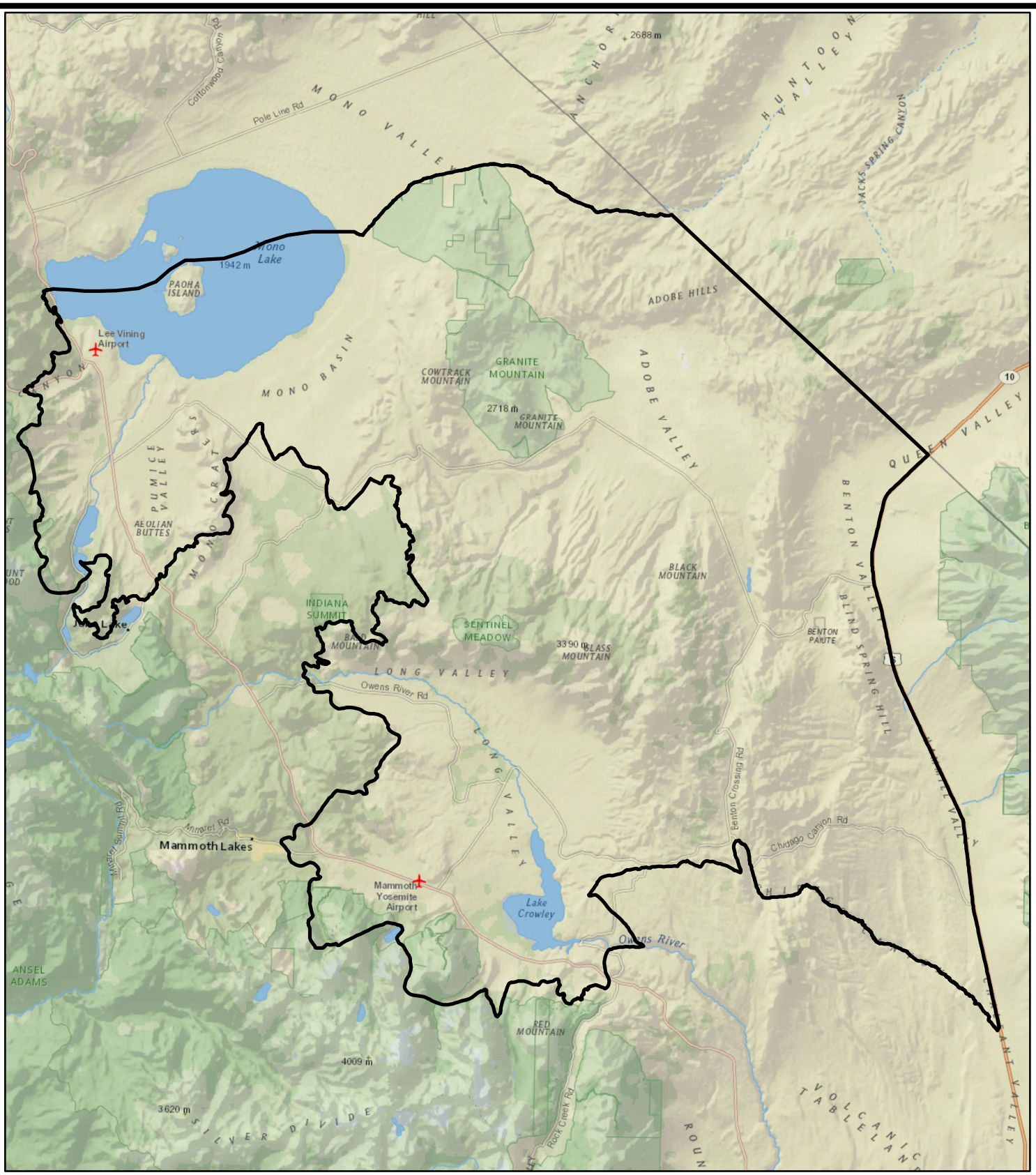


Figure 7

South Mono PMU

Bi-State 2012 Action Plan

N

0 2.5 5 10 Miles

Prepared:03/15/2012

RESOURCE CONCEPTS, INC.

R:\projects\NDOW\11-625.1 Bi-State Population Plan\MXD's\South Mono.mxd

4.0 SUMMARY OF TELEMETRY MONITORING RESULTS

Over the past ten years, a collaborative effort between agencies and universities has been carried out to monitor Bi-State sage-grouse populations using radio-telemetry that resulted in valuable information to guide research and management actions. Sage-grouse have been sampled from all six Bi-State PMUs. Overall, this collaborative effort has resulted in documenting more than 13,000 sage-grouse locations (Figure 8).

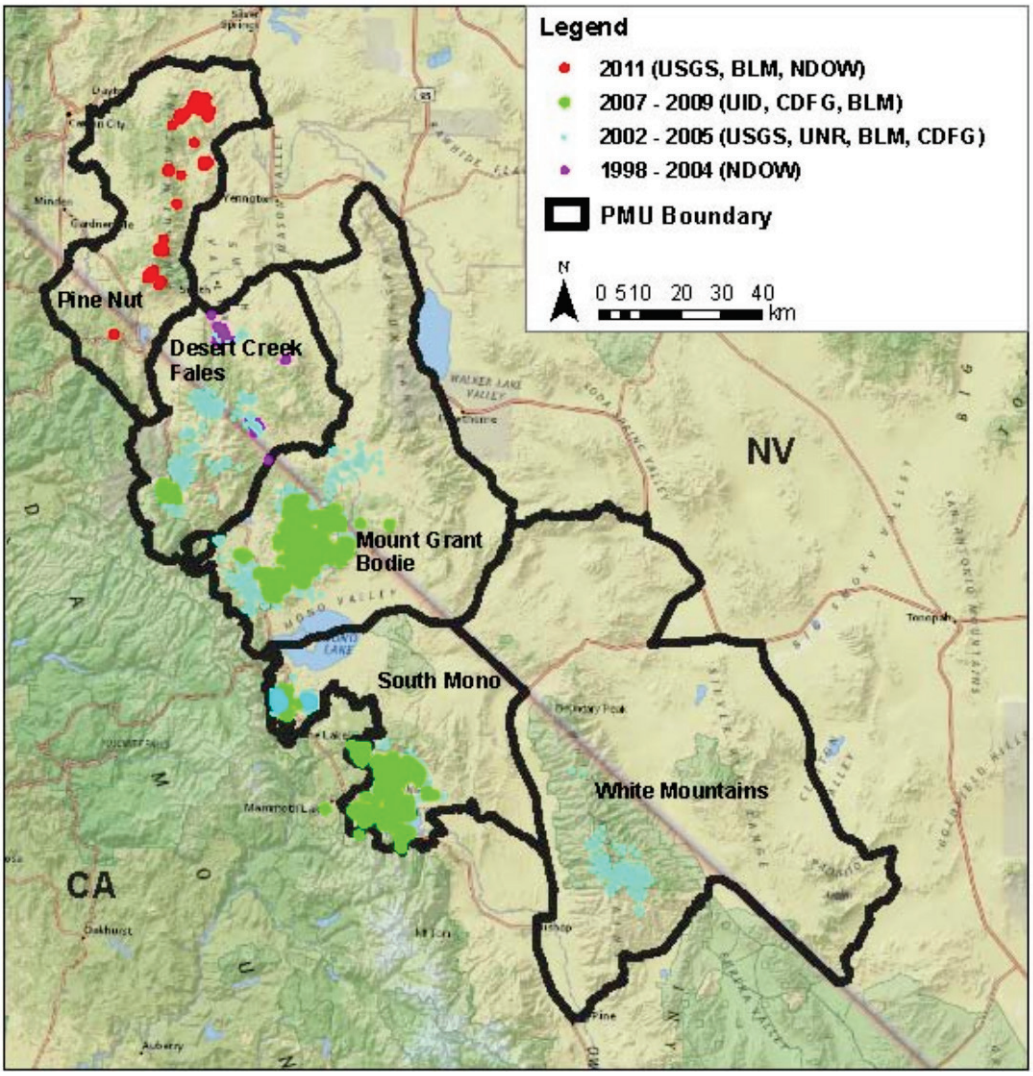


Figure 8. Telemetry monitoring locations in the Bi-State DPS area 1998-2011.

4.1 Pine Nut PMU

USGS and BLM initiated telemetry monitoring in the Pine Nut PMU in 2011 by marking 13 sage-grouse with VHF transmitters. Between spring and summer 2011, 325 locations were documented (Figure 9). An additional 30 sage-grouse were captured and marked during the fall of 2011. NDOW has conducted aerial monitoring through the winter 2012.

Telemetry and GPS monitoring provided some important management information for the Pine Nut PMU. All of the sage-grouse that were marked from the Mill Canyon lek at the north end of the Pine Nut Range were tracked over the year to the south end of the Pine Nut Range, averaging 45 km (28 miles) between breeding areas and wintering areas. Preliminary findings indicate that an area along Buckeye Creek between Oreana and Galena Peaks characterized by a series of upland drainages and stringer meadows may be a critical area for sage-grouse brood-rearing within the Pine Nut PMU. Sage-grouse within the Pine Nut PMU require further telemetry and/or GPS monitoring efforts.

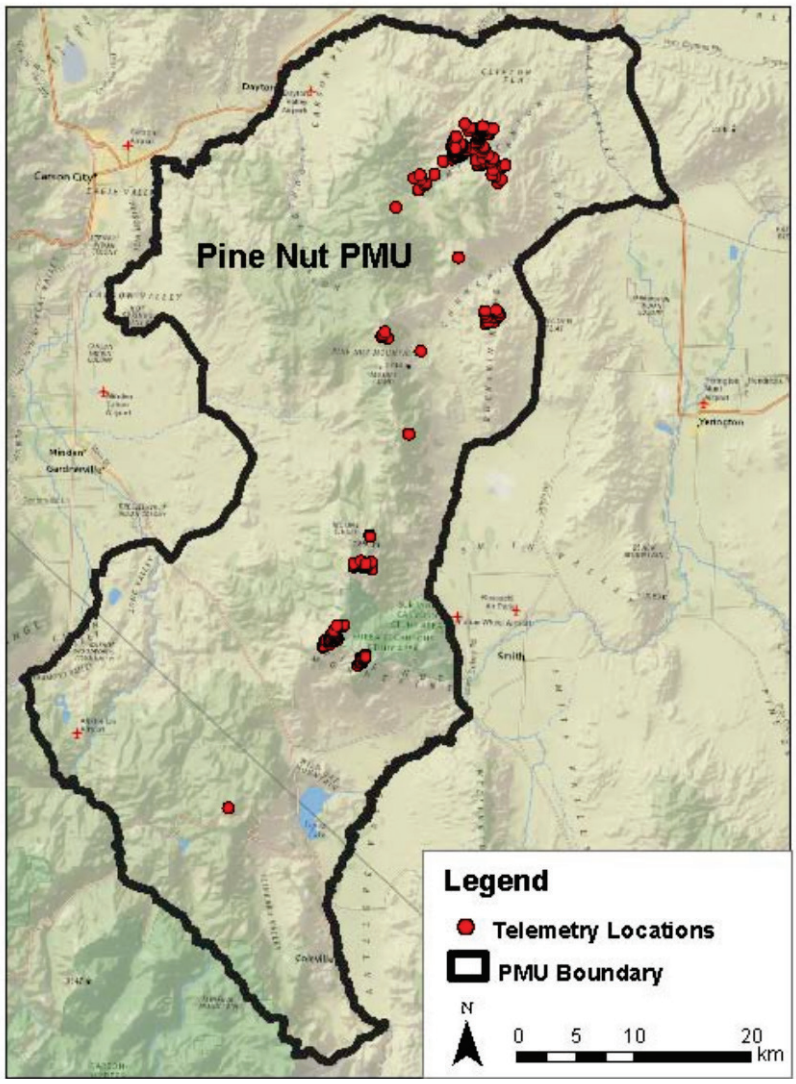


Figure 9. Sage-grouse telemetry locations within the Pine Nut PMU 2011.

4.2 Desert Creek-Fales PMU

Radio telemetry monitoring within the Desert Creek/Fales PMU documented 3,416 sage-grouse locations from more than 100 marked birds, the majority of which have occurred in California (Figure 10). Some grouse marked in California were tracked into Nevada. Some grouse were marked and monitored in Nevada by Yerington High School students. Follow-up monitoring of the Nevada-marked birds was conducted intermittently between 1998 and 2004. Preliminary identification of key use areas in Nevada included Jackass Flat along the Nevada/California border, Burcham Flat and Wheeler Flat in California, and the lower terminus of Desert Creek and Sweetwater Flat in Nevada. Seasonal core use areas and movement patterns have been satisfactorily identified in California.

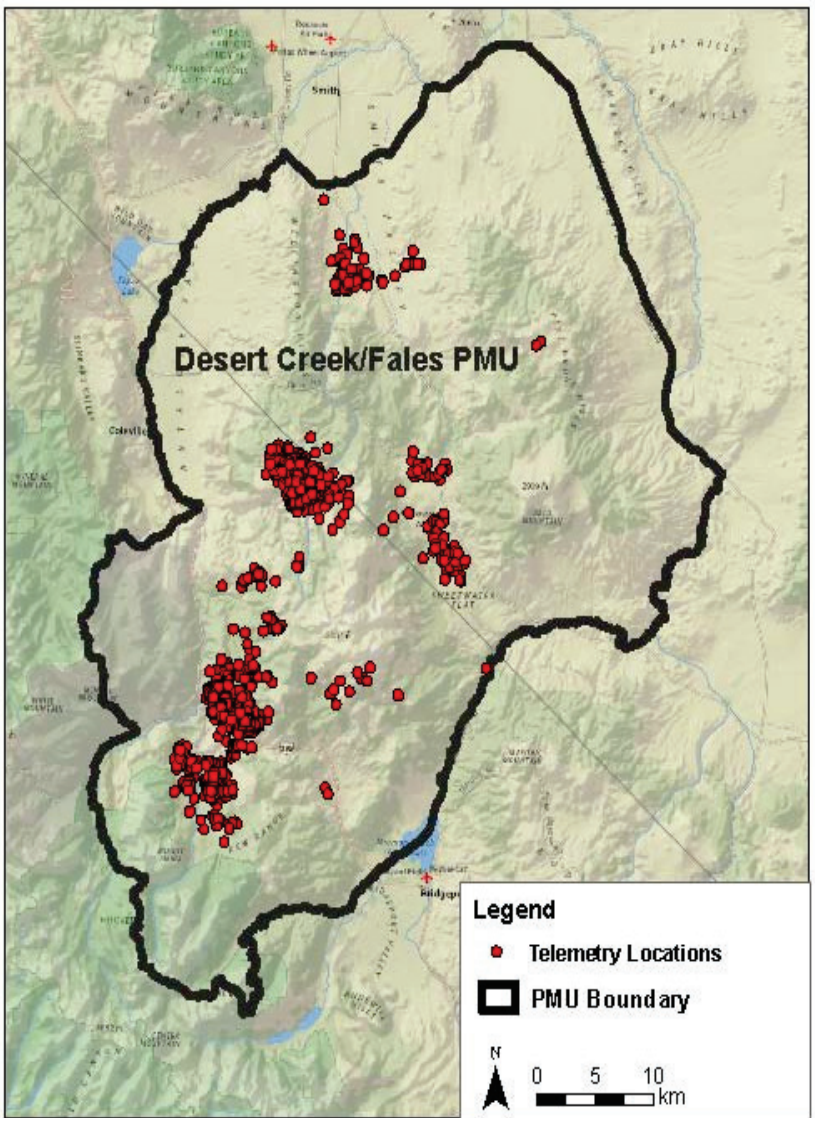


Figure 10. Sage-grouse telemetry locations within the Desert Creek-Fales PMU 2002-2009.

4.3 Bodie-Mount Grant PMUs

The majority of telemetry work that has been conducted within the Bi-State area has occurred within Bodie-Mount Grant PMUs. Between 2002 and 2009 multiple collaborations between agencies and universities were established by USGS, BLM, CDFG, University of Nevada Reno, and University of Idaho to capture and monitor sage-grouse. The majority of marked sage-grouse occurred in California. A total of 3,909 locations from more than 45 radio-marked sage-grouse have been documented (Figure 11). Even though the bulk of captured sage-grouse were from the Bodie Hills area. Follow-up monitoring suggested that the Mount Grant PMU (Nevada) provided winter habitat for these birds.

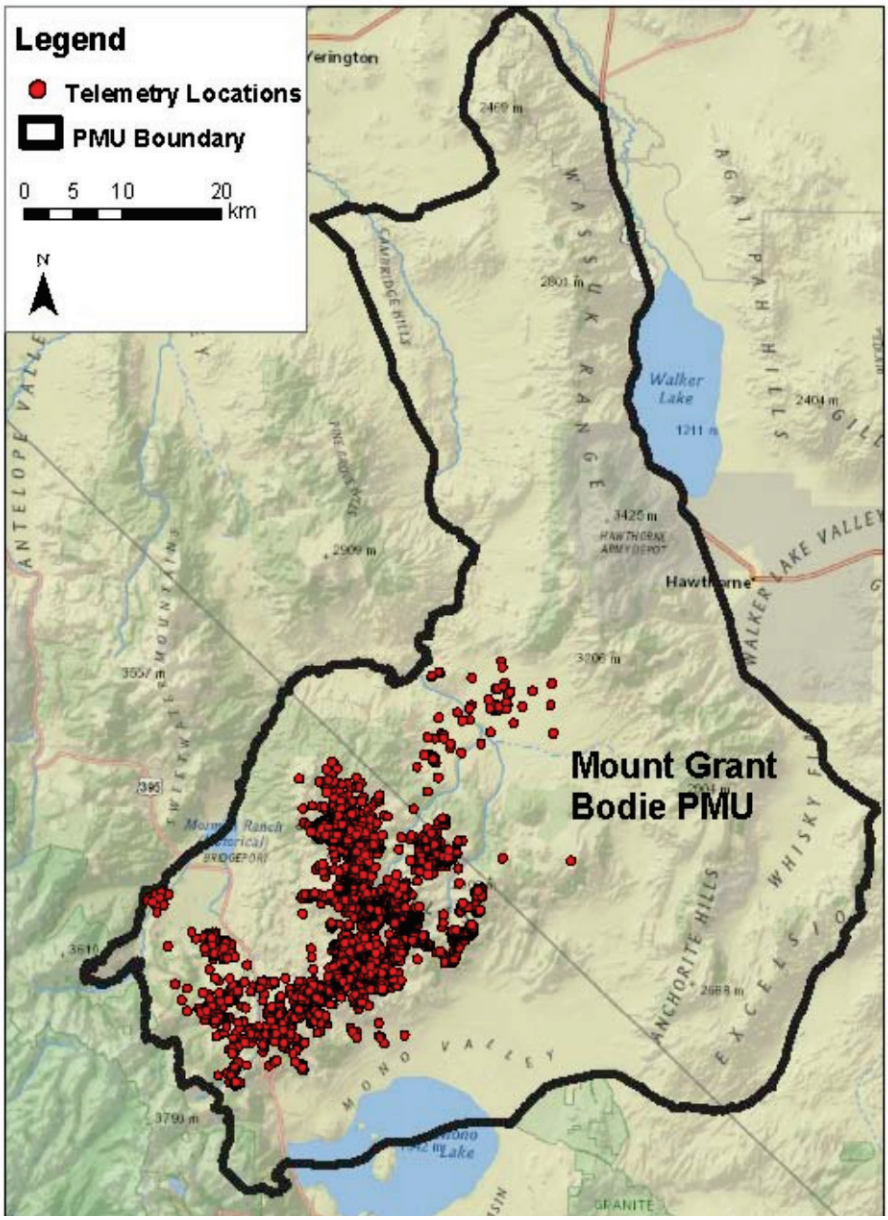


Figure 11. Sage-grouse telemetry locations within the Bodie-Mount Grant PMUs 2002-2009.

4.4 White Mountains

Telemetry monitoring in the White Mountains PMU was conducted between 2002 and 2005 in a collaborative effort between USGS, BLM, USFS and CDFG. A total of 780 locations from 24 marked sag-grouse were documented (Figure 12). The results included identification of important spring and summer seasonal habitat use and movement.

Despite intensive monitoring efforts, information about seasonal core areas, habitat, and movement patterns are difficult to collect in the White Mountains and consequently, the information on this population is limited. During late-summer sage-grouse were commonly found along the east side of Sheep Mountain, at elevations exceeding 12,000 feet. Most sage-grouse were located near the North Fork Crooked Creek north of Bucks Peak and west of Station Peak and on Sage Hen Flat during the summer months. Some sage-grouse spent late summer and early fall in an area with multiple springs south of Mt. Barcroft.

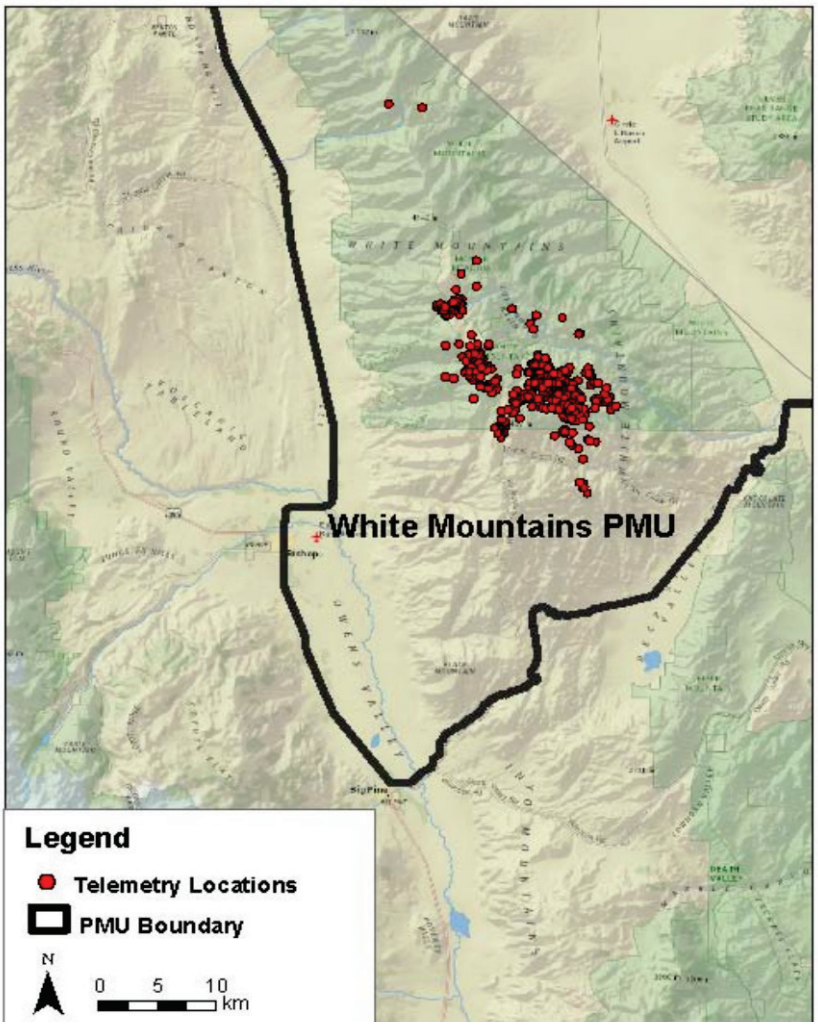


Figure 12. Sage-grouse telemetry locations within the White Mountains PMU 2002-2005.

4.5 South Mono PMU

South Mono PMU. Telemetry monitoring within the South Mono PMU was conducted between 2002 and 2011 in a collaborative effort between USGS, BLM, CDFG, University of Nevada Reno, and University of Idaho. Overall, 6,050 sage-grouse locations were documented in the South Mono PMU (Figure 13). Most sage-grouse locations occurred northeast of Grant Lake in Parker Creek and northeast of Lake Crowley in Long Valley. Nest survival was found to be substantially lower in Long Valley than any other population within the Bi-State PMU.

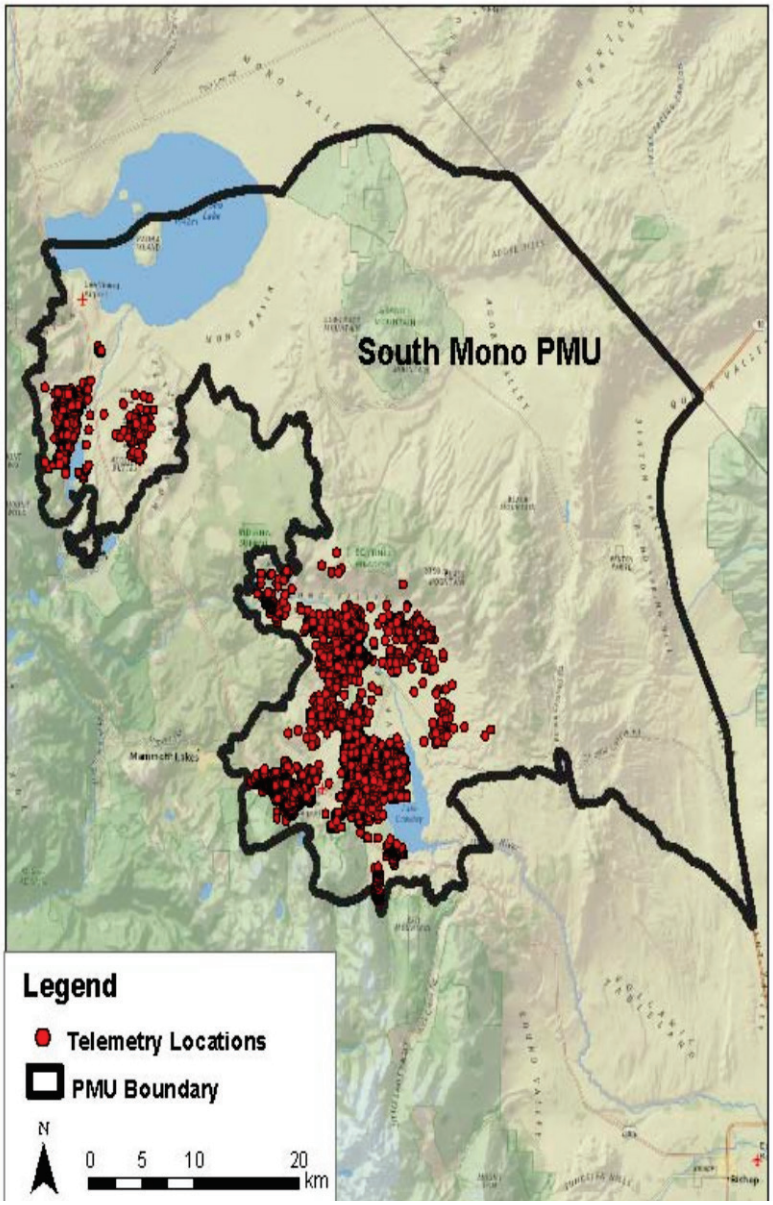


Figure 13. Sage-grouse telemetry locations within the South Mono PMU 2002-2011.

5.0 EXISTING REGULATORY MECHANISMS

5.1 Local and County Level Plans and Ordinances

County-level master plans and ordinances contain certain policies and provisions that represent enforceable regulatory mechanisms pertaining to the conservation of the greater sage-grouse and its habitat. The following provisions from county master plans relate to the conservation of sage-grouse habitats in the Bi-State DPS.

Alpine County

Revised in 2009, the Alpine County General Plan provides mechanisms to protect sensitive, threatened, rare, and endangered wildlife species through its Conservation Element (i.e., Plan Element I). Section H under Element I provides the following policies for animal life:

> *Element I, Section H.* All available recorded sightings of rare or endangered species are noted in the Data Base Section 5 and each location is given open space or wilderness designation on the General Plan Land Use Map.
>
> *General Plan Policy No. 13.* The County should provide the CDFG notice of all development that may encroach upon the critical habitat of sensitive, threatened, rare, or endangered species with reasonable time for the Department to respond with recommendations for project alternatives and mitigation measures.
>
> *General Plan Policy No. 14a.* Provides direction for protecting known or suspected critical summer or winter range or mule deer migration corridors which can also result in the protection of key sagebrush habitats.
>
> *General Plan Policy No. 14b.* The County should encourage cluster development to protect wildlife habitats and migration routes by placing them in permanent open space in conjunction with approved cluster development.

Mono County

The Mono County General Plan includes goals and policies for the county at large as well as for specific planning areas.

Land Use Element Countywide Policies.

Policy 7: Maintain or enhance the integrity of critical wildlife habitat in the county by limiting development in those areas and requiring mitigation in conformance to CEQA and this General Plan. Examples of critical wildlife habitat include, but are not limited to: key winter ranges, holding areas, migration routes, and fawning areas for mule deer; habitat for other big game species; leks, and winter and summer range for sage-grouse; fisheries and associated habitat; and riparian and wetland habitat.

Planning Area Land Use Policies:

ANTELOPE VALLEY: Provide for orderly growth in the Antelope Valley in a manner that retains the rural environment, and protects the area's scenic, recreational, agricultural, and natural resources.

Policy 3 Action 2.4: Inform owners of critical wildlife habitat areas of the potential for open space easements to protect such areas and of the potential for property tax adjustments.

BRIDGEPORT AREA WETLANDS POLICIES: Preserve and enhance wetland functions and values, including wildlife and plant habitat, beneficial livestock forage value, water quality benefits, and aesthetic and recreational values, while providing for orderly growth and an efficient, coordinated permitting process.

TRI-VALLEY: Preserve the rural and agricultural character of the Tri-Valley area.

Policy 3: Encourage residential development in areas that will minimize the impact on the environment.

Policy 4: Protect open space and scenic values within and around the community.

Policy 4 Action 2.4: Encourage private landowners with visual, environmental and agriculturally significant property to grant or sell a conservation easement to a land conservation organization to protect the land as open space and/or agricultural use.

Policy 4 Action 3.2: Encourage the exchange of environmentally sensitive private lands for public lands.

BODIE HILLS: Protect and enhance Bodie Hills Planning Area resources that complement the Bodie Experience.

Policy 1: Grazing on private lands within the Bodie Hills Planning Area is an historic use. Mono County supports the continued agricultural use of private lands within the Bodie Hills.

Policy 1 Action 1.1: Assign Agricultural land use designations to private property in the Bodie Hills Planning Area.

LONG VALLEY: Maintain the rural residential character of the Long Valley communities (i.e., Long Valley, McGee Creek, Crowley Lake/Hilton Creek, Aspen Springs, and Sunny Slopes) in a manner that provides for commercial uses to serve community needs, and that protects the area's visual, recreational, and natural resources.

Policy 2: Discourage the extension of public and private facilities, especially roads, into open space or agricultural land.

MAMMOTH LAKES: Preserve and enhance natural resources in the Mammoth vicinity.

Policy 1: Maintain or enhance the integrity of key wildlife habitat in the area by limiting development in the area. Examples of key habitat include, but are not limited to: key winter ranges, holding areas, migration routes, and fawning areas for mule deer; leks, and winter

and summer range for sage-grouse; and waterfowl habitat at Crowley Lake, Laurel Pond, and along the Owens River.

Conservation/Open Space Element:

Objective B Policy 1 Action 1.10: Promote the establishment of local land conservation organizations.

Objective B Policy 1 Action 1.11: Outside community areas, consider land trades involving private lands in Mono County and federal lands elsewhere.

Objective B Policy 1 Action 1.12: Work with the county Assessor to encourage gifts of open space through tax-incentive programs.

Biological Resources Goal

Policy 6: Support the acquisition of valuable wildlife habitat by federal or state land management agencies or land conservation organizations.

Policy 6 Action 6.1: Support acquisition of important wildlife areas through outright purchase, land donations, trades, purchase of easements, and related options.

Policy 6 Action 6.2: In coordination with the county Assessor's office, seek reductions of property taxes for areas preserved for wildlife.

Policy 6 Action 6.3: Work with appropriate agencies and organizations to investigate the feasibility of establishing habitat preservation areas to protect and improve significant habitat areas.

Policy 6 Action 6.4: Consider appointing a Fish and Wildlife Technical Advisory Committee to advise the County on fish and wildlife planning and mitigation measures and to seek funding for fish and wildlife protection and habitat acquisition.

Policy 7: Restrict OHV use in valuable habitat areas in order to protect those resources.

Carson City

Carson City is organized as an incorporated municipality as opposed to county government formed by the State Legislature. The 2006 Carson City Master Plan does not contain any specific provisions to protect or conserve habitats for the greater sage-grouse. However, Guiding Principal 3 for the stewardship of the natural environment provides the direction that the “City will identify and strive to conserve its natural, scenic, and environmentally sensitive areas including important wildlife habitat.”

An important tool used to achieve this direction is represented by adoption of the 1999 Open Space Plan. Created in response to voter approval of ballot question #18, the Quality of Life Initiative, authorizes a 0.25 percent increase in sales tax to raise funds for securing and maintaining open space and recreational opportunities. This funding source generates an approximately $700,000 per year that is dedicated to support the City’s Open Space Program. To date, 1,860 acres (or nearly 2 percent of the City area) has been secured under this program and is managed as permanent open space (Bollinger, per. communication

2012). The protection of wildlife habitat is identified as a priority goal under the City's Open Space Plan.

Douglas County

Adopted in 2007, the Douglas County Master Plan, Goal 5.19 establishes the goal "to protect Douglas County's sensitive wildlife and vegetation in recognition of their importance as components of the county's quality of life."

Policy 5.19.01. Specifies that "Douglas County shall protect environmentally sensitive and habitat areas that serve valuable ecological functions by limiting their development or by requiring mitigation of adverse impacts resulting from development."

Esmeralda County

At this time, Esmeralda County does not have an adopted master plan; however, a draft plan is currently under development by the County (Canfield, per. communication 2012). Under this draft master plan, Esmeralda County would develop a Public Land Policy Plan (PLPP). The draft PLPP explains that county residents support a diversity of wildlife and would establish the following policies:

Policy 9-1. A yearly update by Federal and State agencies should be provided to the County Commission to maintain an active and constructive dialogue regarding threatened and endangered species and potential listings of same.

Policy 9-2. Identify habitat needs for wildlife species, such as adequate forage, water, cover, etc., and provide for those needs so as to, in time, attain appropriate population levels compatible with other multiple uses as determined by public involvement.

Policy 9-3. Support habitat restoration to improve wildlife habitat when compatible with other uses.

Policy 9-4. Support hunting and fishing as recreational resources and as a multiple use of public lands. Esmeralda County endorses the State's programs to provide sustained levels of game animals.

Lyon County

Revised in 2010, the Comprehensive Master Plan describes a goal that Lyon County will contain adequate habitat for viable populations of a variety of desirable wildlife species.

Policy NR 2.1. Provides that the county will work to protect critical habitat that is necessary to maintain viable wildlife populations. This policy will be achieved through the following strategies:

- Recognize species identified through community planning processes, such as wild horses and sage-grouse, as species of community-wide importance, and prioritize habitat protection efforts and resources for these species.

- Identify the habitat of species of community-wide importance and identify critical habitat areas.
- Periodically review information and conditions to reveal changes in the range of species and amount of available habitat.
- Encourage land use patterns on private property that allow for new development while sustaining wildlife populations.
- Promote programs that educate residents about practices that can promote or endanger wildlife, such as waste disposal, land development, fencing, weed control, and others.
- Consider acquiring strategic habitat where necessary to protect, sustain, and allow migration of wildlife.

Mineral County

Currently Mineral County has not adopted a general or master plan (Canfield, per. communication 2012). However, the County Code of Ordinances, at Chapter 6.12.010, specifies:

It is unlawful for any person or persons, firm, company, corporation, or association within the county of Mineral, state of Nevada, to take, kill, catch, trap, net, pound, weir, wound or pursue with attempt to take, catch, capture, injure or destroy any sage hen or sage cock or prairie chicken, at any time except between August 16 and August 31, both dates included, in each and every year.

A person convicted of violating this county ordinance can be punished by a fine of not less than fifty dollars ($50.00) or more than two hundred fifty dollars ($250.00), or by imprisonment for a term of not less than twenty five (25) days or more than one hundred twenty five (125) days, or by both such fine and imprisonment.

Storey County

Zoning and land development in Storey County is controlled by the 1994 Storey County Master Plan. This county master plan provides no specific provisions to protect or conserve greater sage-grouse habitat.

5.2 State Laws and Other Regulatory Guidance

California Environmental Quality Act (CEQA)

Most proposals for physical development in California are subject to the provisions of CEQA, as are many governmental decisions which do not immediately result in physical development (such as adoption of a general or community plan). Every development project

which requires a discretionary governmental approval will require at least some environmental review pursuant to CEQA, unless an exemption applies.

The CEQA process usually, if not always, includes project review by CDFG Biologists who can impose minimization and mitigation requirements to reduce impacts to a level less than significant.

Nevada Energy and Infrastructure Development Standards To Conserve Greater Sage-grouse Populations and Their Habitat (April 2010)

This document was prepared by the Governors Sage-Grouse Team and focuses on renewable energy potential in Nevada, its overlap with sage-grouse habitat and recommended standards to both avoid and minimize impacts to sage-grouse populations and their habitat. These recommendations also apply to other types of energy development or resource extraction projects. State and federal agencies use these guidelines to evaluate and modify proposed projects that could affect sage-grouse.

Nevada Senate Bill 394

In 2009 Senate Bill 394 became law in Nevada. This Act requires the registration and the visual identification for all off-highway vehicles sold in Nevada after the date of July 1, 2011. The effective date of this Act was extended to July 1, 2012 during the 76th Legislative Session to allow additional time for the Nevada Department of Motor Vehicles (DVM) to prepare for the specified vehicle registration process.

Proceeds from this off-highway vehicle registration, minus agency administrative costs, are deposited in a new state fund entitled the “Fund for Off-Highway Vehicles.” As administered by the Commission on Off-Highway Vehicles, the distribution of these collected funds is limited to:

- Law enforcement of state vehicle laws;
- Studies or planning for off-highway trails or facilities;
- Mapping and signing for off-highway trails or facilities;
- The acquisition of land for off-highway trails or facilities;
- The enhancement, maintenance, and construction of off-highway trails or facilities;
- The restoration of areas that have been damaged by off-highway vehicles; and,
- Public education and safety training for off-highway vehicle use.

Following the first year start-up, this Act requires that 85 percent of all registration fees must be deposited in the Fund for Off-Highway Vehicles.

Numerous benefits to sage-grouse conservation will be derived from the implementation of this Act in Nevada. The Act provides a mechanism and a funding source to educate users on how to responsibly use off-highway vehicles while minimizing adverse effects on public land resources including important or restricted access to sage-grouse habitats. The Act further provides a funding source to allow the State to join with its federal partners to better plan, develop, and manage a coordinated and designated system of off-road vehicle trails in Nevada. Finally, the off-highway-vehicle registration system allows state law enforcement personnel to access vehicle registration information and identify vehicle titleholders in instances where state or federal laws pertaining to off-road access or use are violated.

Licensed Hunting Regulation and Harvest Management

Sage-grouse are currently hunted only on the California side of the Bi-State DPS. Sage-grouse have not been hunted in Nevada since 1998. In California, sage-grouse are hunted under a limited quota permit system in two zones in the Bi-State DPS where populations are most robust and healthy: North Mono (Bodie Hills portion of the Bodie PMU) and South Mono (Long Valley portion of the South Mono PMU). In 2011, 30 one-bird-permits were issued in each hunting zone. Sage-grouse are not hunted in the Fales-Desert Creek PMU, the White Mountains PMU, or in the Mono Basin portions (Parker Creek, Granite Mountain, and Adobe Valley) of the South Mono PMU.

The current permit system allows the CDFG to closely control harvest of sage-grouse. In past decades, unlimited numbers of hunters led to several closures of the sage-grouse season in California, the most recent of which was from 1983 to1986. Hunting resumed in California under the permit system 1987, which was based on intensive lek counts to estimate the annual size of the breeding population. Since then, the CDFG has continued to propose increasingly conservative numbers of permits and reduce hunt zones to areas with the largest populations. Current regulations are designed to keep the harvest at less than five percent of the projected fall population. Despite population increases in each of the hunt zones in 2010 and 2011, no increases have been made in the number of permits since the 2009 season. Actual harvest in recent years is usually less than three percent of the projected fall population.

5.3 Federal Laws and Land Management Plans

National Environmental Policy Act (NEPA)

The NEPA process is a formal evaluation that is used to determine the environmental consequences and the environmental effects of a federal action including its alternatives. Proposed actions on federal land and actions proposed on private land that include any kind of federal funding are analyzed for potential impacts to sensitive resources including greater sage-grouse. Agency specialists provide recommendations for alternatives and mitigation to minimize any potential negative impact before projects can be approved.

BLM Resource Management Plans (RMPs)

The following BLM Resource Management Plans (RMPs) provide land use plan guidance specific to greater sage-grouse habitat conservation and management for public lands within the Bi-State DPS.

Bishop RMP (BLM 1993), as amended

Sage-grouse conservation has been a management focus for the Bishop Field Office for over 20 years and sage-grouse conservation was a key issue during development of the Bishop Resource Management Plan (RMP) in 1993. Sage-grouse are identified as 'Focal Species' in the Bishop RMP and the current plan includes several land use decisions and best management practices (guidelines and standard operating procedures) designed specifically to conserve greater sage-grouse and their habitats in the Bi-State DPS. Sage-grouse conservation measures in the Bishop RMP (1993, as amended) are included in Appendix D.

In July 2000, the Bishop RMP was amended by the Central California Standards for Rangeland Health and Guidelines for Livestock Grazing Management (S&Gs) (BLM 2000). The Central California S&Gs provide additional direction for the management of permitted livestock grazing on public lands administered by the Bishop Field Office.

In January 2005, the Bishop RMP was amended by the Bishop Fire Management Plan (FMP) (BLM 2005). The Bishop FMP provides additional direction for the management of wildland fire incidents and fuels management projects on public lands administered by the Bishop Field Office.

The Bishop RMP, as amended, continues to provide effective guidance for the conservation and management of sage-grouse and sagebrush habitats on public lands in the California portion of the Bi-State DPS. In the Bishop Field Office, RMP guidance is consistently incorporated into activity level authorizations in concert with other applicable laws, regulations, and policies to avoid, minimize or eliminate impacts to greater sage-grouse populations and habitats in the Bi-State area. As a BLM designated "Sensitive Species," sage-grouse are provided the same level of protection as listed species pursuant to land use decisions prescribed in the Bishop RMP.

Tonopah RMP (BLM 1997)

Sage-grouse are identified as BLM Sensitive Species in the Tonopah RMP. The current plan includes several land use decisions and best management practices (guidelines and standard operating procedures) written specifically for sensitive species including sage-grouse and their habitat. The Battle Mountain RMP, which includes the Tonopah Field Office, is currently under revision and will include specific guidance to conserve greater sage-grouse and sage-grouse habitat in the Bi-State DPS.

Carson City Field Office Consolidated RMP (BLM 2001), as amended.

The Carson RMP incorporates National BLM Policy (BLM Manual Section 6840 – Special Status Species Management) on Candidate Species. National policy states BLM shall carry out management, consistent with the principles of multiple use, for the conservation of candidate species and their habitats, and shall ensure that actions authorized, funded, or carried out do not contribute to the need to list any candidate species. National Policy also

states BLM shall include candidate species as priority species in land use plans (BLM Manual Section 1622).

The current plan includes some land decisions and standard operating procedures (SOPs) specifically for managing sage-grouse habitat that are identified in Appendix E. Several land use decisions and SOPs for general wildlife apply to sage-grouse management (e.g. seasonal restrictions on activities, wildlife-friendly structures such as fences, maintaining or improving the habitat condition of meadow and aquatic areas, limiting vehicle traffic to designated roads and trails in the higher elevations of the Pine Nut Mountains, re-vegetation of disturbed areas).

National Forest Land and Resource Management Plans (LRMPs)

The following Land and Resource Management Plans (LRMPs) provide land use plan guidance specific to greater sage-grouse habitat conservation and management for National Forest lands within the Bi-State DPS.

Toiyabe National Forest Land and Resource Management Plan (1986)

Sage-grouse are designated as a Management Indicator Species in the Toiyabe National Forest Land and Resource Management Plan (TNF LRMP). The TNF LRMP identified several standards for monitoring sage-grouse and managing their habitats. Sage-grouse conservation measures in the Toiyabe National Forest LRMP (1986) are included in Appendix F.

Standards include protections for designating priority areas, direction for protecting the spatial integrity of habitat, and instructions for choosing vegetation for restoration. Additional protections based on conservation actions/guidance from NDOW and the Governor's Team (e.g., *Nevada Energy Standards to Conservation of Greater Sage-grouse and Their Habitats*), USGS (e.g., protecting nesting area within a three-mile buffer of leks), and FWS are included in relevant projects as design features, mitigations, and stipulations.

Inyo National Forest Land and Resource Management Plan (USFS 1988), as amended.

Sage-grouse are designated as a Management Indicator Species in the Inyo National Forest Land and Resource Management Plan (LRMP). The INF LRMP identified several standards and guidelines for managing sage-grouse habitats. These guidelines represent what the INF identified as management actions that needed to be specifically addressed to maintain and improve sage-grouse habitat throughout the forest, which includes the Bi-State DPS. Sage-grouse conservation measures in the INF LRMP (1988) are included in Appendix F.

Further guidance on implementation of proposed projects has also been added as design features, specifically within livestock grazing and vegetation treatment environmental analyses.

In December 2007, the INF LRMP was amended by the Sierra Nevada Forests Management Indicator Species Amendment, Record of Decision (USFS 2007). This amendment updated the species listed as MIS. Sage-grouse remained a MIS for sagebrush habitats on the INF.

5.4 Federal Sensitive Species Policies

BLM Special Status Species Management – Manual 6840 (BLM 2008)

BLM Special Status Species Management - Manual 6840 (BLM 2008) defines sensitive species as:

Native species found on BLM-administered lands for which the BLM has the capability to significantly affect the conservation status of the species through management, and either:

1. There is information that a species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range, or

2. The species depends on ecological refugia or specialized or unique habitats on BLM-administered lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk.

All federally designated candidate species, proposed species, and delisted species in the five years following their delisting are conserved as Bureau sensitive species.

BLM sensitive species policy provides that:

1. Actions authorized by the BLM shall further the conservation of Bureau sensitive species, and

2. Bureau sensitive species will be managed consistent with species and habitat management objectives in land use and implementation plans to promote their conservation and to minimize the likelihood and need for listing under the ESA.

As applied to Bureau sensitive species, “conservation” means “the use of programs, plans, and management practices to reduce or eliminate threats affecting the status of the species, or improve the condition of the species’ habitat on BLM-administered lands.”

State Directors are required to designate sensitive species within their respective jurisdictions and, at least once every five years, to review and update their sensitive species lists in coordination with State agencies responsible for managing fisheries, wildlife, and botanical resources. For species inhabiting multiple States, State Directors shall coordinate with one another in the designation of Bureau sensitive species so that species status is consistent across the species’ range on BLM-administered lands, where appropriate.

Pursuant to BLM Manual 6849, State Directors have designated sage-grouse as a sensitive species in both California (BLM Instruction Memorandum CA-2010-008) and Nevada (BLM Instruction Memorandum NV-2011-059).

National Forest Threatened, Endangered and Sensitive Plants and Animals - Manual 2670 (USFS 2005)

The USFS Threatened, Endangered and Sensitive Plants and Animals Forest Service Manual (FSM 2670) defines sensitive species as:

Those plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by:

1. Significant current or predicted downward trends in population numbers or density.

2. Significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

USFS sensitive species policy provides that the National Forests shall:

1. Assist States in achieving their goals for conservation of endemic species.

2. As part of the National Environmental Policy Act process, review programs and activities, through a biological evaluation, to determine their potential effect on sensitive species.

3. Avoid or minimize impacts to species whose viability has been identified as a concern.

4. If impacts cannot be avoided, analyze the significance of potential adverse effects on the population or its habitat within the area of concern and on the species as a whole. (The line officer, with project approval authority, makes the decision to allow or disallow impact, but the decision must not result in loss of species viability or create significant trends toward Federal listing.)

5. Establish management objectives in cooperation with the States when projects on National Forest System lands may have a significant effect on sensitive species population numbers or distributions.

6. Establish objectives for Federal candidate species, in cooperation with the FWS or NMFS and the States.

Pursuant to USFS Manual 2670, Regional Foresters have designated sage-grouse as a sensitive species in the both the Intermountain Region (USDA Intermountain Region Sensitive Species Designation Memo) and the Pacific Southwest Region (USDA Pacific Southwest Region Sensitive Species Designation Memo dated March 21, 2001).

5.5 Additional Federal Guidance

BLM Sage-Grouse Conservation and Management Related Guidance

Sage-Grouse Habitat Conservation Guidance

National Sage-Grouse Habitat Conservation Strategy (BLM Instruction Memorandum IM-2005-024).

Grasshopper and Mormon Cricket Treatments within Greater Sage-grouse Habitat (BLM Instruction Memorandum IM-2010-084).

Surface Disturbance and Energy Development Guidance

Managing Structures for the Safety of Sage-grouse, Sharp-tailed grouse, and Lesser Prairie-chicken (BLM Instruction Memorandum IM-2010-022).

General Wildlife Guidance for Authorization of Meteorological Tower (MET) Right-of-Way Applications and Wildlife Monitoring Protocols for Wind Energy Development (BLM Instruction Memorandum NV-2010-024).

Gunnison and Greater Sage-grouse Management Considerations for Energy Development (Supplement to National Sage-Grouse Habitat Conservation Strategy) (BLM Instruction Memorandum IM-2010-071).

Wildland Fire and Fuels Management Guidance

2008/2009 Wildfire Season and Sage-grouse Conservation (BLM Instruction Memorandum IM-2008-142 (Change 1)). This IM was replaced by IM-2010-149.

Sage-grouse Conservation Related to Wildland Fire and Fuels Management (BLM Instruction Memorandum IM-2010-149). This IM was replaced by IM-2011-138.

Sage-grouse Conservation Related to Wildland Fire and Fuels Management (BLM Instruction Memorandum IM-2011-138).

Other Applicable Management Guidance

BLM Interim Management Policy for Lands Under Wilderness Review (BLM Manual H-8550-1, BLM 1995).

Identification and Uniform Mapping of Wildlife Corridors and Crucial Habitat Pursuant to a Memorandum of Understanding with the Western Governors' Association (BLM Instruction Memorandum IM 2012-039).

USFS Sage-Grouse Guidance

On July 1, 2010 the Washington Office of the U.S. Forest Service issued a memorandum outlining activities to increase management of sagebrush habitat to restore quality sagebrush habitats on National Forest System lands. The activities include the following:

1. Develop and implement more habitat improvement activities for sage-grouse, and incorporate more sagebrush habitat conservation measures into other resource management activities,

2. Continue to integrate sage-grouse, sagebrush, and other resource management, and coordinate these activities with states, other agencies, and adjacent landowners,

3. Avoid or minimize adverse effects to sage-grouse and sagebrush habitat,

4. When revising Land Management Plans for units with sage-grouse and sagebrush habitat, use the best available scientific information and develop Forest Plan direction to conserve that habitat,

5. Where appropriate and useful, use informal discussions with the FWS and established local working groups to better develop projects that could affect sage-grouse or sagebrush habitats, and to more effectively evaluate project effects.

6.0 RESEARCH AND MONITORING

6.1 Goals and Objectives

- Improve the science-based understanding of the species life history and conservation needs.
- Continue focus on comprehensive lek surveys and population monitoring.
- Continue research support and use of telemetry to better define movement patterns and identify key seasonal ranges.

6.2 Telemetry Monitoring

Monitoring grouse within each PMU is critical to plan and evaluate conservation actions. Telemetry methods offer a common and effective approach to monitor sage-grouse and allow inferences at the level of individuals and populations.

Objectives

1. Identify seasonal sage-grouse habitat and use areas within each PMU.
2. Identify environmental factors that are selected by sage-grouse and those that have a positive influence on population vital rates (habitat).
3. Identify environmental factors that are avoided by sage-grouse and those that have negative influence on vital rates (risks).
4. Identify areas that are used for movement between seasonal core areas (corridors) as well as other movement patterns.

Pine Nut PMU 2012 – 2016 Telemetry and GPS Study Plan

Objectives

1. Capture at least 20 to 30 sage-grouse and install half with VHF radio-transmitters and half with GPS transmitters within the Pine Nut PMU (Approximately 80 percent females and 20 percent males).
    a. Capture will take place on or near leks during spring and at roost sites during fall and winter as weather permits.
    b. Collect blood samples from each bird and submit these samples to the University of Denver for genetic analyses.
    c. Conduct morphological measurements to calculate body condition index (BCI) by obtaining mass, flat wing, tarsus, and culmen measurements.

2. Relocate grouse and obtain UTM coordinates by circling grouse (30 – 50 m error) approximately every 3 days during the breeding, nesting, and brood-rearing season for VHF. Set GPS to obtain 4 to 20 coordinates/day for year-round movement and utilization distribution analyses.

3. Measure vegetation and other environmental characteristics at relocation points and random points for habitat selection analyses.

4. Determine nest status, brood status, and sage-grouse mortality using fine-scale VHF monitoring to include in analysis of vital rates.

5. Collect feces and vegetation measurements at winter relocations for diet analysis using gas chromatography.

6. Monitor a subpopulation of nesting sage-grouse with continuous videography.

Desert Creek 2012-2014 Telemetry Study Plan

To more accurately identify key use areas and better understand seasonal movements within the Nevada portion of this PMU, capture approximately 20 to 30 individual sage-grouse per year during 2012, 2013, an 2014 to fulfill data needs. Target areas will include Desert Creek Lek #2, Sweetwater Lek #2, Wiley Ditch Lek #2, and Wiley Ditch Lek #3, as well as brood-rearing areas associated with Desert Creek Ranch, Sweetwater Ranch and Scierine Ranch.

Objectives

Telemetry monitoring in the Desert Creek PMU will augment existing datasets and will help inform the Conservation Planning Tool.

1. Identify habitat during the reproductive life-stages of female grouse using multi-scale analysis (measurements from field and Geographical Information Systems).

2. Estimate nest and brood survival rates in relation to selected vegetation parameters at multiple spatial scales.

3. Identify seasonal home-ranges and movement patterns by sex and age. Distinguish between habitat types during different life-stages if evident.

4. Estimate monthly and annual survival rates by sex and age and compare with other known research results.

Funding for this monitoring effort will be garnered through various agencies and funding sources. Current funding resources from the NDOW and BLM have been acquired to purchase radio transmitters and aerial survey time. Additional funding resources may be available through the Nevada Upland Game Stamp program, Wildlife Heritage Trust Account and additional requests may be made to the U.S. Forest Service and non-profit organizations.

Mount Grant PMU - Bodie PMUs 2012-2015 Telemetry Study Plan

Additional data using telemetry are needed within the Mount Grant PMU, as this is one of the largest information gaps. Relatively little is understood regarding birds that utilize the Nine Mile Flat area to the south and east of the East Fork of the Walker River, as well as birds that utilize the upper elevations of the Wassuk Range. However, there are some lek locations that are reliable and brood-rearing habitat has been identified, making capture attempts somewhat promising. The objective for this PMU is to capture between 20 to 30 sage-grouse either during the breeding season or late brood-rearing period. The effort would be conducted over a three to five-year period and objectives would essentially be the same as those identified for the Desert Creek-Fales PMU.

Some funding for the initial stages of this project is available from the Nevada Department of Wildlife and the Bishop BLM. Radio-transmitters and a receiver have been purchased for this project. Focus areas would include Nine Mile Flat #2, China Camp #2, Flying M Ranch - Nine Mile Unit, and Lapon Meadows. It is anticipated that initial capture work will begin during the spring of 2012 and continue through 2015. Follow-up will be conducted by a seasonal technician and augmented by contracted aerial telemetry surveys during periods that a technician is not available. Additional funding will be necessary to fund the technician and cover future years of the project.

White Mountains 2012 – 2016 Telemetry and GPS Study Plan

The use of GPS transmitters should be strongly encouraged in tough terrain to gather further data for sage-grouse within the White Mountains PMU. This technology is critical to meet data requirements to help guide management decisions. Sage-grouse within the White Mountains PMU require further monitoring efforts, especially to meet the criteria to develop a Conservation Planning Tool for this unique population of grouse.

Objectives

1. Capture 20 to 25 sage-grouse and deploy GPS transmitters equipped with VHF devices for on-the-ground tracking (approximately 80 percent females and 20 percent males).

    a. Capture should take place near or on leks during spring and at roost sites during fall and winter as weather permits.

    b. Collect of blood samples from each bird

    c. Conduct morphological measurements to calculate body condition index (BCI) by obtaining mass, flat wing, tarsus, and culmen measurements.

2. Obtain at least 4 to 20 coordinates per day for movement and utilization distribution analyses.

3. Measure vegetation and other environmental characteristics at relocation points and random points for habitat selection analyses.

4. When feasible, determine nest status, brood status, and adult and juvenile mortality using fine-scale VHF monitoring for vital rate analyses.

South Mono 2012 – 2016 Telemetry and GPS Study Plan

1. Capture 20 to 25 sage-grouse and install transmitters.

    a. Capture will take place near or on leks during spring and at roost sites during fall and winter as weather permits.

    b. Record morphological measurements to calculate body condition index (BCI) by obtaining mass, flat wing, tarsus, and culmen measurements.

2. Relocate grouse and obtain UTM coordinates every three days during the breeding, nesting, and brood-rearing season.

3. Measure vegetation and other environmental characteristics at relocation points and random points for habitat selection analyses.

4. Deploy remote video cameras and DVRs at nest sites to identify predators and document predation behavior.

5. Conduct raven surveys throughout Long Valley and Parker Creek areas, specifically in relation to nest sites.

6. Determine nest status, brood status, and sage-grouse mortality using fine-scale monitoring to include in analysis of vital rates.

7. Collect feces and vegetation measurements at winter relocations for diet analysis using gas chromatography.

6.3 Standardize Vegetation Monitoring Protocols

Vegetation monitoring and data collection is conducted annually by state and federal agencies primarily for baseline condition assessments and effects monitoring. Existing vegetation monitoring protocols should be standardized for consistency and consolidated in such a way to meet multiple objectives including the science-based adaptive management approach. Standardized USFS, BLM, USGS, and NRCS protocols will expand the utility of ongoing vegetation monitoring to provide compatible data for the Conservation Planning Tool described in Section 6.5.

6.4 Standardized Lek Survey and Inventory Protocols

Extensive efforts have been employed to count known leks in the Bi-State PMU under the lead of each state and with the assistance of a number of agencies and volunteers. Attempts are made to count all known leks throughout the Bi-State annually. However, some counts may not be conducted in a given year based on access to lek sites and availability of personnel which results in disproportional efforts in each state Some efforts in certain areas,

such as Long Valley and Bodie, may be more than required to capture annual variation in populations and efforts in other PMUs are inadequate. Current surveys are biased by known leks and are not necessarily based on a sampling design. In spatially-balanced sampling designs, most effort can and should be placed in areas with the highest probability of lek occurrence. However, additional sampling is needed to capture spatial and temporal variation in lek occurrence. Over time, efforts should be made to search for additional leks. Attempts should be made conduct lek counts and additional surveys based on the following priorities:

1. All known leks accessible from the ground should be counted three times each year.
2. Aerial surveys should be employed for leks inaccessible from the ground.
3. Inactive leks should be revisited based on probability of activity.
4. Searches for additional leks should be conducted based on probability of occurrence.

6.5 Science-based Adaptive Management Plan

The Bi-State DPS Science-Based Adaptive Management Plan (SAMP) is a strategic process for guiding sage-grouse management using multiple years of data and ongoing data collection. This approach integrates the best available science to help guide local and landscape-level management and conservation decisions for Bi-State sage-grouse. Management actions within the Bi-State DPS to conserve and enhance sage-grouse populations must be scientifically-defensible and specific to the Bi-State sage-grouse populations.

Results of current studies conducted within the Bi-State DPS show that the environmental factors selected by sage-grouse and the factors that influence their vital rates differ from populations range-wide (Casazza et al. 2010, Kolada et al. 2010a, Kolada et al. 2010b). and these populations are genetically distinct (Oyler-Mccance et al 2005). Because of the important identified differences between populations within the Bi-State and those range-wide, applying the same management standards in the Bi-State that are applied range wide may not produce the expected outcomes and will likely reduce success and efficiency of management actions and actions taken by land stewards and stakeholders. The Bi-State SAMP will use information from sage-grouse within the Bi-State DPS and will require a diligent process by managers, land stewards, stakeholders, and researchers in using current information and additional data as the groundwork for making sage-grouse management decisions for each PMU.

SAMP Objectives

The objective of the SAMP is to initiate a more informative data-driven modeling approach for identifying sage-grouse habitat in the Bi-State area to inform management decisions. A conservation planning tool (CPT) will be developed that ranks the relative importance of areas across the landscape for sage-grouse within each PMU based on a set of environmental factors. The advantages of this approach are that the model is based on sage-grouse data and it can incorporate many more variables for predicting sage-grouse occurrence and population performance. Maps resulting from the models will be used

immediately to guide on-the-ground conservation decisions and practices by managers and other stakeholders.

The long-term objectives are to guide management decisions based on data-driven models, implement those actions, evaluate the outcomes, and modify management practices based on this iterative learning process.

Conservation Planning Tool

The foundation of the adaptive management approach is to develop and implement a Conservation Planning Tool (CPT) for the Bi-State populations. This tool consists of linked data-driven predictive models and interactive maps to identify and rank areas for management actions and provide a basis to evaluate those actions. Because resources and time needed for management actions are often limited within the Bi-State area, the CPT will focus management efforts on the areas that are most meaningful for sage-grouse populations.

The CPT requires newly collected data, previously collected data, and high-resolution maps and uses a geographic information system (GIS) and advanced statistical modeling to provide quantitative evidence to better inform management decisions. In an adaptive management framework the CPT will be used to guide and modify management actions and objectives based on effectiveness (Figure 14). This strategic approach will provide insight into what management actions should be conducted and which areas should be targeted, while reducing the chances of carrying out actions in areas where the effects are inconsequential and not meaningful. Using the CPT to link the outcome of a management action to the response of sage-grouse populations is critical because it provides a mechanism to modify future actions for efficiency. This approach will strengthen through time with substantial long-term benefits because it relies on a learning process aimed at reducing uncertainty in predicting management outcomes. In other words, this approach consists of an iterative process, in that the results of management practices will be evaluated using the CPT and those practices will be adjusted on the basis of what was learned.

This approach can be implemented immediately in areas where a substantial amount of data has been collected over the past ten years resulting in a relatively strong current knowledge. The CPT will be developed for each Bi-State PMU and will account for spatial and temporal variation in environmental factors between PMUs. Implementation of the SAMP will be ongoing within the Bi-State DPS area. Newly acquired data will continually be incorporated into the CPT to improve its predictive power.

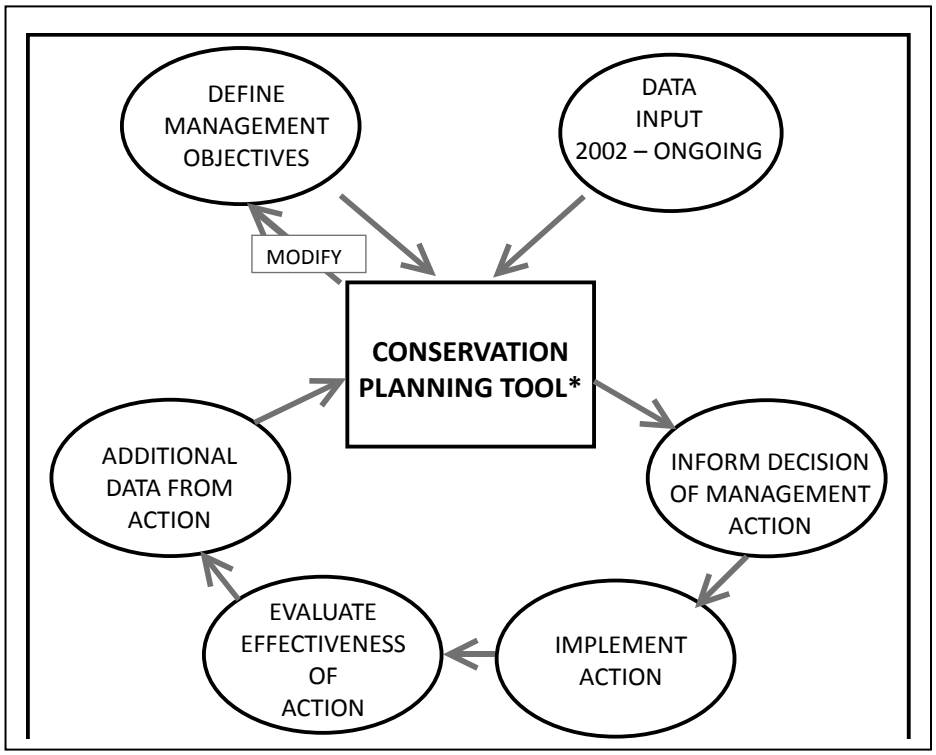


Figure 14. Conceptual model of *Science-Based Adaptive Management Approach* to guide conservation and management actions for sage-grouse populations within the Bi-State DPS area.

Integrating Probability of Sage-Grouse Occurrence into the CPT

Task 1-1. Defining Habitat and Ranking Risks

The primary purpose of this task is to integrate multiple data sources into a landscape-level analysis that identifies and ranks habitat of sage-grouse within each PMU, as well as identify those environmental factors that are risks to grouse populations. Those environmental factors that are risks to grouse would not be correlated with sage-grouse occurrence, whereas those factors that are not risks would correlate with grouse occurrence on the landscape. Successful sage-grouse management can be accomplished through an understanding of the environmental factors that are selected and those that are avoided by sage-grouse populations. Understanding the specific combination of factors that explain sage-grouse occurrence will allow managers to either avoid or benefit grouse. (e.g., related to land-use setting, restoration, etc.). Understanding which factors are avoided will allow managers to prioritize risks and develop effective, efficient actions. Throughout the PMUs, environmental factors have been hypothesized as risks, primarily from local-scale analyses and professional opinions, but data must be compiled on a landscape-level scale to quantify those factors (e.g., powerline and road coverage) and incorporate them into the CPT. There is a limited and basic understanding of sage-grouse habitat and those environmental attributes that present a risk to sage-grouse within the Bi-State area. The CPT will incorporate a scientifically-defensible analysis that uses empirical data (existing and new), coupled with high-resolution land cover maps, as a basis for management decisions.

Defining Sage-Grouse Habitat. A priority in developing the CPT is to use landscape-level factors to identify sage-grouse habitat. In this task, the comparison between use and availability of each resource, or environmental factor, will be the fundamental basis in quantifying sage-grouse habitat. Resource selection functions (RSF) will be estimated for each quantifiable resource, which is *the relative probability of selection based on information about use and* availability (Boyce and McDonald 1999, Manly et al. 2002). A resource that is used disproportionately more than it is available is considered 'selected by grouse.' Therefore, RSF provide evidence of affinities of each environmental factor. A substantial amount of telemetry data has been collected over the past ten years and these data will be used to characterize resource use by grouse. Random points will be generated on the landscape and will be used to characterize resource availability to grouse.

Ranking Risks. The CPT will provide a mechanism to quantitatively rank risks to sage-grouse populations. Risks can have multiple negative effects on population persistence including reducing the probability of occurrence and population performance. Many environmental factors that are considered hypothesized risks (e.g., infrastructure, invasive species, etc.) are quantifiable and will be considered explanatory factors in contrasting 'used' from 'available' sites. Multiple plausible metrics will be used for each hypothesized factor to avoid error in choosing the appropriate measurement to quantify risks.

An environmental factor that shows evidence of avoidance by sage-grouse will be considered a risk to the population. The resulting RSF for each factor will provide evidence of the effect on sage-grouse avoidance and will be ranked according to the magnitude of that effect. The magnitude of avoidance of any given risk (e.g., distance to powerline) will be comparable to the magnitude of all other risks, which will allow ranking those risks.

Not all risks can be included into the CPT because some risks are not possible to quantify with the given data (e.g., coyote predation). Additional data may be needed to quantify risks that have been hypothesized by professional opinion, so that those risks may be included in the CPT. Those risks that are quantifiable but do not show evidence of avoidance are by default benign on influencing the occurrence of grouse.

Environmental factors that define sage-grouse habitat and those that are avoided will vary across populations within the Bi-State DPS area and sage-grouse life-history phases (e.g., nesting, brood-rearing, wintering, etc.). For example, an environmental factor may be considered crucial habitat for one life-history phase (e.g., nesting) but not for another (e.g., wintering). Likewise, an anthropogenic factor (e.g., powerline) may be avoided during one phase but the effect may be benign during a different phase. It is often the case that RSF are not robust for application across different times or places, largely because of ecological and behavioral variation (Boyce et al. 2002). Actions by managers will be the most effective given a thorough understanding of when specific environmental factors define habitat for a population, as well as an understanding of those factors that are avoided by the population. Because the affinity or avoidance for environmental factors will vary across different discrete life-history phases and populations, RSF will be calculated for each PMU within each life-history phase (e.g., nesting). This will provide a more detailed understanding of when and where sage-grouse populations are at risk from specific factors and which factors are most valuable to that population.

Task 1-2. Developing a Spatially-Explicit Tool of Probability of Occurrence

Developing a spatially-explicit tool will be instrumental in providing managers with an interactive method to choose areas for management actions, as well as evaluate the effectiveness following implementation. The probability of occurrence models must be spatially-explicit and in a form useful for managers to use for prediction and evaluation.

The spatially-explicit tool will be based on the RSFs developed in Task 1-1 and will be a strong basis for decision-making by land and wildlife managers. For example, this model will allow managers to interactively extract values for the probability of occurrence from any point, line, and/or area on the landscape in a GIS.

This task will result in a series of useful maps consisting of relative probabilities of occurrence within each PMU and during each distinct life-phase. Although limited to specific life-history phases, similar spatially-explicit approaches of probability of occurrence have been fruitful in guiding management options and evaluating actions for sage-grouse elsewhere (Aldridge et al. 2011, Doherty et al.). In most areas of the Bi-State DPS Tasks 1 and 2 will be implemented immediately after obtaining high resolution GIS coverages and existing data, and these results will be available for managers to use as a basis for some of their decisions.

Although this action can be conducted for the majority of the Bi-State without additional telemetry data, this action will require new data within many areas where information is lacking.

Integrating Population Performance into the CPT

In areas with robust data sets, a more informative second action will be carried out that consists of building an interactive composite tool that combines occurrence and performance and accounts for environmental factors that influence population vital rates. Source habitat generally allows the population in increase whereas sink habitat does not contribute to population increase and would not be able to support a population without the constant influx of individuals produced in source habitat.

Task 2-1. Identifying Factors that Influence Population Vital Rates

Population performance will be comprised of multiple factors that will contribute to population growth rates, including nest survival, brood survival, juvenile survival, and seasonal and annual adult survival. Linking environmental factors to each of these vital rates is necessary to identify which resources to target in management efforts and where management projects will be most influential. Similar to the RSF analysis, this action will help distinguish environmental factors that pose a high risk to sage-grouse persistence from those that are low-risk, and identify crucial habitat factors that benefit sage-grouse population vital rates. By accounting for factors that influence vital rates, rather than only those that influence occurrence, the CPT will be more strategic in its predictive outcomes and increase the efficiency of resources and time spent on management projects. This action will require additional data within several PMUs.

In areas where vital rate data are available, environmental factors will be quantified at the landscape-level and used as explanatory variables in analyses appropriate for the vital rate under investigation. Each vital rate will be considered a “response variable” and evaluated

separately using the appropriate model structure. This action will entail estimating the effects of the explanatory variables on population vital rates (e.g., nest survival) by considering explained variation in the response. Explanatory variables that are associated with increased vital rates will be identified and the effects will be estimated. Similarly, those environmental factors that demonstrate a negative association with the vital rate will be defined as risks and ranked based on the magnitude of the effect.

Task 2. 2. Developing a Spatially-Explicit Tool of Population Performance

The spatially explicit tool that incorporates probability of occurrence and population performance derived from this task will provide a powerful approach to prioritizing conservation actions. Similar progressive tools have been developed and described in other portions of sage-grouse range (Dzialak et al. 2011). For each vital rate, a spatially-explicit tool will be developed based on the calculations from the first task. Without incorporating a link between factors and vital rates in the CPT, conservation efforts and funding may be directed at areas that are functionally demographic sinks.

This tool will help identify optimal areas (i.e., source populations) to gain the greatest benefit from protection efforts and funding. This tool will also provide information on what mechanisms contribute to sink populations, where management objectives aimed at population restoration would likely benefit. In most areas, reliable prediction from this tool will be a relatively long-term process and will likely require additional field data collection.

Science Advisor Support (USGS)

A Science Advisor with specialized experience will be required to implement the actions associated with implementing the SAMP. The USGS Western Ecological Research Center is a primary source that federal and state agencies utilize to support decisions by land managers throughout the Pacific Southwest. The Science Advisor will have expert knowledge of sage-grouse populations and sagebrush ecosystems, particularly within the southwestern portion of sage-grouse range. The Science Advisor is expected to provide information to agencies, land stewards, and other stakeholders within the Bi-State DPS in formats that are useful for management, including technical bulletins and peer-reviewed publications, technical assistance, Geographical Information Systems, and databases. The primary duty of the Science Advisor will be a substantial contribution to the development of the Conservation Planning Tool. Specific duties will include: 1) Interpreting and analyzing existing and newly acquired data, 2) Advanced statistical and geospatial modeling, 3) Workshops regarding interpretation of the CPT, 4) Consultation and assistance in collecting additional telemetry data, 5) Standardizing vegetation survey protocols, and 6) Developing and conducting studies in areas with information gaps.

7.0 BI-STATE STRATEGIC ACTION PLAN

The overall Conservation Goals provide the foundation and vision for a coordinated and cooperative management approach for conservation of the Bi-State DPS of the Greater Sage-Grouse:

1. Ensure no net-loss of greater sage-grouse breeding populations in the Bi-State Plan area (2004 Bi-State Plan Species Conservation Goal).

2. Maintain and improve sagebrush and associated habitats to provide for the long-term viability of greater sage-grouse populations within the Bi-State Plan area (2004 Bi-State Plan Ecosystem Conservation Goal).

Conservation objectives, strategies and actions provide a strategic framework designed to achieve the overall conservation goals identified for the Bi-State DPS of the Greater Sage-Grouse. Conservation actions are outlined using a hierarchal approach that identifies each action relative to the broader conservation objectives and strategies identified in the overall plan.

Habitat project funding and implementation priorities should generally be based on the following criteria: 1) Maintenance of the largest populations and/or the least threatened habitats (South Mono, Bodie, and White Mountains PMUs); 2) Enhancement of populations and habitats with the greatest potential for growth and connectivity with core populations (Desert Creek-Fales, Mount Grant, and Bodie PMUs); and 3) Attempts to restore smaller and likely more isolated populations and habitats that may not always respond commensurate to input but may realize dramatic improvements on limited occasions (Pine Nut PMU; Granite Mountain, Adobe Valley, and Parker Meadows in the South Mono PMU).

Research and monitoring funding and implementation priorities should generally be based on the following criteria: 1) Populations with no, or limited, data on bird movements, habitat use, and population status (Pine Nut, Mount Grant, White Mountains, and Desert Creek-Fales PMUs); 2) Small and/or isolated populations or portions of a larger populations with no, or limited, data on bird movements and habitat use (Granite Mountain, Adobe Valley, and Parker Meadows in the South Mono PMU; Bodie PMU west of US Highway 395); 3) Populations where substantial habitat restoration work has occurred (portions of the Bodie, Desert Creek-Fales, Mount Grant, and Pine Nut PMUs); and 4) Populations with a current abundance of available information (Long Valley in the South Mono PMU and the Bodie Hills proper in the Bodie PMU).

7.1 Coordinated Interagency Approach

Objective: Implement a coordinated interagency approach towards conservation and management of greater sage-grouse populations and habitats within the Bi-State Plan area.

Strategy CIA-1: Leverage available staff and funding to facilitate implementation of the *Action Plan for Conservation of the Bi-State DPS of the Greater Sage-Grouse*.

Responsible Parties: EOC, ST, TAC, LAWG

- **Action CIA1-1:** Implement a "Sage-Grouse Service Team" approach to support sage-grouse conservation and management in the Bi-State area. Provide cross-jurisdictional staff support to facilitate the coordinated interagency effort to conserve the Bi-State DPS and its habitat.

- **Action CIA1-2:** Provide multi-jurisdictional funding to support sage-grouse conservation and management in the Bi-State area. Establish a process to identify and support cross-jurisdictional funding opportunities to facilitate the coordinated interagency effort to conserve the Bi-State DPS and its habitat.

- **Action CIA1-3:** Annually engage the Bi-State Local Area Working Group (LAWG) via the Technical Advisory Committee (TAC) to develop a proposed program of work for the upcoming calendar year based on available staff and funding. The proposed annual program of work should be completed by January 31 each calendar year.

7.2 Science-Based Adaptive Management Plan

Objective: Implement scientifically and economically sound management strategies to conserve greater sage-grouse populations and habitats within the Bi-State Plan area.

Strategy SAM1: Coordinate with the USGS Western Ecological Research Center to provide Science Advisor support for the development and implementation of a Conservation Planning Tool (CPT) for the conservation and management of greater sage-grouse populations and habitats in the Bi-State area.

Responsible Parties: EOC, ST, TAC

- **Action SAM1-1:** Establish interagency agreements and funding mechanisms needed to provide funding and logistical support to secure the services of a USGS Science Advisor. Detailed information on the scope of work for the Science Advisor is provided in Section 6.5 (Science-Based Adaptive Management Plan).

Strategy SAM2: Develop and implement a science based Conservation Planning Tool (CPT) to support the conservation and management of greater sage-grouse populations and habitats in the Bi-State area. Detailed information on the CPT is included in Section 6.5 (Science-Based Adaptive Management Plan).

Responsible Parties: TAC, ST

- **Action SAM2-1:** Acquire high resolution (5 meter or less), multi-spectral (7 band minimum), imagery for the entire Bi-State area and begin the image classification and field verification process required to model sage-grouse habitat selection and suitability based on resource availability and use.

- **Action SAM2-2:** Continually incorporate new sage-grouse telemetry, habitat, and vital rate data into the CPT to improve predictive modeling and adaptive management capabilities.

- **Action SAM2-3:** Incorporate the CPT into habitat improvement project design and population augmentation and reintroduction evaluation processes to provide managers with an interactive, spatially-explicit tool to choose the most appropriate areas for management action, as well as to evaluate and quantify project effectiveness following implementation.

- **Action SAM2-4:** Incorporate hypothesized risk factors into the CPT to model and quantify the relative importance of each risk factor by life-history stage for each PMU.

- **Action SAM2-5:** Incorporate sage-grouse vital rates into the CPT to identify which environmental factors are likely exerting the greatest influence on sage-grouse persistence to determine the probability of population performance for each PMU.

- **Action SAM2-6:** Incorporate the vital rate adjusted CPT into habitat improvement project design and population augmentation and reintroduction evaluation processes to further improve managers abilities to choose the most appropriate areas for management action, as well as to evaluate and quantify project effectiveness following implementation.

7.3 Improve Regulatory Mechanisms

Objective: Improve regulatory effectiveness and consistency for discretionary agency actions that may affect the Bi-State DPS and its habitats.

Strategy IRM1: Implement agency specific guidance designed to minimize or eliminate threats associated with potential land use authorizations that may affect greater sage-grouse populations and habitats in the Bi-State area consistent with existing laws, policies and regulatory authorities. Where applicable and appropriate, incorporate conservation measures recommended by the National Sage-Grouse Technical Team. Where applicable and appropriate, incorporate conservation measures recommended by the Bi-State Sage-Grouse Technical Advisory Committee (TAC).

Responsible Parties: BLM, USFS, NDOW, CDFG, FWS

- **Action IRM1-1:** Develop and issue interim BLM/USFS guidance designed to increase the regulatory effectiveness and consistency for Federal land management actions that may affect the Bi-State DPS and its habitat until land use plans are updated to include additional guidance specific to sage-grouse conservation in the Bi-State area. Land use plan updates are identified by relative priority in this section.

- **Action IRM1-2:** Coordinate and informally confer with state wildlife agencies and the FWS when evaluating Federal land management actions that may affect the Bi-State DPS and its habitat or when developing and implementing policies or land use plan objectives designed to avoid or minimize impacts to the Bi-State DPS and its habitat.

- **Action IRM1-3:** Implement the following policies pursuant to BLM Manual 6840 to increase conservation efforts for the Bi-State DPS and its habitat:

  1. Designate the Bi-State DPS as a separate BLM Sensitive Species entity in CA and NV (6840 6.2A). Give priority to the Bi-State DPS and its habitat for conservation action (6840 6.2C).

  2. Address the Bi-State DPS and its habitat in both land use plan and activity plan analyses and decisions that may affect the status of the DPS or its habitat (6840 6.2B).

  3. Manage the Bi-State DPS and its habitat to minimize or eliminate threats affecting the status of the DPS and to improve habitat conditions in the Bi-State area (6840 6.2C). Specifically:

     - Determine, to the extent practicable, the distribution, abundance, population condition, current threats, and habitat needs for the Bi-State DPS and evaluate the significance of BLM-administered lands and actions undertaken by the BLM in conserving the DPS.

     - Ensure that BLM activities affecting the Bi-State DPS are carried out in a way that is consistent with objectives for managing the DPS and its habitat at the appropriate spatial scale.

     - Monitor populations and habitats of the Bi-State DPS to determine whether species management objectives are being met.

     - Work with partners and stakeholders to develop Bi-State DPS specific or ecosystem-based conservation strategies including agreements, assessments and cooperative strategies for conservation.

     - Prioritize the Bi-State DPS and its habitat for conservation action based on considerations such as human and financial resource availability, immediacy of threats, and relationship to other BLM priority programs and activities.

     - Use Land and Water Conservation Funds, as well as other land tenure adjustment tools, to acquire habitats for the Bi-State DPS, as appropriate.

     - Incorporate best management practices, standard operating procedures, conservation measures, and design criteria to mitigate specific threats to the Bi-State DPS during the planning of activities and projects.

  4. Continue to work cooperatively with other agencies, organizations, governments, and interested parties for the conservation of the Bi-State DPS and its habitat to meet agreed upon species and habitat management goals (6840 6.2C).

- **Action IRM1-4:** Implement the following policies pursuant to National Forest Manual 2670 to increase conservation efforts for the Bi-State DPS and its habitat:

1. Designate the Bi-State DPS as a separate USFS Sensitive Species entity in the Intermountain Region (Region 4).

2. Retain the current sensitive species designation for sage-grouse in the Pacific Southwest Region (Region 5).

- **Action IRM1-5:** Revise the Carson City District Consolidated RMP (Sierra Front and Stillwater Field Offices) to incorporate additional land use plan guidance specific to greater sage-grouse conservation (High Priority).

  1. Consider Area of Critical Environmental Concern (ACECs) or other special designations, including mineral withdrawals, for the protection of known occupied and potential sage-grouse habitats in the Bi-State area.

  2. Due to the relatively small and isolated nature of the Bi-State DPS, deference should be given to conservation of all extant populations of greater sage-grouse in the Bi-State area.

- **Action IRM1-6:** Revise or amend the Toiyabe National Forest LRMP (Bridgeport and Carson Ranger Districts) according to the Region 4 schedule (High Priority).

  1. Consider special area designations, including mineral withdrawals, for the protection of known occupied and potential sage-grouse habitats in the Bi-State area.

  2. Due to the relatively small and isolated nature of the Bi-State DPS, deference should be given to conservation of all extant populations of greater sage-grouse in the Bi-State area.

- **Action IRM1-7:** Revise the Tonopah RMP (Tonopah Field Office) to incorporate additional land use plan guidance specific to greater sage-grouse conservation (Moderate Priority).

  1. Consider Area of Critical Environmental Concern (ACEC) or other special designations, including mineral withdrawals, for the protection of known occupied and potential sage-grouse habitats in the Bi-State area.

  2. Due to the relatively small and isolated nature of the Bi-State DPS, deference should be given to conservation of all extant populations of greater sage-grouse in the Bi-State area.

- **Action IRM1-8:** Revise the Inyo National Forest LRMP (Mono Lake, Mammoth, White Mountain and Mount Whitney Ranger Districts) according to the Region 5 schedule (Moderate Priority).

  1. Consider special area designations, including mineral withdrawals, for the protection of known occupied and potential sage-grouse habitats in the Bi-State area.

2. Due to the relatively small and isolated nature of the Bi-State DPS, deference should be given to conservation of all extant populations of greater sage-grouse in the Bi-State area.

- **Action IRM1-9:** Implement the following actions in support of the Bishop RMP (Bishop Field Office):

  1. Develop and issue supplemental rules to increase law enforcement capabilities specific to camping, off-road vehicle use, and other casual use activities that may affect greater sage-grouse populations and habitats on public lands in the Bodie and South Mono PMUs (High Priority).

  2. Amend the Bishop RMP to incorporate Area of Critical Environmental Concern (ACEC) designations for stronghold populations in the Bodie and South Mono PMUs (Moderate Priority).

- **Action IRM1-10:** Revise or amend the Bishop RMP according to the California BLM schedule (Low Priority).

  1. Consider Area of Critical Environmental Concern (ACECs) or other special designations, including mineral withdrawals, for the protection of known occupied and potential sage-grouse habitats in the Bi-State area.

  2. Due to the relatively small and isolated nature of the Bi-State DPS, existing deference for conservation of all extant populations of greater sage-grouse in the Bi-State area should continue.

- **Action IRM1-11:** Annually conduct plan maintenance on applicable RMPs (Carson City, Tonopah, and Bishop) to incorporate the most recent information specific to sage-grouse populations and habitats on public lands administered by the BLM to insure the Bi-State DPS and its habitats are adequately protected (Moderate Priority).

Strategy IRM2: Coordinate with affected county and local governments to develop and implement policies designed to avoid or minimize the loss of sage-grouse habitat in the Bi-State area.

Responsible Parties: EOC, TAC, LAWG

- **Action IRM2-1:** Coordinate with Mono County to develop and incorporate sage-grouse conservation guidance into applicable plans and programs.

- **Action IRM2-2:** Coordinate with county and local governments in Nevada to develop and incorporate sage-grouse conservation guidance into applicable plans and programs.

7.4 Minimize and Eliminate Risks

Objective: Substantially reduce or eliminate potential risks to greater sage-grouse populations and habitats in the Bi-State Plan area.

Wildfire

Strategy MER1: Implement a coordinated interstate/interagency approach towards management of wildfire incidents and suppression activities designed to minimize the risk of catastrophic wildfire and the associated loss of sage-grouse habitat in the Bi-State area.

Responsible Parties: BLM, USFS, DOD, NRCS, FWS, NDOW, CDFG, NDF, Calfire

- **Action MER1-1:** Develop and implement an interagency fire management and suppression agreement specific to the management of wildland fire incidents within and immediately adjacent to known occupied and potential sage-grouse habitats in the Bi-State area prior to the 2012 fire season.

- **Action MER1-2:** Update existing Fire Management Plans (FMPs) to incorporate fire and fuels management conservation measures identified by the National Sage-Grouse Technical Team prior to the 2012 fire season.

- **Action MER1-3:** Annually update dispatch systems and protocols to include line officer and resource advisor notifications and requirements for all wildland fire incidents within and immediately adjacent to known occupied and potential sage-grouse habitats in the Bi-State area.

- **Action MER1-4:** Annually update resource advisor kits to include to the most recent information specific to sage-grouse populations and habitats within the Bi-State area to insure the DPS and its habitat are adequately protected.

- **Action MER1-5:** Develop and provide sagebrush and sage-grouse habitat sensitivity training during required annual fireline refreshers for federal fire personnel in the Bi-State area. Focus training on sagebrush habitat identification, basic sagebrush habitat ecology, and initial attack strategies and tactics designed to minimize long-term impacts to sagebrush ecosystems.

- **Action MER1-6:** Establish an interagency cadre of sagebrush/sage-grouse habitat resource advisors (READs) to support fire suppression, burned area emergency rehabilitation (BAER), and fuels management projects in the Bi-State area. Include NDOW, CDFG, FWS, NRCS, and NDF representation on this team.

- **Action MER1-7:** Prioritize fire suppression actions, fire rehabilitation efforts, and fuels treatments to minimize sagebrush habitat loss or type conversions in and immediately adjacent to known occupied and potential sage-grouse habitats in the Bi-State area.

- **Action MER1-8:** Increase wildfire prevention activities and programs in and adjacent to known occupied and potential sage-grouse habitats in the Bi-State area.

- **Action MER1-9:** Develop and implement a native species seed bank program for the Bi-State DPS. Establish a seed storage facility and conduct seed collections to insure the availability of locally adapted seed for fire rehabilitation efforts in important sage-grouse habitats. Coordinate with the Nevada Division of Forestry (NDF) and other interested agencies to collect and store locally adapted seed for use in fire rehabilitation efforts.

Urbanization

Strategy MER2: Secure conservation easements or agreements with willing landowners to maintain private lands and associated sage-grouse habitats values and minimize the risk of future development impacts to important sage-grouse habitats in the Bi-State area.

Responsible Parties: Landowners, NRCS, FWS, NGOs, LAWG

- **Action MER2-1:** Provide technical assistance to willing landowners to develop Conservation Agreements or Candidate Conservation Agreements with Assurances.

- **Action MER2-2:** Secure a conservation easement or agreement with the Desert Creek Ranch to maintain essential brood rearing habitat in proximity to Desert Creek Lek #2 in the Desert Creek-Fales PMU.

- **Action MER2-3:** Secure a conservation easement or agreement with the Sceirine Ranch to maintain current land use practices and associated sage-grouse brood rearing/late summer habitat values in the Bodie, Mount Grant and Desert Creek-Fales PMUs.

- **Action MER2-4:** Secure a conservation easement or agreement with the Sweetwater Ranch to maintain essential brood rearing habitat in proximity to the Wiley Ditch/Sweetwater Summit lek complex in the Desert Creek-Fales PMU.

- **Action MER2-5:** Secure a conservation easement or agreement for the Mormon Ranch to maintain essential brood rearing habitat in proximity to the Bridgeport Canyon/Little Mormon lek complex in the Bodie PMU.

- **Action MER2-6:** Secure a conservation easement or agreement for the Aurora Meadows complex to maintain brood rearing habitat in proximity to the Aurora lek in the Mount Grant PMU.

- **Action MER2-7:** Secure a conservation easement or agreement for Sinnamon Meadows to maintain brood rearing/late summer habitat values in the western portion of the Bodie PMU.

- **Action MER2-8:** Secure conservation easements or agreements with willing landowners in the Burcham Flat, Wheeler Flat and Fales Hot Springs vicinities to prevent further development impacts in proximity to leks in the Fales breeding complex in the Desert Creek-Fales PMU.

- **Action MER2-9:** Secure conservation easements or agreements with willing landowners for important brood meadow habitat in the Green Creek and Virginia Creek vicinities in the western portion of the Bodie PMU.

- **Action MER2-10:** Secure conservation easements or agreements with willing landowners to maintain key brood rearing/late summer habitats in Bodie Hills portion of the Bodie PMU.

- **Action MER2-11:** Secure conservation easements or agreements with willing landowners in Huntoon Valley, Swauger Creek and northern Bridgeport Valley to maintain brood rearing/late summer habitat values in the southwest portion of the Desert Creek-Fales PMU.

- **Action MER2-12:** Secure conservation easements or agreements with willing landowners to maintain key nesting or wintering habitats along the eastside of the White Mountains in the White Mountains PMU.

Infrastructure and Human Disturbance

Strategy MER3: Implement site-specific conservation measures designed to minimize or eliminate risks associated with existing infrastructure and human disturbance in the Bi-State area.

Responsible Parties: BLM, USFS, Landowners, NRCS, FWS, NDOW, CDFG

- **Action MER3-1:** Install flight diverters on the existing non-let down fence adjacent to Long Valley Lek 2 to deter documented fence strikes.

- **Action MER3-2:** Identify and provide an alternate location for the Mono County landfill and work towards removing the existing landfill out of the Long Valley portion of the South Mono PMU.

- **Action MER3-3:** Design and implement public lek viewing guidelines and other management strategies to reduce human disturbance in the vicinity of Desert Creek Lek #2 in the Desert Creek-Fales PMU.

- **Action MER3-4:** Evaluate existing fences in the Bodie PMU for fence strike hazards. Remove extraneous fences or mark existing fences with flight diverters to deter fence strikes in areas where fence strike hazards are documented. Focus initial efforts in the vicinity of Bodie State Historic Park, 7-Troughs, and Lower Summers Meadow.

- **Action MER3-5:** Work with private landowners in the Long Valley portion of the South Mono PMU to evaluate existing fences for fence strike hazards. Provide assistance to modify or mark existing fences with flight diverters to deter fence strikes in areas where fence strike hazards are documented.

- **Action MER3-6:** Remove or relocate the existing fence near Wiley Ditch Lek #3 in the Desert Creek-Fales PMU if flight diverters are ineffective at preventing fence strikes.

- **Action MER3-7:** Develop and implement stipulations to minimize disturbance impacts associated with increased traffic from the Aurora-Borealis mine in the Mount Grant PMU.

- **Action MER3-8:** Increase warden presence during the sage-grouse breeding season in the lower elevations of the Mount Grant PMU to deter poaching.

- **Action MER3-9:** Avoid the construction of new roads and other infrastructure within known occupied and potential sage-grouse habitat in the Mount Siegel and Bald Mountain vicinities in the Pine Nut PMU unless these features are designed to improve habitat conditions.

- **Action MER3-10:** Design and implement public lek viewing guidelines to address potential human disturbance impacts if demand increases in the Long Valley portion of the South Mono PMU. For now, refer the public to the LADWP office in Bishop for Lek 2 viewing information.

- **Action MER3-11:** Install "grouse crossing" signs at strategic locations along the Owens River Road in the Long Valley portion of the South Mono PMU where birds are known to roost and road kills have been documented.

- **Action MER3-12:** Provide educational opportunities to landowners about the importance of sage-grouse habitat and the need to reduce predation caused by pets in areas where sage-grouse occur.

Pinyon - Juniper Encroachment

Strategy MER4: Map and quantify the spatial juxtaposition and level of pinyon-juniper encroachment that has occurred in relation to known occupied and potential sage-grouse habitat in the Bi-State area. Develop and implement site specific treatments designed to maintain, improve, or restore key seasonal ranges and habitat connectivity within and among breeding populations based on restoration potential.

Responsible Parties: BLM, USFS, NRCS, USGS, FWS, Landowners, NDOW, CDFG

- **Action MER4-1:** Evaluate pinyon-juniper encroachment and potential connectivity issues between upper elevation sagebrush habitats in the Bodie PMU and adjacent low elevation habitats including the Bridgeport Valley and East Walker River in the Bodie and Desert Creek-Fales PMUs and the East Walker River, Ninemile Flat, Aurora, and Alkali Valley portions of the Mount Grant PMU. Design and implement site-specific tree removal projects based on the results.

- **Action MER4-2:** Evaluate pinyon-juniper encroachment and potential connectivity issues in the Masonic Gulch, Red Wash, and Chinese Camp vicinities of the Mount Grant PMU. Design and implement site-specific tree removal projects based on the results.

- **Action MER4-3:** Evaluate pinyon-juniper encroachment and potential connectivity issues in the Huntoon Valley, Swauger Creek and Mount Jackson vicinities of the Desert Creek-Fales PMU. Design and implement site-specific tree removal projects based on the results.

- **Action MER4-4:** Evaluate pinyon-juniper encroachment and potential connectivity issues in the Aurora and Gregory Flats vicinities of the Mount Grant PMU. Design and implement site-specific tree removal projects based on the results.

- **Action MER4-5:** Evaluate pinyon-juniper encroachment and potential connectivity issues in the lower Rough Creek and Del Monte Canyon vicinities of the Mount Grant PMU. Design and implement site-specific tree removal projects based on the results.

- **Action MER4-6:** Evaluate pinyon-juniper encroachment and potential connectivity issues in the Spring Peak, Mount Hicks, and Powell Mountain vicinities of the Mount Grant PMU. Design and implement site-specific tree removal projects based on the results.

- **Action MER4-7:** Evaluate pinyon-juniper encroachment and potential connectivity issues in the Baldwin Canyon and Lapon Canyon vicinities of the Mount Grant PMU. Design and implement site-specific tree removal projects based on the results.

- **Action MER4-8:** Evaluate pinyon-juniper encroachment and potential connectivity issues between upper elevation sagebrush habitats in the Bodie PMU and adjacent low elevation habitats in the Mono Basin portion of the Bodie PMU. Design and implement site-specific tree removal projects based on the results.

- **Action MER4-9:** Evaluate pinyon-juniper encroachment and potential connectivity issues along the northern flank of the Sweetwater Mountains between Burcham Flat and Jackass Flat in the Desert Creek-Fales PMU. Design and implement site-specific tree removal projects based on the results.

- **Action MER4-10:** Evaluate pinyon-juniper encroachment and potential connectivity issues along the eastside of the White Mountains and Palmetto Mountains in the White Mountains PMU. Design and implement site-specific tree removal projects based on the results.

- **Action MER4-11:** Evaluate pinyon-juniper encroachment and potential connectivity issues along the eastside in the Truman Meadows portion of the White Mountains PMU. Design and implement site-specific tree removal projects based on the results.

- **Action MER4-12:** Evaluate pinyon-juniper encroachment and potential connectivity issues between Long Valley and Adobe Valley in the South Mono PMU. Design and implement site-specific tree removal projects based on the results.

- **Action MER4-13:** Evaluate pinyon-juniper encroachment and potential connectivity issues in the Waterson draw area and at the base of south slope of Glass Mountains in the South Mono PMU. Design and implement site-specific tree removal projects based on the results.

Disease and Predation

Strategy MER5: Monitor, and quantify where possible, the extent of disease and predation risks to greater sage-grouse populations in the Bi-State area. Take appropriate management action where causal effects can be identified and effectively mitigated.

Responsible Parties: NDOW, CDFG, BLM, USFS, DOD, USGS, FWS

- **Action MER5-1:** Evaluate raptor and raven use of the DC Intertie transmission line in the Mount Grant PMU. Install perch deterrents if the data indicate facilitated predation is adversely affecting sage-grouse population performance.

- **Action MER5-2:** Evaluate raptor and raven use of the double wood transmission line that crosses brood meadows along the upper Owens River east of Lek 9x at Inaja Ranch. Install perch deterrents if the data indicate facilitated predation is adversely affecting sage-grouse population performance.

- **Action MER5-3:** Evaluate raptor and raven use of the west-side transmission lines in the Bodie PMU. Install perch deterrents if the data indicate facilitated predation is adversely affecting sage-grouse population performance.

- **Action MER5-4:** Develop and implement a West Nile virus surveillance and detection program. Implement mosquito abatement measures and/or Best Management Practices (BMPs) designed to minimize or prevent the potential for a West Nile virus outbreak if the data indicate that West Nile virus is prevalent in the Bi-State area.

Grazing - Wild Horses

Strategy MER6: Maintain wild horse populations at the appropriate management levels (AMLs) and within designated herd management areas (HMAs) or wild horse territories (WHTs) to minimize the risk of excessive use levels and range expansion.

Responsible Parties: BLM, USFS

- **Action MER6-1:** Implement captures or contraceptive methods to maintain the Powell Mountain Wild Horse Herd at or below AML and within the designated WHT.

- **Action MER6-2:** Implement captures or contraceptive methods to maintain the Pine Nut Wild Horse Herd at or below AML and within the designated HMA.

- **Action MER6-3:** Evaluate the status of the White Mountain and Silver Peak Wild Horse and Burro herds. Establish AML and implement captures or contraceptive methods if needed to maintain the herds at or below AML and within the designated WHT.

- **Action MER6-4:** Implement captures or contraceptive methods to maintain the Wassuk Wild Horse Herd at or below AML and within the designated HMA.

- **Action MER6-5:** Evaluate the status of the Montgomery Pass Wild Horse Herd. Establish AML and implement captures or contraceptive methods if needed to maintain the herd at or below AML and within the designated WHT.

Small Populations

Strategy MER7: Identify potential sage-grouse population augmentation and re-introduction sites and develop translocation guidelines to support potential augmentation and re-introduction efforts in the Bi-State area.

Responsible Parties: TAC - NDOW, CDFG, BLM, USFS, USGS, FWS

- **Action MER7-1:** Develop a contingency plan for emergency augmentation of small breeding populations at Parker Meadows and Gaspipe Spring in the South Mono PMU if the need arises.
- **Action MER7-2:** Develop a contingency plan for emergency augmentation of small breeding populations in the Pine Nut Range in the Pine Nut PMU if the need arises.
- **Action MER7-3:** Evaluate the need for augmentation of the Fales population in the Desert Creek- Fales PMU.
- **Action MER7-4:** Evaluate the Powel Mountain area in the Mount Grant PMU as a potential sage-grouse habitat restoration and reintroduction area.
- **Action MER7-5:** Evaluate the McBride Flat/Sagehen Spring area in the Truman Meadows portion of the White Mountains PMU as a potential sage-grouse habitat restoration and reintroduction area.
- **Action MER7-6:** Evaluate Coyote Flat as a potential sage-grouse habitat restoration and reintroduction area.

7.5 Habitat Improvement and Restoration

Objective: Implement habitat improvement and restoration projects designed to ensure the long-term viability of greater sage-grouse populations within the Bi-State Plan area.

Strategy HIR1: Continue to implement on-going habitat improvement and restoration projects on public and private lands in the Bi-State area.

Responsible Parties: BLM, USFS, LADWP, NRCS, FWS, Landowners, Permittees, LAWG, NDOW, CDFG

Pine Nut PMU

- **Action HIR1-1-PN:** Continue to implement pinyon and juniper removal projects in appropriate areas adjacent to occupied sage-grouse habitat in Upper Mill Canyon in the Pine Nut PMU.
- **Action HIR1-2-PN:** Continue to implement pinyon and juniper removal in the Buckskin Valley Vegetation Treatment project area in the Pine Nut PMU.
- **Action HIR1-3-PN:** Maintain the existing fence around the Big Meadow complex in the Pine Nut PMU and mark with flight diverters to deter fence strikes.

- **Action HIR1-4-PN:** Continue to manage livestock to maintain proper functioning condition of the Big Meadow complex in the Pine Nut PMU.

- **Action HIR1-5-PN:** Manage high elevation wet meadows in the southern portion of the Pine Nut PMU for proper functioning condition and forb abundance and diversity. Maintain existing fences and mark with flight diverters to deter fence strikes.

Desert Creek - Fales PMU

- **Action HIR1-1-DCF:** Continue pinyon and juniper removal across Sweetwater Flat and in adjacent pinyon and juniper encroached sagebrush habitats in the Desert Creek-Fales PMU.

- **Action HIR1-2-DCF:** Implement the Long Doctor pinyon-juniper removal project in the Desert Creek-Fales PMU.

- **Action HIR1-3-DCF:** Continue to work with the permittees on Wheeler Flat to develop and implement grazing management strategies that reduce the impacts of early season grazing on key brood meadows in the Desert Creek-Fales PMU.

- **Action HIR1-4-DCF:** Continue to develop and implement an interagency restoration plan for Wheeler Creek to restore hydrologic function and increase forb cover and diversity on adjacent brood meadows in the Desert Creek-Fales PMU.

Mount Grant PMU

- **Action HIR1-1-MG:** Continue pinyon and juniper removal in the China Camp area and adjacent public and private lands in the Mount Grant PMU.

Bodie PMU

- **Action HIR1-1-B:** Complete ongoing pinyon and juniper removal projects in the Lower Summers (Lek 10), Green Creek, Stringer Meadows (Lek 9A), and Upper Aurora Canyon vicinities in the Bodie PMU.

- **Action HIR1-2-B:** Maintain existing meadow habitat protective enclosures in the Bodie Hills portion of the Bodie PMU. Incorporate targeted short-duration grazing to improve brood meadow forb production where appropriate.

- **Action HIR1-3-B:** Continue meadow habitat improvement efforts on public and private lands in Upper Aurora Canyon in the Bodie PMU.

- **Action HIR1-4-B:** Complete the planned removal of the Bodie to Fletcher transmission line that traverses portions of both the Bodie and Mount Grant PMUs.

- **Action HIR1-5-B:** Continue to manage permitted livestock grazing to maintain current nesting habitat quality in the Bodie Hills breeding complex in the Bodie PMU.

- **Action HIR1-6-B:** Complete the ongoing NEPA analysis to support implementation of sage-grouse habitat improvement projects in the Bodie PMU consistent with the findings of the *Bodie Hills Conservation Action Plan* (Provencher et al. 2009).

- **Action HIR1-7-B:** Complete the Lime Kiln windmill removal and solar pump replacement project in the southern portion of the Bodie PMU.

South Mono PMU

- **Action HIR1-1-SM:** Continue to implement and enforce seasonal road closures designed to reduce human disturbance on public lands in the vicinity of Lek 1, Lek 5, and Lek 8 in the Long Valley portion of the South Mono PMU.

- **Action HIR1-2-SM:** Continue to monitor for illegal vehicle use and camping within the Long Valley portion of the South Mono PMU. Increase law enforcement presence and enforcement activities were required to minimize or eliminate recreation impacts.

- **Action HIR1-3-SM:** Implement the proposed tree encroachment removal project near Sagehen Summit in the South Mono PMU.

- **Action HIR1-4-SM:** Continue to monitor implementation of new grazing permit terms and conditions in the Long Valley portion of the South Mono PMU. Identify priorities for more intensive management attention, especially in upland sagebrush types.

- **Action HIR1-5-SM:** Complete the windmill removal and solar pump replacement projects in the Adobe Valley portion of the South Mono PMU.

- **Action HIR1-6-SM:** Maintain the Indian Spring protective fence in the Mono Basin portion of the South Mono PMU.

Strategy HIR2: Design and implement additional site-specific sage-grouse habitat improvement and restoration projects on public and private lands in the Bi-State area in cooperation with the Bi-State Local Area Work Group.

Responsible Parties: BLM, USFS, LADWP, NRCS, FWS, Landowners, Permittees, LAWG, NDOW, CDFG

Pine Nut PMU

- **Action HIR2-1-PN:** Restore previously burned sagebrush habitat within a three-mile radius of the Mill Canyon lek in the Pine Nut PMU.

- **Action HIR2-2-PN:** Maintain meadows in the Mount Siegel/Bald Mountain area in proper functioning condition or improve through livestock management or fencing in the Pine Nut PMU.

- **Action HIR2-3-PN:** Evaluate options to improve sagebrush habitat quality west of the Big Meadow complex in the Pine Nut PMU. Design and implement site specific habitat improvement projects based on the results.

- **Action HIR2-4-PN:** Control noxious weeds within and surrounding the Big Meadow complex in the Pine Nut PMU.

Desert Creek-Fales PMU

- **Action HIR2-1-DCF:** Design and implement site specific projects to improve meadow habitat conditions on Wheeler Flat in the Desert Creek-Fales PMU.

- **Action HIR2-2-DCF:** Investigate opportunities to implement habitat improvement projects on the Sweetwater Ranch in the Desert Creek-Fales PMU. Design and implement site specific habitat improvement projects where feasible.

- **Action HIR2-3-DCF:** Evaluate options to reduce cheatgrass densities southeast of Desert Creek Lek #2 in the Desert Creek-Fales PMU. Design and implement site specific habitat improvement projects based on the results.

- **Action HIR2-4-DCF:** Determine the feasibility for improving perennial grass and forb cover in proximity to Desert Creek Lek #2 in the Desert Creek-Fales PMU. Design and implement site specific habitat improvement projects based on the results.

- **Action HIR2-5-DCF:** Determine the feasibility for improving perennial grass and forb cover across Sweetwater Flat to improve pre-laying and nesting habitat conditions in the Desert Creek-Fales PMU. Design and implement site specific habitat improvement projects based on the results.

- **Action HIR2-6-DCF:** Evaluate nesting habitat and brood meadow condition on Burcham/Wheeler Flats in the Desert Creek-Fales PMU. Design and implement site specific habitat improvement projects based on the results.

- **Action HIR2-7-DCF:** Investigate opportunities for meadow habitat improvement on private lands in the Huntoon Valley, Swauger Creek and north Bridgeport Valley vicinities in the Desert Creek-Fales PMU. Design and implement site specific habitat improvement projects where feasible.

Mount Grant PMU

- **Action HIR2-1-MG:** Develop and implement a management strategy to restore brood habitat on the Rosachi Ranch in the Mount Grant PMU.

- **Action HIR2-2-MG:** Work with Flying M Ranch to maintain and improve brood habitat conditions in the Rough Creek and lower Bodie Creek vicinities of the Mount Grant PMU. Design and implement site specific habitat improvement projects where feasible.

- **Action HIR2-3-MG:** Evaluate meadow habitat conditions in the Aurora and Gregory Flats vicinities of the Mount Grant PMU. Design and implement meadow habitat restoration projects based on the results.

- **Action HIR2-4-MG:** Work with the Hawthorne Army Depot to maintain and improve brood habitat quality at Lapon Meadows in the Mount Grant PMU. Design and implement site specific habitat improvement projects where feasible.

- **Action HIR2-5-MG:** Investigate options to control noxious weeds and cheatgrass within and around the Ninemile Ranch Unit in the Mount Grant PMU. Design and implement site specific habitat restoration projects based on the results.

Bodie PMU

- **Action HIR2-1-B:** Evaluate stringer meadows, spring complexes, and irrigated meadows in the Bodie PMU as potential brood habitat improvement sites. Design and implement site specific habitat improvement projects based on the results.

- **Action HIR2-2-B:** Evaluate mid-elevation sagebrush habitats in the Bodie Hills breeding complex for potential early brood habitat improvement sites in the Bodie PMU. Design and implement site specific habitat improvement projects based on the results.

South Mono PMU

- **Action HIR2-1-SM:** In drought years, work with the LADWP to prioritize irrigation for important brood meadows (e.g., Laurel meadows) in the Long Valley portion of the South Mono PMU.

7.6 Research and Monitoring

Objective: Implement a coordinated interagency research and monitoring program to support the conservation and management of greater sage-grouse populations and habitats within the Bi-State Plan area.

Strategy RAM1: Implement a coordinated interstate/interagency lek inventory and monitoring strategy for the Bi-State area.

Responsible Parties: TAC, NDOW, CDFG, BLM, USFS, LADWP, DOD, FWS, USGS, NRCS

- **Action RAM1-1:** Coordinate annual lek monitoring efforts across state and federal jurisdictional boundaries.

- **Action RAM1-2:** Increase the level of interagency support and effort for annual lek counts in the Pine Nut, Desert Creek-Fales, Mount Grant, and White Mountains PMUs. Implement “saturation counts” where logistically feasible.

- **Action RAM1-3:** Maintain the current level of interagency support and effort required to conduct annual “saturation counts” in the Bodie and South Mono PMUs.

- **Action RAM1-4:** Conduct a systematic aerial inventory of potential breeding habitats in the Bi-State area to identify new or previously undocumented leks.

- **Action RAM1-5:** Focus aerial lek monitoring efforts on remote or otherwise inaccessible locations. Augment aerial surveys with ground counts when and where logistically feasible.

- **Action RAM1-6:** Increase the level of volunteer training and support for annual lek monitoring efforts in the Bi-State area.

- **Action RAM1-7:** Incorporate lek habitat inventory and assessment protocols identified in the interagency *Sage-Grouse Habitat Assessment Framework* (Stiver et al. 2010) into lek inventory and monitoring efforts in the Bi-State area.

- **Action RAM1-8:** Develop and implement a standardized lek location database for documented (active and historic) leks in the Bi-State area.

Strategy RAM2: Implement a coordinated interstate/interagency habitat inventory and assessment strategy for the Bi-State area.

Responsible Parties: TAC - USGS, BLM, USFS, NDOW, CDFG, NRCS, FWS

- **Action RAM2-1:** Identify and map existing sagebrush habitats and important sage-grouse habitats within each PMU. Develop a draft interim habitat map for the Bi-State area by April 30, 2012. Complete a final interim habitat map for the Bi-State area by September 30, 2012.

- **Action RAM2-2:** Incorporate standardized vegetation and environmental characteristics data sampling into existing agency vegetation inventory and monitoring protocols to support the development and implementation of the Conservation Planning Tool (CPT).

- **Action RAM2-3:** Incorporate multi-scale sage-grouse habitat inventory and assessment protocols identified in the interagency *Sage-Grouse Habitat Assessment Framework* (Stiver et al. 2010) into habitat inventory and monitoring efforts in the Bi-State area.

Strategy RAM3: Implement a coordinated interagency/interstate research strategy to collect telemetry data needed to better define sage-grouse movement patterns and key seasonal ranges throughout the Bi-State area and to support development and implementation of the Conservation Planning Tool (CPT).

Responsible Parties: TAC - NDOW, CDFG, USGS, BLM, USFS, DOD, FWS, NRCS

- **Action RAM3-1:** Continue and expand the on-going telemetry effort in the Pine Nut PMU. Incorporate additional capture locations into the study design based on lek inventory results.

- **Action RAM3-2:** Implement a new telemetry effort in the Mount Grant PMU to supplement and expand on previous efforts focused in the Bodie PMU. Focus initial capture efforts in the China Camp, Baldwin Canyon, Aurora and Lapon Meadows lek areas, as well as brood rearing habitat on Ninemile Ranch and Scierine Ranch. Incorporate additional capture locations into the study design based on lek inventory results.

- **Action RAM3-3:** Implement a new telemetry effort in the Desert Creek portion of the Desert Creek-Fales PMU to supplement and expand on previous efforts. Focus initial

capture efforts in the Desert Creek, Sweetwater and Wiley Ditch lek areas, as well as brood-rearing habitats on the Desert Creek Ranch, Sweetwater Ranch and Scierine Ranch. Incorporate additional capture locations into the study design based on lek inventory results.

- **Action RAM3-4:** Implement a new telemetry effort in the White Mountains PMU to supplement and expand on previous efforts. Incorporate the use of GPS technology to improve data collection capabilities in the White Mountains. Incorporate additional capture locations into the study design based on lek inventory results.

- **Action RAM3-5:** Continue and supplement the on-going radio telemetry effort in the South Mono PMU. Focus new capture efforts in the Sagehen Summit, Sagehen Meadows, Gaspipe Spring and McLaughlin Spring areas. Incorporate additional capture locations into the study design based on lek inventory results.

- **Action RAM3-6:** Continue and supplement the on-going telemetry effort in the Fales Portion of the Desert Creek-Fales PMU. Focus additional capture efforts in the upper elevations of the Sweetwater Range and in the Huntoon Valley. Incorporate additional capture locations into the study design based on lek inventory results.

- **Action RAM3-7:** Continue and supplement the on-going radio telemetry effort in the Bodie PMU. Focus additional capture efforts in previously un-sampled lek areas and habitat restoration project areas. Incorporate additional capture locations into the study design based on lek inventory results.

- **Action RAM3-8:** Collect vegetation and environmental characteristics data at telemetry relocation points and random points following standardized protocols to support the development and implementation of the Conservation Planning Tool (CPT).

- **Action RAM3-9:** Incorporate the use of GPS technology into the study design for on-going and planned telemetry efforts to collect data on intra-day and potential long-range and inter-PMU movements.

- **Action RAM3-10:** Collect feces in addition to vegetation and environmental characteristics data at winter relocations for diet quality analysis using gas chromatography.

Strategy RAM4: Incorporate the collection of genetic samples and morphological measurements into planned telemetry capture and lek monitoring efforts to better define the Bi-State DPS including genetic variability within and among sub-populations.

Responsible Parties: TAC - NDOW, CDFG, USGS, BLM, USFS, DOD, FWS, NRCS

- **Action RAM4-1A:** Collect a blood sample from each captured bird and submit these samples to the University of Denver for genetic analyses.

- **Action RAM4-1B:** Collect feathers from each captured bird and submit these samples to the University of Idaho and/or the US Forest Service Rocky Mountain Research Station (RMRS) genetics lab in Missoula, Montana for genetic analyses.

- **Action RAM4-1C:** Collect morphological measurements from each captured bird to calculate body condition index (BCI) by obtaining mass, flat wing, tarsus, and culmen measurements.

- **Action RAM4-2:** Collect feathers from each monitored lek and submit these samples to the University of Idaho and/or the US Forest Service RMRS genetics lab in Missoula, Montana for genetic analyses.

Strategy RAM5: Improve interstate/interagency data and information sharing capabilities across the Bi-State area.

Responsible Parties: TAC - NDOW, CDFG, USGS, BLM, USFS, FWS, NRCS, LAWG

- **Action RAM5-1A:** Develop and implement a standardized spatial database (ArcMap geodatabase) to collect and store all greater sage-grouse conservation related project work occurring in the Bi-State area. Coordinate geodatabase development with signatories to the Bi-State MOU and the Bi-State LAWG to ensure end user compatibility. Populate the geodatabase with conservation actions completed to date by September 30, 2012. Establish procedures for effective and efficient geodatabase maintenance and distribution.

- **Action RAM5-1B:** Develop and implement a standardized tabular database (Microsoft Access database) to collect and store all greater sage-grouse related conservation work occurring in the Bi-State area. Coordinate database development with signatories to the Bi-State MOU and the Bi-State LAWG to ensure end user compatibility. Populate the database with conservation actions completed to date by September 30, 2012. Establish procedures for effective and efficient database maintenance and distribution.

- **Action RAM5-2:** Investigate options to develop and implement an Interagency Bi-State Sage-Grouse Conservation sharepoint site to facilitate collaborative projects and data sharing. If determined to be feasible, establish the sharepoint site and provide access to signatories of the Bi-State MOU.

7.7 Maintain and Improve Stakeholder Involvement

Objective: Develop active, well informed, local planning groups committed to the development and implementation of sage-grouse conservation actions within the Bi-State Plan area.

Strategy MSI1: Continue to support the stakeholder based Bi-State Local Area Working Group (LAWG) process to identify, develop, and implement PMU specific conservation actions for greater sage-grouse populations and habitats in the Bi-State area.

Responsible Parties: LAWG, NDOW, CDFG, BLM, USFS, NRCS, FWS, USGS

- **Action MSI-1:** Complete the on-going process to evaluate and update the *Greater Sage-Grouse Conservation Plan for the Bi-State Plan Area of Nevada and Eastern California*.

- **Action MSI1-2:** Conduct PMU planning meetings on an as needed basis to address PMU specific issues and to identify, develop, and prioritize PMU specific conservation actions.

- **Action MSI1-3:** Conduct Bi-State LAWG planning meetings on a semi-annual basis to review the status of greater sage-grouse populations and habitats in the Bi-State area and to identify, prioritize, and coordinate implementation of annual conservation actions. Continue University of Nevada Cooperative Extension facilitation of the Bi-State LAWG meeting.

Strategy MSI2: Encourage and foster stakeholder participation in the implementation of Bi-State Conservation Action Strategy.

Responsible Parties: LAWG, NDOW, CDFG, BLM, USFS, NRCS, FWS, USGS

- **Action MSI2-1:** Conduct workshops to provide information about programs available to assist ranchers and other private landowners that may be interested in the implementation of sage-grouse conservation projects and to explore opportunities for cooperative conservation of sage-grouse in the Bi-State area.

- **Action MSI2-2:** Develop and publish a Bi-State LAWG sage-grouse conservation newsletter.

- **Action MSI2-3:** Develop and implement a publically accessible Bi-State LAWG Sage-Grouse Conservation webpage to facilitate the sharing and distribution of information specific to greater sage-grouse conservation efforts in the Bi-State area.

8.0 AVAILABLE FUNDING AND ASSISTANCE PROGRAMS FOR CONSERVATION PROJECTS

8.1 NRCS

NRCS is the principal federal agency for providing conservation technical assistance to private landowners, conservation districts, tribes, and other organizations. NRCS natural resources conservation programs help people reduce soil erosion, enhance water supplies, improve water quality, increase wildlife habitat, and reduce damages caused by floods and other natural disasters. Public benefits include enhanced natural resources that help sustain agricultural productivity and environmental quality while supporting continued economic development, recreation, and scenic beauty. Several NRCS programs described below have been used on conservation projects in the Bi-State DPS area and are available for implementation of future projects.

Conservation Technical Assistance (CTA)

CTA is available to any group or individual interested in conserving our natural resources and sustaining agricultural production in this country. CTA is the help NRCS and its partners provide to land users to address opportunities, concerns, and problems related to the use of natural resources and to help land users make sound natural resource management decisions on private, tribal, and other non-federal lands. This assistance may be in the form of resource assessment, practice design, resource monitoring, or follow-up of installed practices.

Financial Assistance

Financial assistance is available through voluntary NRCS programs that provide financial and technical assistance to agricultural producers through contracts. These contracts provide financial assistance to help plan and implement conservation practices that address natural resource concerns and for opportunities to improve soil, water, plant, animal, air and related resources on agricultural land and non-industrial private forestland. Financial assistance is intended to help producers meet Federal, State, Tribal and local environmental regulations. USDA funding of Financial Assistance and Farm Bill Programs availability is subject to the most current US Farm Bill and congressional legislation.

NRCS Sage-grouse Initiative (SGI)

SGI was structured to be a collaborative effort with its conservation partners across the West for conservation of greater sage-grouse. The SGI funding enhances the opportunity for USDA to strengthen its conservation commitment with State agencies responsible for managing sage-grouse populations. SGI facilitates landscape level improvements across the species' range while recognizing that threats and opportunities differ among States and within core areas. Close collaboration with many stakeholders, including State, local and Federal agencies, tribes, and non-government organizations, ensures that NRCS activities complement efforts already underway. SGI fosters coordination and implementation on a range-wide scale while ensuring local input and control over actions in specific States. SGI

capitalizes on the strong link between conditions required to support sustainable ranching operations and habitat characteristics that support healthy sage-grouse populations.

SGI provides funding to restore, protect and enhance sage-grouse habitat through a combination of conservation easements and financial assistance programs. USDA funding levels for these programs is subject to the most current US Farm Bill legislation.

Grassland Reserve Program (GRP)

GRP is a voluntary conservation program that emphasizes support for working grazing operations, enhancement of plant and animal biodiversity, and protection of grassland under threat of conversion to other uses.

Participants voluntarily limit future development and cropping uses of the land while retaining the right to conduct common grazing practices and operations related to the production of forage and seeding, subject to certain restrictions during nesting seasons of bird species that are in significant decline or are protected under Federal or State law. A grazing management plan is required for participants.

Wetlands Reserve Program (WRP)

WRP is a voluntary program offering landowners the opportunity to protect, restore, and enhance wetlands on their property. NRCS provides technical and financial support to help landowners with their wetland restoration efforts. The NRCS goal is to achieve the greatest wetland functions and values, along with optimum wildlife habitat, on every acre enrolled in the program. This program offers landowners an opportunity to establish long-term conservation and wildlife practices and protection.

Farm and Ranch Lands Protection Program (FRPP)

FRPP provides matching funds to help purchase development rights to keep productive farm and ranchland in agricultural uses. Working through existing programs, USDA partners with State, tribal, or local governments and non-governmental organizations to acquire conservation easements or other interests in land from landowners. USDA provides up to 50 percent of the fair market easement value of the conservation easement.

Environmental Quality Incentives Program (EQIP)

EQIP is a voluntary program that provides financial and technical assistance to agricultural producers through contracts up to a maximum term of ten years in length. These contracts provide financial assistance to help plan and implement conservation practices that address natural resource concerns and for opportunities to improve soil, water, plant, animal, air and related resources on agricultural land and non-industrial private forestland. EQIP is also intended to assist producers with compliance of Federal, State, Tribal and local environmental regulations.

EQIP provides financial assistance payments to eligible producers based on a portion of the average cost associated with practice implementation. Additional payments may be available to help producers develop conservation plans which are required to obtain financial assistance.

Wildlife Habitat Incentive Program (WHIP)

WHIP is a voluntary program for conservation-minded landowners who want to develop and improve wildlife habitat on agricultural land, nonindustrial private forest land, and Indian land. The Food, Conservation, and Energy Act of 2008 reauthorized WHIP as a voluntary approach to improving wildlife habitat in our nation. NRCS administers WHIP to provide both technical assistance and financial assistance to establish and improve fish and wildlife habitat. WHIP cost-share agreements between NRCS and the participant generally last from one year after the last conservation practice is implemented but not more than 10 years from the date the agreement is signed.

8.2 NDOW

NDOW has several programs that provide funding and assistance for projects that improve habitat for wildlife and building relationships with agricultural producers.

Landowner Incentive Program (LIP).

The goal of the LIP is to work proactively and cooperatively with private landowners to restore and protect habitat for sensitive wildlife species on private lands. This cost-share program can pay up to 75 percent of project costs while the remaining portion can be paid by the landowner through in-kind services or cash. Projects are evaluated based on number of acres, species focus, potential for success, and participation in existing planning efforts. Landowners can contact the LIP Coordinator to submit an application or request assistance any time of year.

For further information, contact Connie Lee, LIP Coordinator, at (775) 777-2392, or by email at conlee@ndow.org; or visit the Nevada Department of Wildlife website at: http://www.ndow.org/wild/conservation/lip/

Nevada Partners for Conservation and Development (NevadaPCD)

NevadaPCD is another NDOW program that provides funding for both private and public landowners. It was modeled after the highly successful UtahPCD. NevadaPCD is a unique partnership of several natural resource oriented agencies and organizations committed to providing solutions to conservation issues. From federal agency representation and state leadership, to local coordinators on the ground, the NevadaPCD members work together to leverage resources and increase effectiveness. For funding, more agency partners contributing will receive higher project rankings.

For further information, please contact Lee Turner, NevadaPCD Coordinator, at (775) 688-1542, or by email at leeturner@ndow.org or visit the Nevada Department of Wildlife website at:http://ndow.org/nevpcd/index.shtm

NDOW's Portion of the Clean Water, Parks and Wildlife Bond Initiative (

NDOW's portion of this 2002 bond initiative (commonly referred to as the "Question 1 Bond") totals $27.5 million. Question 1 projects have been extremely important for Nevada's wildlife resources and NDOW has maximized the use of bond dollars by leveraging dollars with partnerships and matching funds from other sources. Bond sale funds are available to state agencies, local governments, or qualifying private nonprofit organizations and are being used to (1) acquire wildlife habitat, (2) enhance recreational opportunities related to wildlife, (3) improve existing fish and wildlife habitats, and (4) to help maintain NDOW facilities. A competitive proposal process with evaluation criteria is used by a review committee to select the winning projects. Approximately $6 million of the $27.5 million remains to be spent, however, about half of this amount ($3 million) is not expected to be available for quite some time given the difficulty of selling additional bonds in a poor economic climate The NDOW contact person for this program is Steve Siegel, who can be reached at ssiegel@ndow.org or 688-1561.

Wildlife Heritage Program

"A person, citizens' organization, or local, state or federal governmental agency" including NDOW or the county advisory boards to manage wildlife, may apply for money from this account to fund conservation projects (NRS 503.100). Projects funded by this program must be approved by the Nevada Board of Wildlife Commissioners and must be used for "The protection, propagation, restoration, transplantation, introduction and management of any game fish, game mammal, game bird or fur-bearing mammal in this State; and the management and control of predatory wildlife in this State" (NRS 501.3575). A competitive proposal process with evaluation criteria is used by a review committee and the Wildlife Commissioners to select the winning projects. The NDOW contact person for this program is Bruce McDaniel, who can be reached at bmcdaniel@ndow.org or 688-1014.

Upland Game Bird Stamp Program

Upland Game Bird Stamps are sold to hunters and the revenue generated by these sales "must be used for projects approved by the Commission for the protection and propagation of upland game birds and for the acquisition, development and preservation of the habitats of upland game birds in this State" (NRS 502.296). Approximately ten of the fifteen FY12 projects funded under this program will benefit sage-grouse either directly or indirectly. The total cost of the fifteen FY12 projects is about $406,000 and most of the large-scale habitat restoration projects are funded by multiple sources. Successful projects must be approved by a NDOW review committee and the Nevada Board of Wildlife Commissioners. While many of the projects are collaborations among other agencies or non-profit organizations, a NDOW staff person must be in the lead for project proposals and project implementation. The NDOW contact person for this program is Mark Farman, who can be reached at mfarman@ndow.org or 688-1562.

Habitat Conservation Fee Program

This program is funded by hunters and fishermen when they purchase state licenses. A small fee of $3.00 generated approximately $380,000 for conservation projects in FY11. The 35 projects that are being partially or entirely funded by this program with about $973,000 in FY12 benefit a wide range of terrestrial and aquatic resource species, including sage-grouse. Project proposals are reviewed by a NDOW review committee for recommendations. NDOW upper management makes the final decisions on project approval. Funds from this program must be used by NDOW "for the purposes of wildlife habitat rehabilitation and restoration" (NRS 502.242). While projects can be a collaboration among other agencies or non-profit organizations, a NDOW staff person must be in the lead for project proposals and project implementation. The NDOW contact person for this program is Mark Farman, who can be reached at mfarman@ndow.org or 688-1562.

8.3 CDFG

Private Land Management Program (PLM)

PLM offers landowners economic incentives to manage their lands for the benefit of wildlife. Benefits to the landowner and wildlife resources are increased by allowing the landowner to maintain wildlife resources without an economic loss. Landowners who enroll in this "ranching for wildlife" program consult with biologists to make biologically sound habitat improvements that benefit wildlife, like providing water sources, planting native plants for food, and making brush piles for cover. In return for these habitat improvements, landowners can charge fees for wildlife viewing, hunting and fishing. This partnership between wildlife managers and private landowners helps conserve and maintain wildlife habitat in California.

8.4 USFWS

Conservation Partnerships Program (CPP)

Through the Conservation Partnerships Program (CPP), the Pacific Southwest Region (California and Nevada) has instituted a program that groups several voluntary technical and financial assistance programs together to provide cooperative opportunities in habitat restoration, migratory bird conservation, and environmental education. The CPP brings the Service's mechanisms for funding or implementing strategic habitat conservation for our trust species under one umbrella. The *Partners for Fish and Wildlife Program, Wildlife and Sport Fish Restoration Program,* and *Tribal Partnerships Program*, among others, are each captured under the CPP umbrella and can be accessed by private and Tribal landowners as well as State fish and wildlife agencies seeking opportunities to conserve and enhance fish, wildlife, and plant habitat on their lands.

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APPENDICES

Appendix A

Members of the Technical Team and List of Preparers

Appendix A: Members Of The Technical Team And List Of Preparers

Steve Abele	US Fish and Wildlife Service
Peter Coates	US Geological Survey
Steve Nelson	Bureau of Land Management – Bishop
Pilar Ziegler	Bureau of Land Management – Carson
Shawn Espinosa	Nevada Department of Wildlife
Scott Gardner	California Department of Fish and Game
Tim Taylor	California Department of Fish and Game
Leeann Murphy	Inyo National Forest
Rachael Mazur	Humboldt-Toiyabe National Forest
Thad Heater	Natural Resources Conservation Service
Thomas Moore	Natural Resources Conservation Service
Randall Sharp	Humboldt-Toiyabe National Forest
Sheila Anderson	Resource Concepts, Inc.
Don Henderson	Resource Concepts, Inc.
Jody Matranga	Resource Concepts, Inc.
Daniel Anderson	Resource Concepts, Inc.

Appendix B

Bishop BLM Regulatory Mechanisms

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	**Project Name/Location**	**Population Management Unit**	**State**	**Primary Land Manager**	**Partners**	**Action Type**	**Total Acres**	**Total Miles**	**Total Sites**	**Primary Risk Addressed (from 2004 Bi-State Plan)**	**Secondary Risk Addressed (from 2004 Bi-State Plan)**	**Factor A: Habitat (from FWS 2010 finding) Y/N**	**Factor B: Overuse (from FWS 2010 finding) Y/N**	**Factor C: Disease Predation (from FWS 2010 finding) Y/N**	**Factor D: Regulatory (from FWS 2010 finding) Y/N**	**Factor E: Other (from FWS 2010 finding) Y/N**	**Date Started or Planned Start Date**	**Date Completed**	**Project Status**	**Funded Y/N**	**Monitoring Y/N**
2	Private Lands-EQUIP/WHIP programs. Escape ramps	Bodie	CA	Private	NRCS	Livestock tank improvement wildlife ramps	0	0	3	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	No	No		2012 planned	Implementation in Progress	Yes	
3	Bodie Mountain Allotment	Bodie	CA	BLM - Bishop FO	Flying M	Permit Terms & Conditions	56263	0	0	Grazing - Livestock Management	Riparian/Meadow Quality	Yes	No	No	Yes	No		2009	Ongoing Action	Yes	Yes
4	Dog Creek Allotment	Bodie	CA	BLM - Bishop FO	F.I.M. Corporation	Permit Terms & Conditions	7675	0	0	Grazing - Livestock Management	Riparian/Meadow Quality	Yes	No	No	Yes	No		2011	Ongoing Action	Yes	Yes
5	Green Creek Allotment	Bodie	CA	BLM - Bishop FO	I&M Sheep Company	Permit Terms & Conditions	4384	0	0	Grazing - Livestock Management	Sagebrush Habitat Condition	Yes	No	No	Yes	No		2009	Ongoing Action	Yes	Yes
6	Mono Sand Flat Allotment	Bodie	CA	BLM - Bishop FO	Flying M	Permit Terms & Conditions	51085	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2009	Ongoing Action	Yes	Yes
7	Mormon Ranch Allotment	Bodie	CA	BLM - Bishop FO	I&M Sheep Company	Permit Terms & Conditions	3322	0	0	Grazing - Livestock Management	Sagebrush Habitat Condition	Yes	No	No	Yes	No		2011	Ongoing Action	Yes	Yes
8	Potato Peak Allotment	Bodie	CA	BLM - Bishop FO	R.N. Fulstone	Permit Terms & Conditions	14670	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2010	Ongoing Action	Yes	Yes
9	Rancheria Gulch Allotment	Bodie	CA	BLM - Bishop FO	F.I.M. Corporation	Permit Terms & Conditions	26238	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2008	Ongoing Action	Yes	Yes
10	Aurora Canyon Allotment	Bodie	CA	BLM - Bishop FO	R.N. Fulstone	Permit Terms & Conditions	20088	0	0	Grazing - Livestock Management	Sagebrush Habitat Condition	Yes	No	No	Yes	No		2010	Ongoing Action	Yes	Yes
11	Powell Mountain Horse Gathers	Bodie	CA	BLM - Bishop FO		Horse Gather	0	0	1	Grazing - Wild Horses	Sagebrush Habitat Condition	Yes	No	No	Yes	No	2009 last known gather	Ongoing	Ongoing Action		
12	Geiger Meadow Exclosures #1 and #2 Let Down Fence Conversion	Bodie	CA	BLM - Bishop FO	Flying M	Fence Modification	22	0	0	Infrastructure - Fences	Livestock Grazing	Yes	No	No	No	No		2006/2007	Completed		
13	Murphy Meadow #1 Let Down Fence Concersion	Bodie	CA	BLM - Bishop FO	R.N. Fulstone	Fence Modifcation	1	0	0	Infrastructure - Fences	Riparian/Meadow Quality	Yes	No	No	No	No		2006/2007	Completed		
14	Upper Bodie Creek Riparian Pasture Let Down Fence Conversion	Bodie	CA	BLM - Bishop FO	Flying M	Fence Modification	43	0	0	Infrastructure - Fences	Riparian/Meadow Quality	Yes	No	No	No	No		2006/2007	Completed		
15	Private Lands-EQUIP/WHIP programs. Fence markers	Bodie	CA	Private	NRCS	Fence Marking	0	0.5	0	Infrastructure - Fences		Yes	No	No	No	No		planned start in 2012	Implementation in Progress	Yes	
16	Aspen B1072 Exclosure	Bodie	CA	BLM - Bishop FO	Flying M	Livestock Management	2.8	0	0	Infrastructure - Fences	Livestock Grazing	Yes	No	No	Yes	No		2007	Ongoing Action		
17	N. Potato Peak Fence Removal	Bodie	CA	BLM - Bishop FO	Flying M	Fence Removal	7	0	0	Infrastructure - Fences	Infrastructure - Fences	Yes	No	Yes	No	No	Completed	2006	Completed		
18	Bodie sub to Fletcher sub powerline removal	Bodie	CA	BLM - Bishop FO	SCE/Flying M	Powerline Removal	0	0	1	Infrastructure - Powerlines	Infrastructure - Powerlines	Yes	No	Yes	No	No	Planned	planned start in 2012	Implementation in Progress		
19	Road closures through travel management Bodie PMU	Bodie	CA	USFS - HTNF	n/a	Road Closure - Permanent	0	43	0	Infrastructure - Roads	Recreational Activities	Yes	No	No	Yes	Yes		started implementation in 2011	Implementation in Progress	Yes	Yes
20	Lime Kiln Windmill Removal	Bodie	CA	BLM - Bishop FO	CDA/ESQU	Structure removal	0	0	1	Infrastructure - Tall Structures	Predation	Yes	No	Yes	No	No		2007	Completed		
21	Green Creek Pinyon MX	Bodie	CA	BLM - Bishop FO	Boy Scouts of America and other volunteer groups	Treatment - Conifer removal	596	0	0	Invasive Species - Conifer Encroachment	Sagebrush Habitat Condition	Yes	No	Yes	No	No	2004 (cutting and burning completed through 2006)	2006	Completed	Yes	Yes
22	Lek 9a Pinyon MX	Bodie	CA	BLM - Bishop FO	n/a	Treatment - Conifer removal	294	0	0	Invasive Species - Conifer Encroachment	Invasive Species - Conifer Encroachment	Yes	No	Yes	No	No	2007 (cutting and burning completed through 2010) More burning needed	Ongoing	Implementation in Progress	Yes	Yes
23	Lower Summer's Pinyon RX	Bodie	CA	BLM - Bishop FO	Boy Scouts of America	Treatment - Conifer removal	642	0	0	Invasive Species - Conifer Encroachment	Invasive Species - Conifer Encroachment	Yes	No	Yes	No	No	cut 2010, burning planned fall 2011	Ongoing	Implementation in Progress	Yes	Yes
24	Upper Aurora Pinyon MX	Bodie	CA	BLM - Bishop FO	n/a	Treatment - Conifer removal	287	0	0	Invasive Species - Conifer Encroachment	Invasive Species - Conifer Encroachment	Yes	No	Yes	No	No	cut 2010, burning planned fall 2011	Ongoing	Implementation in Progress	Yes	Yes
25	Private Lands-EQUIP/WHIP programs. PJ control	Bodie	CA	Private	NRCS	Treatment - Conifer removal	380	0	0	Invasive Species - Conifer Encroachment	Predation	Yes	No	Yes	No	No	93 acres in 2011	remaining acres planned in 2012/13	Implementation in Progress	Yes	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	**Project Name/Location**	**Population Management Unit**	**State**	**Primary Land Manager**	**Partners**	**Action Type**	**Total Acres**	**Total Miles**	**Total Sites**	**Primary Risk Addressed (from 2004 Bi-State Plan)**	**Secondary Risk Addressed (from 2004 Bi-State Plan)**	**Factor A: Habitat (from FWS 2010 finding) Y/N**	**Factor B: Overuse (from FWS 2010 finding) Y/N**	**Factor C: Disease Predation (from FWS 2010 finding) Y/N**	**Factor D: Regulatory (from FWS 2010 finding) Y/N**	**Factor E: Other (from FWS 2010 finding) Y/N**	**Date Started or Planned Start Date**	**Date Completed**	**Project Status**	**Funded Y/N**	**Monitoring Y/N**
26	Travel Management-closure of all off road travel in PMU	Bodie	CA/NV	USFS - HTNF		Planning Land Use	all acres in PMU	0	0	Recreational Activities	Recreational Activities	Yes	No	No	Yes	Yes		NEPA completed 2010	Implementation in Progress	Yes	No
27	Morman Meadows Iris Treatment	Bodie	CA	Private	R.N. Fulstone/FWS/RCI/Aarache	Treatment - Chemical	26	0	0	Riparian/Meadow Quality	Invasive Species - Other	Yes	No	No	No	No		2010	Completed		
28	Warm Springs Meadow Improvement	Bodie	CA	BLM - Bishop FO	R.N. Fulstone/FWS/RCI/Huggins	Treatment - Mechanical	20	0	0	Riparian/Meadow Quality	Invasive Species - Other	Yes	No	No	No	No		2010	Completed		
29	Aurora Canyon (South Fork) Meadow Improvement	Bodie	CA	Private	R.N. Fulstone/FWS/RCI/BLM	Treatment - Mechanical	11.6	0	0	Riparian/Meadow Quality	Invasive Species - Other	Yes	No	No	No	No		2007	Completed		
30	Gagger Meadow Improvement	Bodie	CA	Private	R.N. Fulstone/FWS/RCI/BLM	Treatment - Mechanical	13.3	0	0	Riparian/Meadow Quality	Invasive Species - Other	Yes	No	No	No	No		2010	Completed		
31	Dog Creek Meadows RX	Bodie	CA	BLM - Bishop FO		Fire Prescribed	31	0	0	Riparian/Meadow Quality	Riparian/Meadow Quality	Yes	No	No	No	No		2009	Completed		
32	Dog Creek Aspen RX	Bodie	CA	BLM - Bishop FO		Fire Prescribed	14	0	0	Riparian/Meadow Quality	Riparian/Meadow Quality	Yes	No	No	No	No		2009	Completed		
33	Upper Bodie Creek Riparian Pasture	Bodie	CA	BLM - Bishop FO	Flying M	Livestock Management	43.17	0	0	Riparian/Meadow Quality	Grazing - Livestock Management	Yes	No	No	Yes	No	Annual	Annual	Completed		
34	Artesian Spring Exclosure	Bodie	CA	BLM - Bishop FO	Flying M	Livestock Management	0.17	0	0	Riparian/Meadow Quality	Grazing - Livestock Management	Yes	No	No	Yes	No	Annual	Annual	Ongoing Action		
35	Murphy Meadow Exclosure #1	Bodie	CA	BLM - Bishop FO	R.N. Fulstone	Livestock Management	1.27	0	0	Riparian/Meadow Quality	Grazing - Livestock Management	Yes	No	No	Yes	No	Annual	Annual	Ongoing Action		
36	Murphy Meadows Exclosure #2	Bodie	CA	BLM - Bishop FO	R.N. Fulstone	Livestock Management	0.18	0	0	Riparian/Meadow Quality	Grazing - Livestock Management	Yes	No	No	Yes	No	Annual	Annual	Ongoing Action		
37	Aspen P1094 Exclosure	Bodie	CA	BLM - Bishop FO	R.N. Fulstone	Livestock Management	1.92	0	0	Riparian/Meadow Quality	Grazing - Livestock Management	Yes	No	No	Yes	No	Annual	Annual	Ongoing Action		
38	7 Troughs Riparian Pasture	Bodie	CA	Private	Flying M/BLM	Livestock Management	277	0	0	Riparian/Meadow Quality	Grazing - Livestock Management	Yes	No	No	Yes	No	Annual	Annual	Ongoing Action		
39	Fourway Meadow Exclosure	Bodie	CA	BLM - Bishop FO	Flying M	Livestock Management	2.36	0	0	Riparian/Meadow Quality	Grazing - Livestock Management	Yes	No	No	Yes	No	Annual	Annual	Ongoing Action		
40	N. Potato Peak Meadow Exclosure	Bodie	CA	BLM - Bishop FO	Flying M	Livestock Management	6.67	0	0	Riparian/Meadow Quality	Grazing - Livestock Management	Yes	No	No	Yes	No	Annual	Annual	Ongoing Action		
41	Aspen P1094A Exclosure	Bodie	CA	BLM - Bishop FO	R.N. Fulstone	Livestock Management	1.6	0	0	Riparian/Meadow Quality	Livestock Grazing	Yes	No	No	Yes	No	Annual	Annual	Ongoing Action		
42	Aspen B1075 Exclosure	Bodie	CA	BLM - Bishop FO	Flying M	Livestock Management	1.21	0	0	Riparian/Meadow Quality	Livestock Grazing	Yes	No	No	Yes	No	Annual	Annual	Ongoing Action		
43	Aspen B1076 Exclosure	Bodie	CA	BLM - Bishop FO	Flying M	Livestock Management	1.73	0	0	Riparian/Meadow Quality	Livestock Grazing	Yes	No	No	Yes	No	Annual	Annual	Ongoing Action		
44	Upper Geiger Meadow Exclosure	Bodie	CA	BLM - Bishop FO	Flying M	Livestock Management	18.27	0	0	Riparian/Meadow Quality	Livestock Grazing	Yes	No	No	Yes	No	Annual	Annual	Ongoing Action		
45	Geiger Meadow #1 Exclosure	Bodie	CA	BLM - Bishop FO	Flying M	Livestock Management	3.07	0	0	Riparian/Meadow Quality	Livestock Grazing	Yes	No	No	Yes	No	Annual	Annual	Ongoing Action		
46	Geiger Meadow #2 Exclosure	Bodie	CA	BLM - Bishop FO	Flying M	Livestock Management	0.91	0	0	Riparian/Meadow Quality	Livestock Grazing	Yes	No	No	Yes	No	Annual	Annual	Ongoing Action		
47	Kirkwood Meadow Irrigation and reconstruction of structures	Bodie	CA	BLM - Bishop FO		Meadow Irrigation	249	0	0	Riparian/Meadow Quality	Riparian/Meadow Quality	Yes	No	No	Yes	No	Annual, reconstruction of structures in 2010	Annual	Ongoing Action		
48	Private Lands-EQUIP/WHIP programs. Rabbitbrush control	Bodie	CA	Private	NRCS	Treatment - Mechanical	67	0	0	Sagebrush Habitat Condition		Yes	No	No	No	No		2011	Implementation in Progress	Yes	
49	Bodie Conservation Action Plan	Bodie	CA	BLM - Bishop FO	The Nature Conservancy	Planning Land Use	191750	0	0	Sagebrush Habitat Condition	Invasive Species - Conifer Encroachment	Yes	No	No	No	No		2009	Completed		
50	Yednock Conservation Easement	Bodie	CA	Private	ESLT	Conservation Easement	480	0	0	Urbanization/Changing Land Uses		Yes	No	No	No	No		2007	Completed	Not Applicable	
51	Big Hot Springs Ranch Conservation Easement	Bodie	CA	Private	ESLT	Conservation Easement	75	0	0	Urbanization/Changing Land Uses		Yes	No	No	No	No		2005	Completed	Not Applicable	
52	DeChambeau Creek Conservation Easement	Bodie	CA	Private	ESLT	Conservation Easement	135	0	0	Urbanization/Changing Land Uses		Yes	No	No	No	No		2010	Completed	Not Applicable	
53	Upper Summers Meadows Land Exchange	Bodie	CA	USFS - HTNF		Land Exchange/Purchase/Donation	800	0	0	Urbanization/Changing Land Uses	Grazing-Livestock	Yes	No	No	Yes	No		2011	Completed	Yes	No

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	Project Name/Location	Population Management Unit	State	Primary Land Manager	Partners	Action Type	Total Acres	Total Miles	Total Sites	Primary Risk Addressed (from 2004 Bi-State Plan)	Secondary Risk Addressed (from 2004 Bi-State Plan)	Factor A: Habitat (from FWS 2010 finding) Y/N	Factor B: Overuse (from FWS 2010 finding) Y/N	Factor C: Disease Predation (from FWS 2010 finding) Y/N	Factor D: Regulatory (from FWS 2010 finding) Y/N	Factor E: Other (from FWS 2010 finding) Y/N	Date Started or Planned Start Date	Date Completed	Project Status	Funded Y/N	Monitoring Y/N
54	Cedar Hill Land Donation	Bodie	CA	BLM - Bishop FO	Wilderness Land Trust (WLT)/ESLT	Land Exchange/Purchase/Donation	3012	0	0	Urbanization/Changing Land Uses	Infrastructure - Powerlines	Yes	No	No	Yes	No		9/11/2007	Completed	Yes	Yes
55	Identification of Key Habitat and Implementation of BLM Fire/Fuels IM	Bodie	CA/NV	BLM - Bishop FO		Planning Land Use	all acres in PMU	0	0	Wildfire	Wildfire	Yes	No	No	Yes	No	2008		Completed		
56	Wildlife Ramps on Sweetwater Summit	Desert Creek/Fales	NV	USFS - HTNF	Boyscouts	Livestock tank improvement wildlife ramps	0	0	12	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	No	No		2011	Completed		
57	Sweetwater Summit Lek fence marking USFS lands	Desert Creek/Fales	NV	USFS - HTNF	Boy Scouts	Fence Marking	0	1	1	Infrastructure - Fences	Grazing - Livestock Management	Yes	No	No	No	No			Completed		
58	Sweetwater Summit Lek fence marking	Desert Creek/Fales	NV	Private	NRCS	Fence Marking	0	2	1	Infrastructure - Fences	Grazing - Livestock Management	Yes	No	No	No	No		2011	Completed		
59	Permanent road closure-Travel Management	Desert Creek/Fales	CA	USFS - HTNF		Road Closure - Permanent	0	3.15	0	Infrastructure - Roads	Recreational Activities	Yes	No	No	Yes	Yes		NEPA completed 2010	Implementation in Progress		
60	Sweetwater Summit pinyon removal	Desert Creek/Fales	NV	Private	NRCS	Treatment - Conifer removal	700	0	0	Invasive Species - Conifer Encroachment	Sagebrush Habitat Condition	Yes	No	No	No	No	2011	200 AC OF 700 COMPLETED	IN PROGRESS	YES	YES
61	Sweetwater Summit pinyon removal USFS lands	Desert Creek/Fales	NV	USFS - HTNF	NDOW	Treatment - Conifer removal	3000	0	0	Invasive Species - Conifer Encroachment	Predation	Yes	No	Yes	No	No		2008	Completed		Yes
62	Research USGS nest selection	Desert Creek/Fales	CA		USGS	Research	0	0	1	Lack of Information	Lack of Information	No	No	No	No	No		2006	Completed		
63	Research: Wickman broodsite/telemetry study	Desert Creek/Fales	CA	CDFG		Research	0	0	1	Lack of Information	Lack of Information	No	No	No	No	No		Data analysis and report in progress	Implementation in Progress		
64	Research: Tebencamp genetics study	Desert Creek/Fales	CA	CDFG		Research	0	0	1	Lack of Information	Lack of Information	No	No	No	No	No		Data analysis and report in progress	Implementation in Progress		
65	Travel Management-closure of all off road travel in PMU	Desert Creek/Fales	CA/NV	USFS - HTNF		Planning Land Use	all acres in PMU	0	0	Recreational Activities	Recreational Activities	No	No	No	Yes	Yes		NEPA completed 2010	Ongoing Action		
66	Meadow Restoration Rosaschi Ranch	Desert Creek/Fales	CA	USFS - HTNF		Treatment - Broadcast Burn	252	0	0	Riparian/Meadow Quality	Grazing - Livestock Management	Yes	No	No	No	No		Annual	Ongoing Action	Yes	Yes
67	S. Nye Canyon, brush beating and 2 4D treatment of rabbitbrush	Desert Creek/Fales	NV	Private	NRCS/NDOW	Treatment - Mechanical	17	0	0	Sagebrush Habitat Condition	Sagebrush Habitat Condition	Yes	No	No	No	No		2011	Completed	Yes	Yes
68	Easement-Devil's Gate Area	Desert Creek/Fales	CA	Private	CDFG	Conservation Easement	350	0	0	Urbanization/Changing Land Uses	Urbanization/Changing Land Uses	Yes	No	No	No	No		2011	Completed	Not Applicable	Yes
69	Acquisition of high quality grouse habitat including lek at Burcham Flat/Wheeler Creek	Desert Creek/Fales	CA	CDFG		Land Exchange/Purchase/Donation	1160	0	0	Urbanization/Changing Land Uses	Urbanization/Changing Land Uses	Yes	No	No	Yes	No		2006	Completed		Yes
70	Acquisition, Marine Mountain Warfare Center-Burcham Flat Area	Desert Creek/Fales	CA	DOD		Land Exchange/Purchase/Donation	80	0	0	Urbanization/Changing Land Uses	Urbanization/Changing Land Uses	Yes	No	No	Yes	No		2010	Completed		
71	Willow Flat Conservation Easement	Desert Creek/Fales	CA	Private	ESLT	Conservation Easement	59	0	0	Urbanization/Changing Land Uses		Yes	No	No	No	No		2011	Completed	Not Applicable	
72	Powell Mountain Horse Gathers, removed 80 head	Mount Grant	NV	USFS - HTNF		Horse Gather	0	0	1	Grazing - Wild Horses	Sagebrush Habitat Condition	Yes	No	No	Yes	No		2007	Completed		
73	China Camp Fence Marking	Mount Grant	NV	USFS - HTNF	Boy Scouts of America	Fence Marking	0	1	0	Infrastructure - Fences	Infrastructure - Fences	Yes	No	No	No	No		9/28/2011	Completed	Yes	No
74	Fencemarking on Private Lands	Mount Grant	NV	Private	NRCS	Fence Marking	0	0.5	0	Infrastructure - Fences		Yes	No	No	No	No	2011		Implementation in Progress	Yes	Yes
75	Road closures through travel management Mt. Grant PMU	Mount Grant	NV	USFS - HTNF	n/a	Road Closure - Permanent	0	128	0	Infrastructure - Roads	Recreational Activities	Yes	No	No	Yes	Yes	started implementation in 2011		Implementation in Progress	Yes	Yes
76	China Camp Pinyon Removal	Mount Grant	NV	USFS - HTNF	NDOW	Treatment - Conifer removal	700	0	0	Invasive Species - Conifer Encroachment	Predation	Yes	No	Yes	No	No	Started implementation in 2009		Implementation in Progress	Yes	Yes
77	Travel Management-closure of all off road travel in PMU	Mount Grant	NV	USFS - HTNF		Planning Land Use	all acres in PMU	0	0	Recreational Activities	Recreational Activities	Yes	No	No	Yes	Yes		NEPA completed 2010	Implementation in Progress	Yes	No

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	**Project Name/Location**	**Population Management Unit**	**State**	**Primary Land Manager**	**Partners**	**Action Type**	**Total Acres**	**Total Miles**	**Total Sites**	**Primary Risk Addressed (from 2004 Bi-State Plan)**	**Secondary Risk Addressed (from 2004 Bi-State Plan)**	**Factor A: Habitat (from FWS 2010 finding) Y/N**	**Factor B: Overuse (from FWS 2010 finding) Y/N**	**Factor C: Disease Predation (from FWS 2010 finding) Y/N**	**Factor D: Regulatory (from FWS 2010 finding) Y/N**	**Factor E: Other (from FWS 2010 finding) Y/N**	**Date Started or Planned Start Date**	**Date Completed**	**Project Status**	**Funded Y/N**	**Monitoring Y/N**
78	Cedar Hill Land Donation	Mount Grant	NV	BLM - Bishop FO	Wilderness Land Trust (WLT)	Land Exchange/Purchase/Donation	543	0	0	Urbanization/Changing Land Uses	Infrastructure - Powerlines	Yes	No	Yes	Yes	No		9/11/2007	Completed	Yes	Yes
79	Weed Treatment on the H-T USFS lands. Includes Mt. Grant and Desert Creek PMUs	Multiple PMUs	CA	USFS - HTNF		Treatment - Chemical	80			Invasive Species - Noxious Weeds	Invasive Species - Noxious Weeds	Yes	No	No	No	No	200 acres treated since 2009, over 1100 acres inventoried for invasives	Annual	Implementation in Progress	Yes	Yes
80	Private Land Easements-Bridgeport Valley Centennial Ranch **Fales and Bodie PMUs	Multiple PMUs	CA	Private	American Land Conservancy, CA Wildlife Conservation Board, CA transportation Department	Conservation Easement	6930	0	0	Urbanization/Changing Land Uses	Urbanization/Changing Land Uses	Yes	No	No	No	No		2001?	Completed	Not Applicable	
81	Private Land Easements-Bridgeport Valley Centennial Ranch	Multiple PMUs	CA	Private	NRCS/ESLT Also in Fales	Conservation Easement	718	0	0	Urbanization/Changing Land Uses	Urbanization/Changing Land Uses	Yes	No	No	No	No		2011	Completed	Not Applicable	
82	Churchill Canyon Grazing Allotment-Permit Renewal	Pine Nut	NV	BLM - CCDO		Permit Terms & Conditions	49228	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		Final grazing decision 2011.	Completed		
83	Pine Nut HMA – Horse gather	Pine Nut	NV	BLM - CCDO		Horse Gather	0	0	1	Grazing - Wild Horses	Grazing - Wild Horses	Yes	No	No	No	No		2004	Completed		
84	Pine Nut HMA - Horse Gather and Contraception	Pine Nut	NV	BLM - CCDO		Horse Gather	0	0	1	Grazing - Wild Horses	Grazing - Wild Horses	Yes	No	No	No	No		2010	Completed		
85	Permanent road closure through travel management.	Pine Nut	CA	USFS - HTNF		Road Closure - Permanent	0	9.7	0	Infrastructure - Roads	Recreational Activities	Yes	No	No	Yes	No		NEPA completed 2010	Implementation in Progress		
86	EQIP contract to treat a portion of the BLM land in Buckskin Valley project area	Pine Nut	NV	BLM - CCDO	NRCS, Permittee	Treatment - Conifer removal	384	0	0	Invasive Species - Conifer Encroachment	Wildfire	Yes	No	No	No	No		2011	Completed		
87	Buckskin Valley Vegetation Management	Pine Nut	NV	BLM - CCDO	NDOW	Treatment - Conifer removal	7000	0	0	Invasive Species - Conifer Encroachment	Wildfire	Yes	No	No	No	No		NEPA completed 2011	Implementation in Progress		
88	Alpine Co. Forest Restoration Project	Pine Nut	CA	BLM - CCDO		Treatment - Conifer removal	532	0	0	Invasive Species - Conifer Encroachment	Wildfire	Yes	No	No	No	No		NEPA completed 2008	Implementation in Progress		
89	Slinkard pinyon removal	Pine Nut	CA	CDFG	Bishop BLM	Treatment - Conifer removal	2307	0	0	Invasive Species - Conifer Encroachment	Predation	Yes	No	Yes	No	No	2009	Ongoing	Implementation in Progress		Yes
90	Big Meadow Sage-grouse enhancement	Pine Nut	NV	BLM - CCDO	NDOW	Treatment - Conifer removal	781	0	0	Invasive Species - Conifer Encroachment	Predation	Yes	No	Yes	No	No		2011	Completed		
91	Sunrise Pass-Sage-grouse enhancement	Pine Nut	NV	BLM - CCDO		Treatment - Conifer removal	411	0	0	Invasive Species - Conifer Encroachment	Predation	Yes	No	Yes	No	No		2011	Completed		
92	Mill Canyon Vegetation Treatment	Pine Nut	NV	BLM - CCDO		Treatment - Conifer removal	2383	0	0	Invasive Species - Conifer Encroachment	Predation	Yes	No	Yes	No	No		2010	Completed		
93	Mount Como units: Mt. Como, Twin Sprg	Pine Nut	NV	BLM - CCDO		Treatment - Broadcast Burn	35	0	0	Invasive Species - Conifer Encroachment	Wildfire	Yes	No	Yes	No	No		1997	Completed		
94	Mount Como units: Mt. Como, Unit A	Pine Nut	NV	BLM - CCDO		Treatment - Broadcast Burn	119	0	0	Invasive Species - Conifer Encroachment	Wildfire	Yes	No	Yes	No	No		1997	Completed		
95	Mount Como units: Mt. Como, Unit B	Pine Nut	NV	BLM - CCDO		Treatment - Broadcast Burn	421	0	0	Invasive Species - Conifer Encroachment	Wildfire	Yes	No	Yes	No	No		2001	Completed		
96	Weed treatments	Pine Nut	NV	BLM - CCDO		Treatment - Chemical	4.6	0	0	Invasive Species - Noxious Weeds	Invasive Species - Noxious Weeds	Yes	No	No	No	No		2008-2010	Completed		
97	PMU wide USGS sage-grouse study of habitat selection, movement patterns, home range and vital rates	Pine Nut	CA/NV	BLM - CCDO	NDOW, GBBO, USGS	Research	all acres in PMU	0	0	Lack of Information	Lack of Information	Yes	No	No	No	No	2012		Implementation in Progress		
98	Travel Management-closure of all off road travel in PMU	Pine Nut	NV	USFS - HTNF		Planning Land Use	all acres in PMU	0	0	Recreational Activities	Recreational Activities	No	No	No	Yes	Yes		NEPA completed 2010	Ongoing Action		
99	Adrian Fire Rehab-Seeding	Pine Nut	NV	BLM - CCDO		Fire Rehabilitation	791	0	0	Wildfire	Invasive Species - Noxious Weeds	Yes	No	No	No	No		2008	Completed		

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100	Buckeye Fire Rehab-Seeding	Pine Nut	NV	BLM - CCDO		Fire Rehabilitation	823	0	0	Wildfire	Invasive Species - Noxious Weeds	Yes	No	No	No	No		2003	Completed		
101	Como 2000 Fire Rehab-Seeding	Pine Nut	NV	BLM - CCDO		Fire Rehabilitation	UNK fire was 1768	0	0	Wildfire	Invasive Species - Noxious Weeds	Yes	No	No	No	No		2001	Completed		
102	Burbank Fire Rehab Seeding	Pine Nut	NV	BLM - CCDO		Fire Rehabilitation	200	0	0	Wildfire	Invasive Species - Noxious Weeds	Yes	No	No	No	No	2012		Implementation in Progress		
103	Ray May Fire Rehab Seeding	Pine Nut	NV	BLM - CCDO		Fire Rehabilitation	1902	0	0	Wildfire	Invasive Species - Noxious Weeds	Yes	No	No	No	No	2012		Implementation in Progress		
104	WUI project: Bluebird Fuels Treatment	Pine Nut	NV	BLM - CCDO		Treatment-Fuels Reduction	253	0	0	Wildfire	Invasive Species - Conifer Encroachment	Yes	No	Yes	No	No		2009	Completed		
105	WUI project: Jack Wright3 Fuels Treatment	Pine Nut	NV	BLM - CCDO		Treatment-Fuels Reduction	46	0	0	Wildfire	Invasive Species - Conifer Encroachment	Yes	No	Yes	No	No		2005	Completed		
106	WUI project: Pine Nut Road Fuels Treatment	Pine Nut	NV	BLM - CCDO		Treatment-Fuels Reduction	200	0	0	Wildfire	Invasive Species - Conifer Encroachment	Yes	No	Yes	No	No		2005	Completed		
107	WUI project: Pine Nut Road 2 Fuels Treatment	Pine Nut	NV	BLM - CCDO		Treatment-Fuels Reduction	18	0	0	Wildfire	Invasive Species - Conifer Encroachment	Yes	No	Yes	No	No		2006	Completed		
108	WUI project: Upper Colony Fuels Treatment	Pine Nut	NV	BLM - CCDO		Treatment-Fuels Reduction	110	0	0	Wildfire	Invasive Species - Conifer Encroachment	Yes	No	Yes	No	No		2006	Completed		
109	WUI project: Upper Colony II Fuels Treatment	Pine Nut	NV	BLM - CCDO		Treatment-Fuels Reduction	1075	0	0	Wildfire	Invasive Species - Conifer Encroachment	Yes	No	Yes	No	No		2011	Completed		
110	Brunswick Fuels Treatment	Pine Nut	NV	BLM - CCDO		Treatment-Fuels Reduction	459	0	0	Wildfire	Invasive Species - Conifer Encroachment	Yes	No	Yes	No	No		2004	Completed		
111	Brunswick Extension Fuels Treatment	Pine Nut	NV	BLM - CCDO		Treatment-Fuels Reduction	30	0	0	Wildfire	Invasive Species - Conifer Encroachment	Yes	No	Yes	No	No		2006	Completed		
112	Mount Como units: Como Aspen Protection	Pine Nut	NV	BLM - CCDO		Treatment - Conifer removal	5	0	0	Wildfire	Invasive Species - Conifer Encroachment	Yes	No	Yes	No	No		2001	Completed		
113	Continue WNV Surveillance	South Mono	CA	CDFG	All	Monitoring	all acres in PMU	0	0	Disease	Disease	No	No	Yes	No	No		Annual	Ongoing Action		
114	Continue to monitor new permit phase and identify hot spots for more intensive management, especially in upland sagebrush types	South Mono	CA	LA DWP		Livestock Management	19664	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		Ongoing	Ongoing Action		
115	City of LA - private grazing plans	South Mono	CA	LA DWP		Permit Terms & Conditions	19664	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		completed plan 2011	Ongoing Action		Yes
116	Mono Basin: Modified 4 grazing allotment plans to protect sage-grouse habitat, including: no grazing w/in 2 miles of active leks, grazing season not to overlap with nesting season, fencing springs.	South Mono	CA	USFS - INF		Permit Terms & Conditions	135270	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		Completed 2011	Ongoing Action		Yes
117	Long Valley: Modified 15 grazing allotment plans to protect sage-grouse habitat, including: closure of one allotment, grazing season not to overlap with nesting season, fencing springs.	South Mono	CA	USFS - INF		Permit Terms & Conditions	191500	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2009	Ongoing Action		Yes
118	Adobe Lake Allotment	South Mono	CA	BLM - Bishop FO		Permit Terms & Conditions	3520	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2011	Ongoing Action		Yes
119	Adobe Valley Allotment	South Mono	CA	BLM - Bishop FO		Permit Terms & Conditions	25411	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2011	Ongoing Action		Yes
120	Black Lake Allotment	South Mono	CA	BLM - Bishop FO		Permit Terms & Conditions	1295	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2011	Ongoing Action		Yes
121	Blind Spring Allotment	South Mono	CA	BLM - Bishop FO		Permit Terms & Conditions	6909	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2010	Ongoing Action		Yes
122	Bramlette Allotment	South Mono	CA	BLM - Bishop FO		Permit Terms & Conditions	30824	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2009	Ongoing Action		Yes
123	Casa Diablo	South Mono	CA	BLM - Bishop FO		Permit Terms & Conditions	3154	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2007	Ongoing Action		Yes

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1	Project Name/Location	Population Management Unit	State	Primary Land Manager	Partners	Action Type	Total Acres	Total Miles	Total Sites	Primary Risk Addressed (from 2004 Bi-State Plan)	Secondary Risk Addressed (from 2004 Bi-State Plan)	Factor A: Habitat (from FWS 2010 finding) Y/N	Factor B: Overuse (from FWS 2010 finding) Y/N	Factor C: Disease Predation (from FWS 2010 finding) Y/N	Factor D: Regulatory (from FWS 2010 finding) Y/N	Factor E: Other (from FWS 2010 finding) Y/N	Date Started or Planned Start Date	Date Completed	Project Status	Funded Y/N	Monitoring Y/N
124	Chalfant Valley Allotment	South Mono	CA	BLM - Bishop FO		Permit Terms & Conditions	718	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2007	Ongoing Action		Yes
125	Granite Mountain Allotment	South Mono	CA	BLM - Bishop FO		Permit Terms & Conditions	21209	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2011	Ongoing Action		Yes
126	Hammil Valley Allotment	South Mono	CA	BLM - Bishop FO		Permit Terms & Conditions	44266	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2010	Ongoing Action		Yes
127	Hot Creek Allotment	South Mono	CA	BLM - Bishop FO		Permit Terms & Conditions	10290	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2007	Ongoing Action		Yes
128	Little Round Valley Allotment	South Mono	CA	BLM - Bishop FO		Permit Terms & Conditions	1487	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2011	Ongoing Action		Yes
129	Long Valley Allotment	South Mono	CA	BLM - Bishop FO		Permit Terms & Conditions	12988	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2007	Ongoing Action		Yes
130	Mathiew Allotment	South Mono	CA	BLM - Bishop FO		Permit Terms & Conditions	1977	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2010	Ongoing Action		Yes
131	Mono Lake Allotment	South Mono	CA	BLM - Bishop FO		Permit Terms & Conditions	8840	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2011	Ongoing Action		Yes
132	Mono Mills Allotment	South Mono	CA	BLM - Bishop FO		Permit Terms & Conditions	34145	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2009	Ongoing Action		Yes
133	Mono Sand Flat Allotment	South Mono	CA	BLM - Bishop FO		Permit Terms & Conditions	11975	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2009	Ongoing Action		Yes
134	Symons Allotment	South Mono	CA	BLM - Bishop FO		Permit Terms & Conditions	3897	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2011	Ongoing Action		Yes
135	Tobacco Flat Allotment	South Mono	CA	BLM - Bishop FO		Permit Terms & Conditions	603	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2007	Ongoing Action		Yes
136	Volcanic Table lands Allotment	South Mono	CA	BLM - Bishop FO		Permit Terms & Conditions	141	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2009	Ongoing Action		Yes
137	Wilfred Creek Allotment	South Mono	CA	BLM - Bishop FO		Permit Terms & Conditions	13256	0	0	Grazing - Livestock Management	Grazing - Livestock Management	Yes	No	No	Yes	No		2009	Ongoing Action		Yes
138	Population Monitoring	South Mono	CA	CDFG	USFS/BLM	Monitoring	all acres in PMU	0	0	Hunting	Hunting	No	Yes	No	No	No		Annual	Ongoing Action		
139	Indian Spring fence exclosure	South Mono	CA	BLM - Bishop FO		Livestock Management	12	0	0	Infrastructure - Fences	Grazing - Livestock Management	Yes	No	No	No	No		2006	Completed		Yes
140	Indian Spring fence conversion	South Mono	CA	BLM - Bishop FO		Fence Modification	12	0	0	Infrastructure - Fences	Grazing - Livestock Management	Yes	No	No	No	No		2007	Completed		
141	Granite Basin Fence removal	South Mono	CA	BLM - Bishop FO		Fence Removal	0	1.5	0	Infrastructure - Fences	Infrastructure - Fences	Yes	No	No	No	No		2010	Completed		
142	Hot Creek Allotment	South Mono	CA	BLM - Bishop FO		Fence Removal	0	1.5	0	Infrastructure - Fences	Infrastructure - Fences	Yes	No	No	No	No	2009		Implementation in Progress		
143	Long Valley Conifer Removal	South Mono	CA	USFS - INF		Treatment - Conifer removal	368	0	0	Invasive Species - Conifer Encroachment	Invasive Species - Conifer Encroachment	Yes	No	No	No	No		2011	Completed		
144	PMU Wide Research-analysis and writing for completion 2012	South Mono	CA	CDFG	Many Partners	Research	579483	0	0	Lack of Information	Lack of Information	No	No	No	No	No		Ongoing	Implementation in Progress		
145	Adobe Wells windmill removal	South Mono	CA	BLM - Bishop FO		Structure removal	0	0	3	Predation	Infrastructure - Tall Structures	Yes	No	Yes	No	No		2006/2007	Completed		
146	Lek 8 meadow protection	South Mono	CA	BLM - Bishop FO		Road Closure - Permanent	58.6	0	0	Recreational Activities	Recreational Activities	Yes	No	No	No	Yes		2006	Completed		
147	Hilltop Alkali Meadow Restoration and Protection	South Mono	CA	BLM - Bishop FO		Road Closure - Permanent	16.64	0	0	Recreational Activities	Recreational Activities	Yes	No	No	No	Yes		2007	Completed		
148	Lek 8 nesting habitat seasonal closure	South Mono	CA	BLM - Bishop FO		Road Closure - Seasonal	287	0	0	Recreational Activities	Recreational Activities	Yes	No	No	No	Yes		2006	Completed		
149	Crowley July 4th Fire Prevention Closure 2004-2009	South Mono	CA	BLM - Bishop FO		Fire Closure	8163	0	0	Recreational Activities	Recreational Activities	Yes	No	No	Yes	Yes		2009	Completed		
150	Lek 5 Meadow Protection	South Mono	CA	BLM - Bishop FO		Area Closure	24	0	0	Recreational Activities	Recreational Activities	Yes	No	No	No	Yes		2006	Completed		
151	Interpretive Signs in Long Valley	South Mono	CA	BLM - Bishop FO	LA DWP	Interpretation	0	0	2	Recreational Activities	Recreational Activities	No	No	No	No	Yes		planned start in 2012	Implementation in Progress		
152	Lek 1 Nesting habitat seasonal closure	South Mono	CA	BLM - Bishop FO		Road Closure - Seasonal	576	0	0	Recreational Activities	Recreational Activities	Yes	No	No	No	Yes		2006	Ongoing Action		
153	Lek 5 Nesting habitat seasonal closure	South Mono	CA	BLM - Bishop FO		Road Closure - Seasonal	312	0	0	Recreational Activities	Recreational Activities	Yes	No	No	No	Yes		2006	Ongoing Action		

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	**Project Name/Location**	**Population Management Unit**	**State**	**Primary Land Manager**	**Partners**	**Action Type**	**Total Acres**	**Total Miles**	**Total Sites**	**Primary Risk Addressed (from 2004 Bi-State Plan)**	**Secondary Risk Addressed (from 2004 Bi-State Plan)**	**Factor A: Habitat (from FWS 2010 finding) Y/N**	**Factor B: Overuse (from FWS 2010 finding) Y/N**	**Factor C: Disease Predation (from FWS 2010 finding) Y/N**	**Factor D: Regulatory (from FWS 2010 finding) Y/N**	**Factor E: Other (from FWS 2010 finding) Y/N**	**Date Started or Planned Start Date**	**Date Completed**	**Project Status**	**Funded Y/N**	**Monitoring Y/N**
154	Lek 1 road closures	South Mono	CA	BLM - Bishop FO		Road Closure - Permanent	575	0	0	Recreational Activities	Infrastructure - Roads	Yes	No	No	No	Yes		2007	Completed		
155	Lek 5 road closures	South Mono	CA	BLM - Bishop FO		Road Closure - Permanent	310	0	0	Recreational Activities	Infrastructure - Roads	Yes	No	No	No	Yes		2006	Completed		
156	Lek 8 road closures	South Mono	CA	BLM - Bishop FO		Road Closure - Permanent	285	0	0	Recreational Activities	Infrastructure - Roads	Yes	No	No	No	Yes		2007	Completed		
157	Travel Management Decision - INF	South Mono	CA	USFS - INF		Road Closure - Permanent	0	36	0	Recreational Activities	Infrastructure - Roads	Yes	No	No	Yes	Yes		Ongoing	Implementation in Progress		
158	Continue to monitor for illegal roads and campsites	South Mono	CA	USFS - INF		Monitoring	all acres in PMU	0	0	Recreational Activities	Infrastructure - Roads	Yes	No	No	No	Yes		Annual	Ongoing Action		
159	USFS revised grazing permit terms and conditions Mono Allotments	South Mono	CA	USFS - INF		Permit Terms & Conditions	39090	0	0	Grazing - Livestock Management	Sagebrush Habitat Condition	Yes	No	No	Yes	No		2011	Ongoing Action		
160	USFS revised grazing permit terms and conditions Crowley Allotments	South Mono	CA	USFS - INF		Permit Terms & Conditions	67790	0	0	Grazing - Livestock Management	Sagebrush Habitat Condition	Yes	No	No	Yes	No		2009	Ongoing Action		
161	Doe Ridge Fire Rehab, restoration and plantings	South Mono	CA	BLM - Bishop FO		Fire Rehabilitation	80	0	0	Sagebrush Habitat Condition	Wildfire	Yes	No	No	No	No	2011	Ongoing	Implementation in Progress		
162	GSG Trapping, Handling and Marking Protocol	South Mono	CA	CDFG	All Land Managers and PMUs in CA	Planning Land Use	all acres in PMU	0	0	Scientific Use	Scientific Use	No	Yes	No	No	No		2004	Completed		
163	Mono Basin land exchange	South Mono	CA	BLM - Bishop FO		Land Exchange/Purchase/Donation	80	0	0	Urbanization/Changing Land Uses	Urbanization/Changing Land Uses	Yes	No	No	Yes	No		2008	Completed		
164	Mono Basin Land Exchange/ Donation	South Mono	CA	USFS - INF		Land Exchange/Purchase/Donation	400	0	0	Urbanization/Changing Land Uses	Urbanization/Changing Land Uses	Yes	No	No	Yes	No		2004	Completed		
165	Mono Basin-deed restriction	South Mono	CA	Private	ESLT	Conservation Easement	40	0	0	Urbanization/Changing Land Uses	Urbanization/Changing Land Uses	Yes	No	No	No	No		2011	Completed	Not Applicable	
166	Mammoth Hosipital Land Exchange - Glass Mtns- Adobe Valley	South Mono	CA	USFS - INF		Land Exchange/Purchase/Donation	1077	0	0	Urbanization/Changing Land Uses	Urbanization/Changing Land Uses	Yes	No	No	Yes	No		2007	Completed		
167	Indian Meadows WRP Easement	South Mono	CA	Private	NRCS, Adobe Ranch LLC	Conservation Easement	278	0	0	Urbanization/Changing Land Uses	Urbanization/Changing Land Uses	Yes	No	No	No	No		2005	Completed	Not Applicable	Yes
168	Adobe Ranch Easement	South Mono	CA	Private	NRCS, Adobe Ranch LLC	Conservation Easement	1138	0	0	Urbanization/Changing Land Uses	Urbanization/Changing Land Uses	Yes	No	No	No	No		2005	Completed	Not Applicable	Yes
169	Benton Hot Springs Ranch Conservation Easement	South Mono	CA	Private	ESLT	Conservation Easement	900	0	0	Urbanization/Changing Land Uses		Yes	No	No	No	No		2008	Completed	Not Applicable	
170	Crowley Hilltop Preserve	South Mono	CA	Private	ESLT	Conservation Easement	33	0	0	Urbanization/Changing Land Uses		Yes	No	No	No	No		2008	Completed	Not Applicable	
171	Montgomery Creek Ranch Conservation Easement - Westside US 395	South Mono	CA	Private	ESLT	Conservation Easement	220	0	0	Urbanization/Changing Land Uses		Yes	No	No	No	No		2005	Completed	Not Applicable	
172	Campfire policy/ All LADWP lands- no campfire or campstove policy	South Mono	CA	LA DWP		Planning Land Use	63000	0	0	Wildfire	Recreational Activities	Yes	No	No	Yes	Yes		Ongoing	Completed		
173	Livestock grazing management (Trail Canyon, Indian Creek, Davis Creek, and Perry Aiken Allotments)	White Mountains	CA/NV	USFS - INF		Permit Terms & Conditions	85270	0	0	Grazing - Livestock Management	Riparian/Meadow Quality	Yes	No	No	Yes	No		2010	Ongoing Action	Yes	Yes
174	Wild Horse Management	White Mountains	NV	BLM - Tonopah FO	USFS-INF	Horse Gather	0	0	1	Grazing - Wild Horses	Riparian/Meadow Quality	Yes	No	No	No	No	2009	2009	Completed	No	Yes
175	Minimize Human Disturbance (Recreation, Roads, Fences). Travel Management Implementation - INF	White Mountains	CA/NV	USFS - INF		Road Closure - Permanent	0	4.5	0	Infrastructure - Roads	Recreational Activities	Yes	No	No	No	No	2010	Ongoing	Ongoing Action	Yes	Yes
176	Minimize Human Disturbance (Recreation, Roads, Fences). Travel Management Implementation - H-T NF. Closure of all off-road travel as well as specific road closures	White Mountains	CA/NV	USFS - HTNF		Road Closure - Permanent	0	8.5	0	Infrastructure - Roads	Recreational Activities	Yes	No	No	No	No	2011	Ongoing	Ongoing Action	Yes	Yes

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	**Project Name/Location**	**Population Management Unit**	**State**	**Primary Land Manager**	**Partners**	**Action Type**	**Total Acres**	**Total Miles**	**Total Sites**	**Primary Risk Addressed (from 2004 Bi-State Plan)**	**Secondary Risk Addressed (from 2004 Bi-State Plan)**	**Factor A: Habitat (from FWS 2010 finding) Y/N**	**Factor B: Overuse (from FWS 2010 finding) Y/N**	**Factor C: Disease Predation (from FWS 2010 finding) Y/N**	**Factor D: Regulatory (from FWS 2010 finding) Y/N**	**Factor E: Other (from FWS 2010 finding) Y/N**	**Date Started or Planned Start Date**	**Date Completed**	**Project Status**	**Funded Y/N**	**Monitoring Y/N**
177	Minimize Human Disturbance (Recreation, Roads, Fences). Travel Management Implementation - INF. Continue closure of 29 miles of unauthorized routes in PMU	White Mountains	CA/NV	USFS - INF		Road Closure - Permanent	0	29	0	Infrastructure - Roads	Recreational Activities	Yes	No	No	No	No	2011	Ongoing	Ongoing Action	Yes	Yes
178	Noxious and Invasive Weed Management	White Mountains	CA/NV	USFS - INF		Treatment - Chemical	5			Invasive Species - Noxious Weeds	Invasive Species - Noxious Weeds	Yes	No	No	No	No	2010	Ongoing	Ongoing Action	Yes	Yes
179	Identify Occupied Seasonal Sage-grouse ranges through radio telemetry and other field observations	White Mountains	CA/NV	USFS - INF	NDOW/CDFG /USGS/BLM	Research	all acres in PMU	0	0	Lack of Information	Lack of Information	No	No	No	No	Yes	2004	2005	Completed	No	No
180	Identify Potential sage-grouse habitat: R mapping	White Mountains	CA/NV	BLM - Tonopah FO	USFS-INF	Research	all acres in PMU	0	0	Lack of Information	Lack of Information	No	No	No	No	Yes		2011	Ongoing Action	Yes	No
181	White Mountain Wilderness Designation	White Mountains	CA	USFS - INF		Planning Land Use	206760	0	0	Recreational Activities		Yes	No	No	Yes	Yes		2009	Ongoing Action	No	No
182	Montgomery Creek Ranch Conservation Easement - Eastside US 395	White Mountains	CA	Private	ESLT	Conservation Easement	580	0	0	Urbanization/Changing Land Uses	Urbanization/Changing Land Uses	Yes	No	No	No	No		2005	Completed	Not Applicable	
183	Cinnamon Ranch Conservation Easement	White Mountains	CA	Private	ESLT	Conservation Easement	602	0	0	Urbanization/Changing Land Uses	Urbanization/Changing Land Uses	Yes	No	No	No	No		2011	Completed	Not Applicable	

Appendix C

Fire History Maps for Bi-State Sage-Grouse
Population Management Units

Figure C-1

Pine Nut PMU Fire History Map

Bi-State 2012 Action Plan

N

Miles

0 2.5 5 10

Prepared:03/15/2012

RESOURCE CONCEPTS, INC.

R:\projects\NDOW\11-625.1 Bi-State Population Plan\MXD's\Pine Nut.mxd

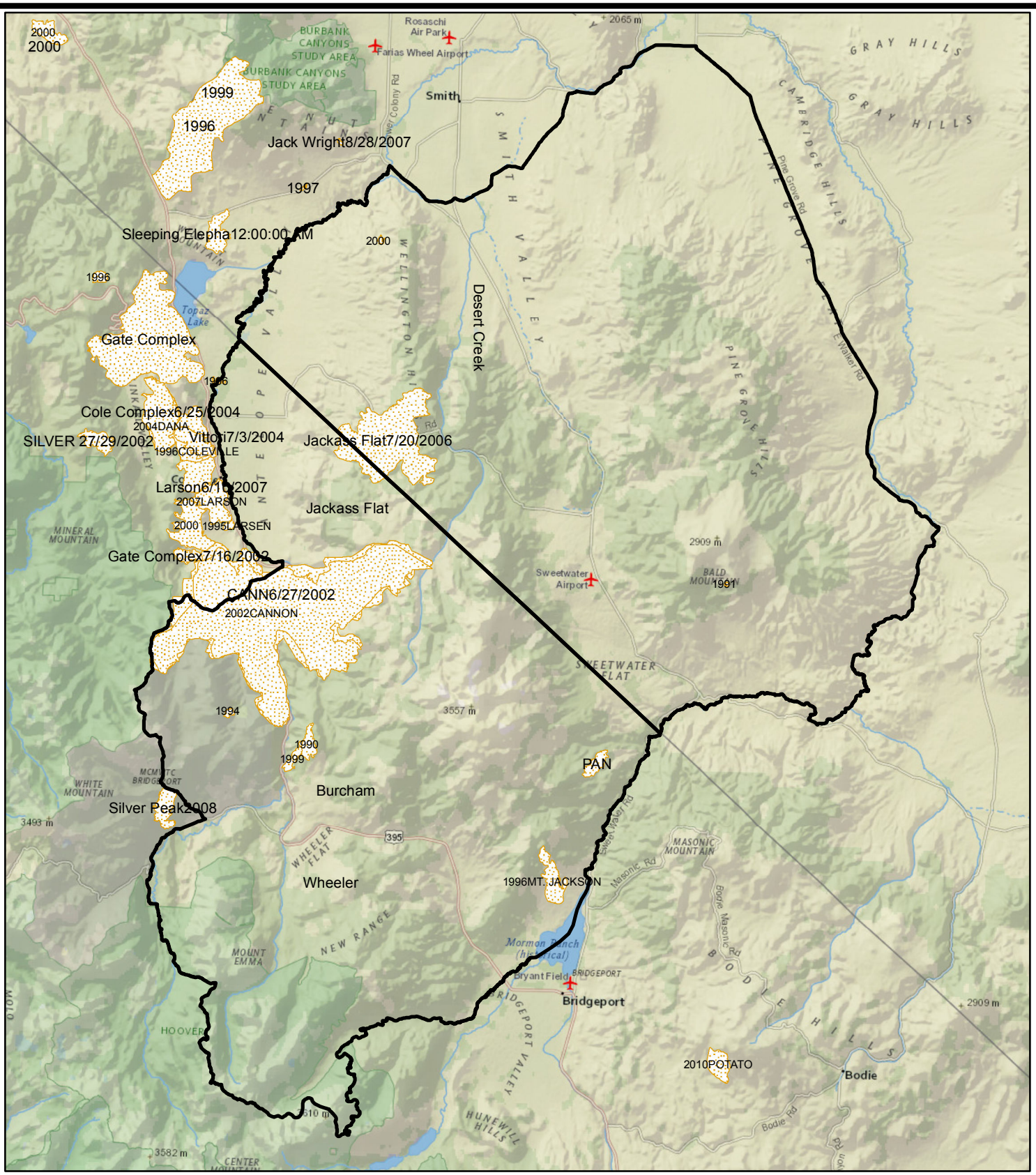

Figure C-2

Desert Creek-Fales PMU Fire History Map

Bi-State 2012 Action Plan

N

0 2 4 8 Miles

Prepared:03/15/2012

RESOURCE CONCEPTS, INC.

R:\projects\NDOW\11-625.1 Bi-State Population Plan\MXD's\Desert Creek_Fales.mxd

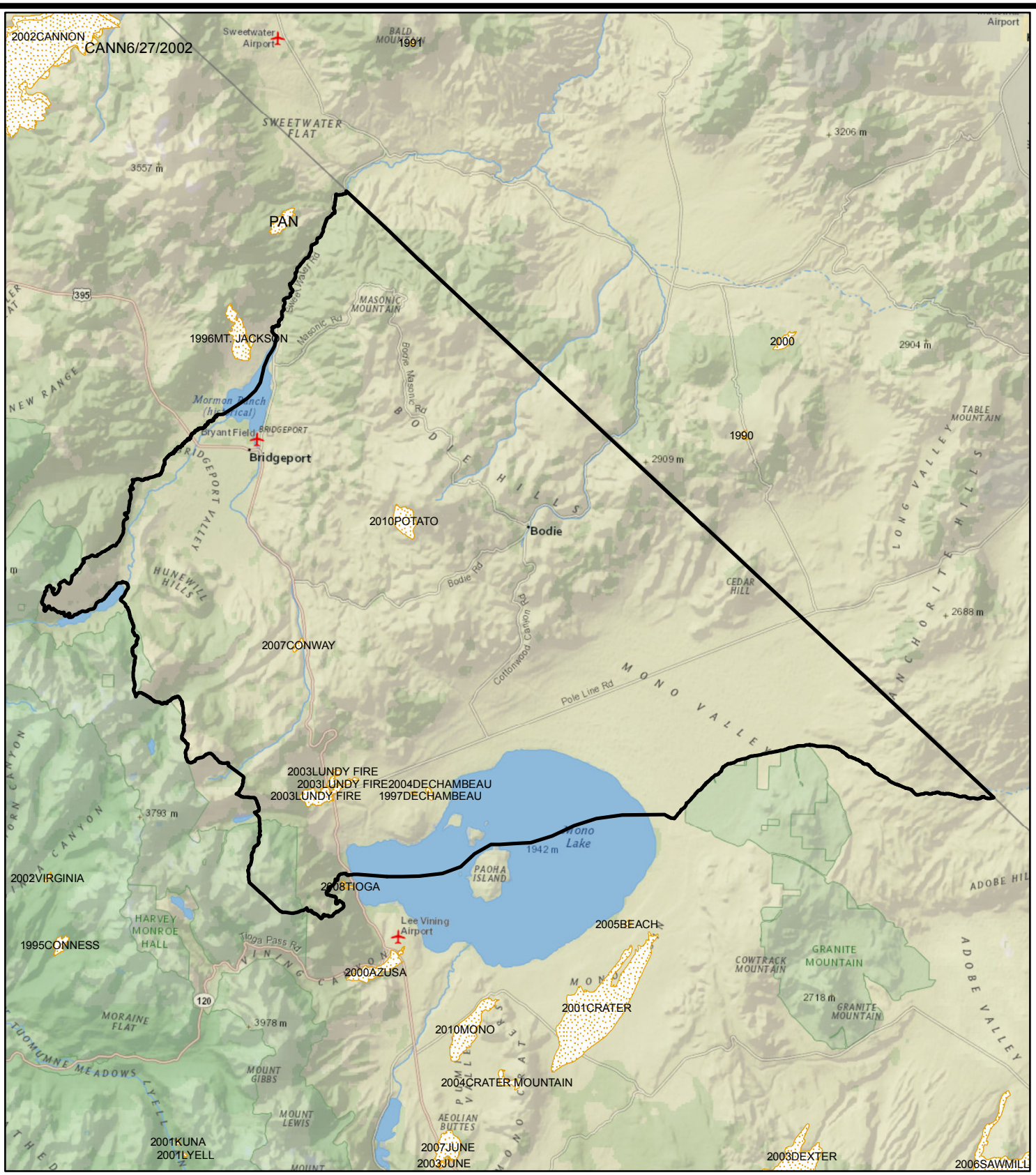

Figure C-3

Bodie PMU Fire History Map

Bi-State 2012 Action Plan

N

Miles
0 2 4 8

Prepared:03/15/2012

RESOURCE CONCEPTS, INC.

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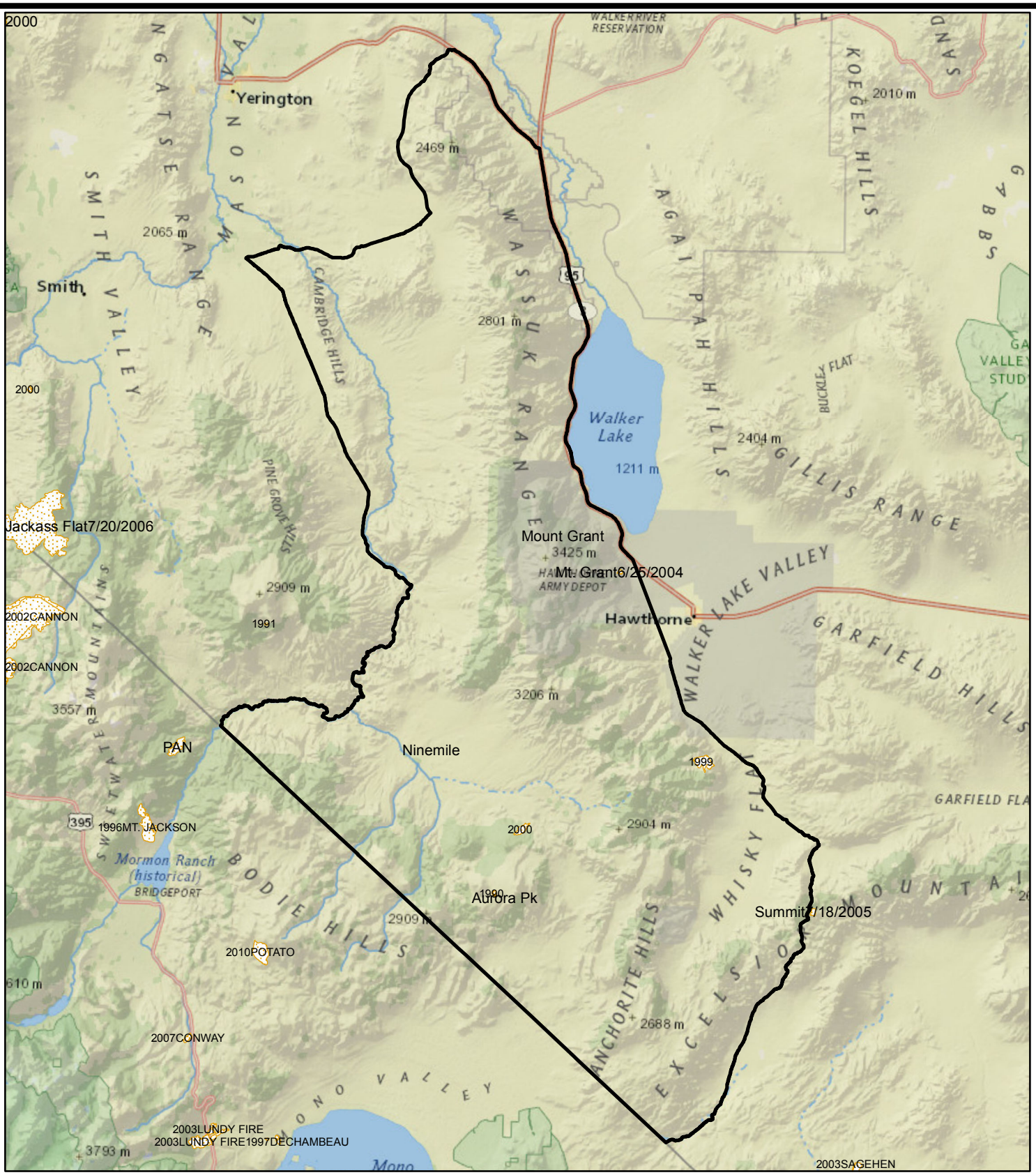

Figure C-4

Mount Grant PMU Fire History Map

Bi-State 2012 Action Plan

N

0 3.5 7 14 Miles

Prepared:03/15/2012

RESOURCE CONCEPTS, INC.

R:\projects\NDOW\11-625.1 Bi-State Population Plan\MXD's\Mount Grant.mxd

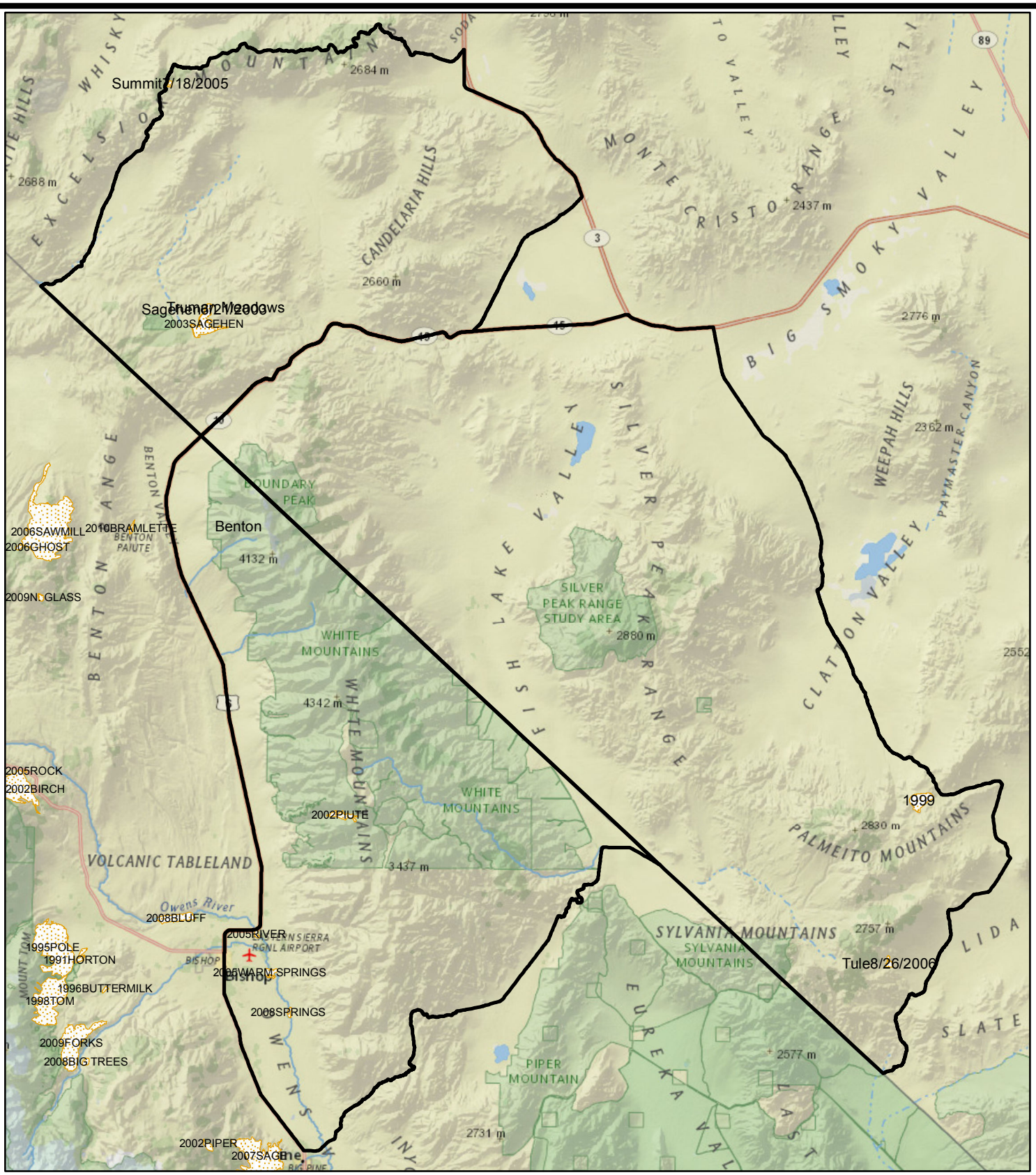

Figure C-5

White Mountains PMU Fire History Map

Bi-State 2012 Action Plan

N

0 3.75 7.5 15 Miles

Prepared:03/15/2012

RESOURCE CONCEPTS, INC.

R:\projects\NDOW\11-625.1 Bi-State Population Plan\MXD's\White Mountains.mxd

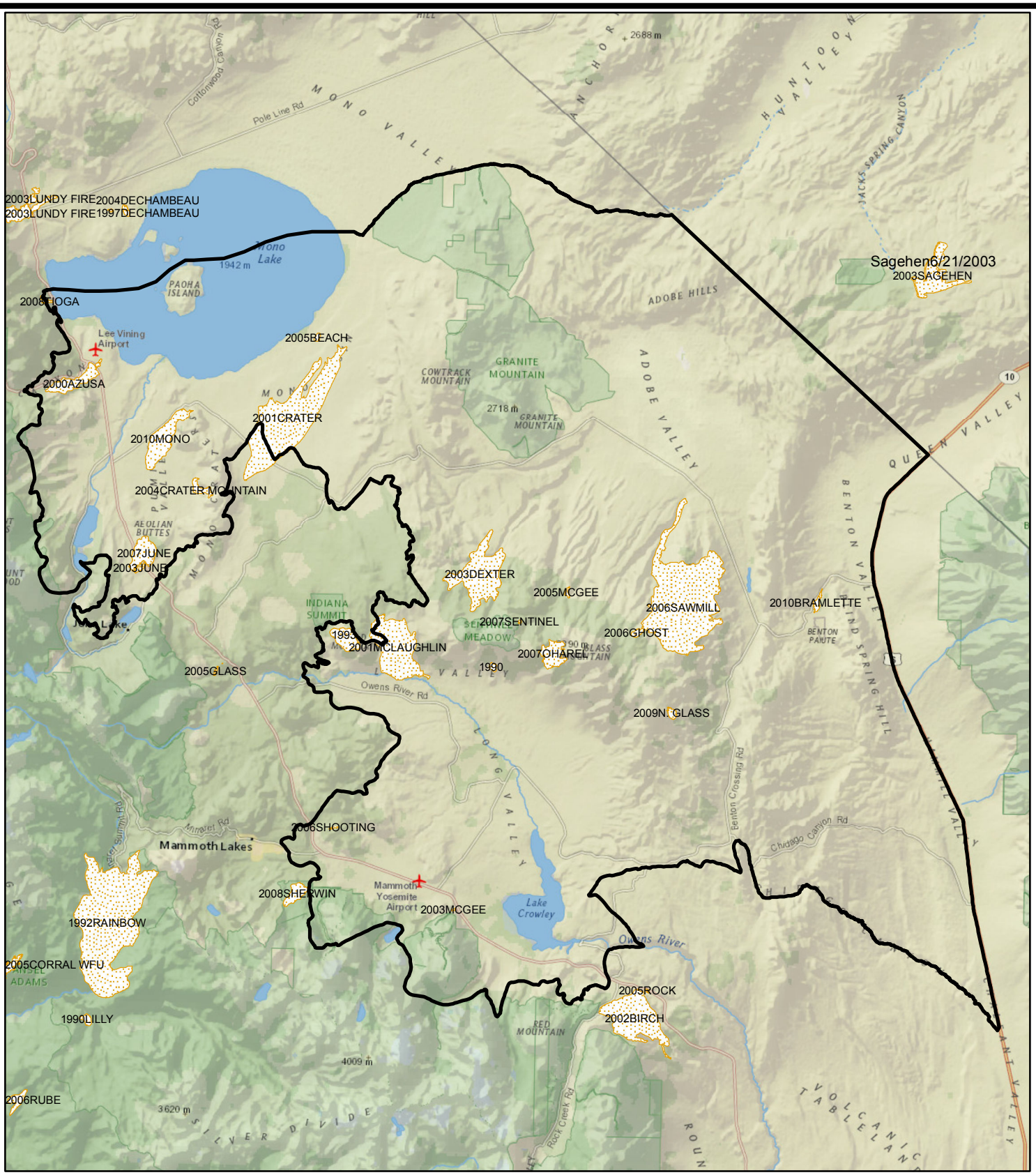

Figure C-6

South Mono PMU Fire History Map

Bi-State 2012 Action Plan

N

0 2.5 5 10 Miles

Prepared:03/15/2012

RESOURCE CONCEPTS, INC.

R:\projects\NDOW\11-625.1 Bi-State Population Plan\MXD's\South Mono.mxd

Appendix D

Sage-Grouse Conservation Measures from the
Bishop BLM Resource Management Plan
(1993, as amended)

Appendix D. Sage Grouse Conservation Measures From the Bishop BLM Resource Management Plan (1993)

Major Land Use or Activity that Affects Habitat	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGE-GROUSE HABITAT conservation	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGEBRUSH conservation
Energy (Fluid minerals, solid minerals, wind, etc.)	Reclamation bonds will be required for all minerals actions occurring under a Plan of Operations in accordance with Memorandums of Understanding with Inyo and Mono Counties (pg 14). All Notices of Intent will be reviewed for undue and unnecessary degradation determination. Cultural, endangered and threatened species, and sensitive plant habitat clearances will be done at a minimum (pg 14). All mineral operations will conform to the state's Surface Mining and Reclamation Act, and county and local health and operation requirements (pg 14). Yearlong Protection of endangered, threatened, candidate, and sensitive plant and animal habitats (pg 17). Greater sage-grouse are BLM California designated sensitive species. Yearlong Protection within 1/3 mile of sage grouse leks (pg 17). Seasonal Protection within 2 miles of active sage grouse leks from 5/1 to 6/30 (pg 17). Coordinate with CalTrans to relinquish and rehabilitate selected mineral material pits (pg 30, Bridgeport Valley Management Area). Seasonal Protection of sage grouse wintering areas: Bodie Hills Management Area, 11/15 to 5/1 (pg 32). Long Valley Management Area, 11/15 to 5/1 (pg 37). Benton Management Area, 12/1 to 5/1 (pg 40).	Yearlong Protection: No discretionary actions which would adversely affect the target resources (in this case sage grouse) would be allowed. Existing uses and casual uses would be managed to prevent disturbance which would adversely affect the target resources. Locatable mineral exploration and development could continue, with appropriate mitigation (pg G-7). Seasonal Protection: During the period specified, no discretionary actions which would adversely affect the target resources (in this case sage grouse) would be allowed. Existing uses and casual uses would be managed to prevent disturbance which would adversely affect the target resources. Locatable mineral exploration and development could continue, with appropriate mitigation (pg G-5).

Major Land Use or Activity that Affects Habitat	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGE-GROUSE HABITAT conservation	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGEBRUSH conservation
Fire	Fire management plans and policies will emphasize suppression cost reduction and fire prevention at the urban-wildland interface (pg 10). Brush control will be prohibited on sage grouse breeding complexes and wintering areas (pg 12). Seed mixtures adapted to the planting site will be used for seeding. Mixtures will include a variety of browse, forbs and grass species that are desirable for both livestock and wildlife. All seed sources will be certified "weed free" (pg 12). Burned areas will be rested for three growing seasons before grazing (pg 12). Yearlong Protection of endangered, threatened, candidate, and sensitive plant and animal habitats (pg 17). Greater sage-grouse are BLM California designated sensitive species. Yearlong Protection within 1/3 mile of sage grouse leks (pg 17). Seasonal Protection within 2 miles of active sage grouse leks from 5/1 to 6/30 (pg 17). Seasonal Protection of sage grouse wintering areas: Bodie Hills Management Area, 11/15 to 5/1 (pg 32). Long Valley Management Area, 11/15 to 5/1 (pg 37). Benton Management Area, 12/1 to 5/1 (pg 40). Modify the fire suppression plan to incorporate fire-related decisions. Include burn prescriptions to allow for the implementation of limited and modified suppression techniques (pg 23). Use prescribed burning to support desired plant community, fire prevention and wildlife habitat goals (pg 23).	Yearlong Protection: No discretionary actions which would adversely affect the target resources (in this case sage grouse) would be allowed. Existing uses and casual uses would be managed to prevent disturbance which would adversely affect the target resources. Locatable mineral exploration and development could continue, with appropriate mitigation (pg G-7). Seasonal Protection: During the period specified, no discretionary actions which would adversely affect the target resources (in this case sage grouse) would be allowed. Existing uses and casual uses would be managed to prevent disturbance which would adversely affect the target resources. Locatable mineral exploration and development could continue, with appropriate mitigation (pg G-5).

Major Land Use or Activity that Affects Habitat	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGE-GROUSE HABITAT conservation	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGEBRUSH conservation
Grazing	Vegetative goals for watershed protection and wildlife, riparian and sensitive plant habitats will be given strong consideration in relationship to livestock forage needs. Permittee desired practices will be allowed provided vegetative goals can be met (pg 9). Salting and supplemental feeding locations will not be located within ¼ mile of riparian zones, aspen groves and meadows, or on sage rouse strutting grounds, sensitive plant habitats or sites that are highly susceptible to soil erosion (pg 11). Sheep bedding grounds will be designated, and will not be located within ¼ mile of riparian zones, aspen groves, meadows and sage grouse strutting grounds, or on sensitive plant habitats or sites that are highly susceptible to soil erosion (pg 11). Livestock watering and handling facilities (corrals, chutes, dipping vats, etc.) will normally not be located within ¼ mile of riparian zones, aspen groves and meadows, or on sage grouse strutting grounds, sensitive plant habitats or sites that are highly susceptible to soil erosion (pg 11). Fences will not be located on sage grouse strutting grounds or sites that are highly susceptible to soil erosion. Let-down fences will be constructed in areas where sage grouse are susceptible to strikes on wire as they enter or leave a lek site (pg 11). All livestock watering facilities will be designed to facilitate wildlife use. Wildlife escape ramps will be installed and maintained in water troughs (pg 11). Springs and seeps incurring damage from livestock trampling will be fenced (pg 11). Brush control will be prohibited on sage grouse breeding complexes and wintering grounds (pg 12). Seed mixtures adapted to the planting site will be used for seeding. Mixtures will include a variety of browse, forbs and grass species that are desirable for both livestock and wildlife. All seed sources will be certified “weed free” (pg 12).	Yearlong Protection: No discretionary actions which would adversely affect the target resources (in this case sage grouse) would be allowed. Existing uses and casual uses would be managed to prevent disturbance which would adversely affect the target resources. Locatable mineral exploration and development could continue, with appropriate mitigation (pg G-7). Seasonal Protection: During the period specified, no discretionary actions which would adversely affect the target resources (in this case sage grouse) would be allowed. Existing uses and casual uses would be managed to prevent disturbance which would adversely affect the target resources. Locatable mineral exploration and development could continue, with appropriate mitigation (pg G-5).

Major Land Use or Activity that Affects Habitat	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGE-GROUSE HABITAT conservation	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGEBRUSH conservation
	Burned areas will be rested for three growing seasons before grazing (pg 12). Remove livestock watering facilities from riparian zones where feasible (pg 13). Yearlong Protection of endangered, threatened, candidate, and sensitive plant and animal habitats (pg 17). Greater sage-grouse are BLM California designated sensitive species. Yearlong Protection within 1/3 mile of sage grouse leks (pg 17). Seasonal Protection within 2 miles of active sage grouse leks from 5/1 to 6/30 (pg 17). Seasonal Protection of sage grouse wintering areas: Bodie Hills Management Area, 11/15 to 5/1 (pg 32). Long Valley Management Area, 11/15 to 5/1 (pg 37). Benton Management Area, 12/1 to 5/1 (pg 40). Manage livestock use of sagebrush vegetation types within 2 miles of sage grouse leks to achieve shrub structure and density characteristics more homogeneous (less patchy) than average. Horizontal cover (grass, forb and shrub combined) in these areas will range between 8 and 20% (pg 22). Prohibit grazing on the Copper Mountain Allotment if the current permittee transfers or relinquishes his grazing privileges (pg 33). Manage livestock use to enhance meadow habitat for sage grouse on the Hot Creek and Wilfred Creek allotments (pg 39).	
Realty	Disposal of the habitat of endangered, threatened or sensitive species to non-federal agencies or non-profit organizations may be considered only if the protection and conservation that would be afforded the habitat following transfer of title equals or exceeds the level afforded by federal ownership. Such determination would be made by the State Director (pg 8).	Yearlong Protection: No discretionary actions which would adversely affect the target resources (in this case sage grouse) would be allowed. Existing uses and casual uses would be managed to prevent disturbance which would adversely affect the target resources. Locatable mineral exploration and development could continue, with appropriate mitigation (pg G-7).

Major Land Use or Activity that Affects Habitat	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGE-GROUSE HABITAT conservation	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGEBRUSH conservation
	A site-specific environmental assessment will be required before any disposal of BLM land. Only parcels identified in the RMP will be available for disposal. All other BLM lands will be retained in public ownership (pg 14). Unless otherwise stated in the plan, all Bureau lands will be retained in public ownership. Lands identified for disposal are either difficult or uneconomical to manage and would best serve the public interest in private ownership. Land disposal may be used to resolve inadvertent occupancy trespass (cases where survey error has resulted in home construction of Bureau land). Bureau lands will not be available for disposal under the agriculture land laws (pg 16). Pursue the acquisition of wetlands or endangered, threatened, candidate or sensitive plant and animal habitats as the opportunities arise (pg 17). Acquire up to 1,338 acres of private land to protect riparian, wildlife and scenic values (pg 27, Bridgeport Valley Management Area). Includes several parcels of key sage grouse habitat. Acquire up to 5,725 acres of private land to protect wildlife, riparian, recreational and cultural values (pg 32, Bodie Hills Management Area). Includes several parcels of key sage grouse habitat. Acquire up to 1,120 acres of private land to enhance recreation opportunities and protect scenic values. Acquire land or scenic easements where private development would degrade scenery and violate visual resource management objectives for the Mono Basin (pg36, Granite Mountain Management Area). Includes several parcels of key sage grouse habitat. Acquire up to 475 acres of private land to protect sage grouse habitat (pg39, Long Valley Management Area). Includes several parcels of key sage grouse habitat.	Seasonal Protection: During the period specified, no discretionary actions which would adversely affect the target resources (in this case sage grouse) would be allowed. Existing uses and casual uses would be managed to prevent disturbance which would adversely affect the target resources. Locatable mineral exploration and development could continue, with appropriate mitigation (pg G-5).

Major Land Use or Activity that Affects Habitat	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGE-GROUSE HABITAT conservation	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGEBRUSH conservation
	Yearlong Protection of endangered, threatened, candidate, and sensitive plant and animal habitats (pg 17). Greater sage-grouse are BLM California designated sensitive species. Yearlong Protection within 1/3 mile of sage grouse leks (pg 17). Seasonal Protection within 2 miles of active sage grouse leks from 5/1 to 6/30 (pg 17). Seasonal Protection of sage grouse wintering areas: Bodie Hills Management Area, 11/15 to 5/1 (pg 32). Long Valley Management Area, 11/15 to 5/1 (pg 37). Benton Management Area, 12/1 to 5/1 (pg 40).	
Recreation	Vehicle use is limited to designated roads and trails on 748,700 acres. Some seasonal closures will be designated in the resource area in off-highway vehicle management plans. Snowmobile use will be limited to designated areas and routes (pg 17) Yearlong Protection of endangered, threatened, candidate, and sensitive plant and animal habitats (pg 17). Greater sage-grouse are BLM California designated sensitive species. Yearlong Protection within 1/3 mile of sage grouse leks (pg 17). Seasonal Protection within 2 miles of active sage grouse leks from 5/1 to 6/30 (pg 17). No camping within 1/3 mile of sage grouse leks from 3/1 to 6/30 (pg 17). Seasonal Protection and no snowmobile use in sage grouse wintering areas from 11/15 to 5/1 (pg 32, Bodie Hills Management Area). Vehicle routes impacting sensitive plant habitats or habitats where mule deer or sage grouse concentrate will be closed, seasonally closed or rerouted to improve and protect habitat (pg 32). Identify and implement closure or seasonal closure of vehicle routes impacting sensitive plant habitats or areas where mule	Yearlong Protection: No discretionary actions which would adversely affect the target resources (in this case sage grouse) would be allowed. Existing uses and casual uses would be managed to prevent disturbance which would adversely affect the target resources. Locatable mineral exploration and development could continue, with appropriate mitigation (pg G-7). Seasonal Protection: During the period specified, no discretionary actions which would adversely affect the target resources (in this case sage grouse) would be allowed. Existing uses and casual uses would be managed to prevent disturbance which would adversely affect the target resources. Locatable mineral exploration and development could continue, with appropriate mitigation (pg G-5).

Major Land Use or Activity that Affects Habitat	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGE-GROUSE HABITAT conservation	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGEBRUSH conservation
	deer or sage grouse concentrate through the Coordinated Resource Management Planning process (pg 33). Provide for recreational hot springs use while mitigating impacts to endangered, threatened and sensitive species, riparian areas and wet meadows (pg 37). Seasonal protection and no snowmobile use in sage grouse wintering areas from 11/15 to 5/1 (pg 37, Long Valley Management Area). Seasonal Protection of sage grouse wintering areas from 12/1 to 5/1 (pg 40, Benton Management Area).	
Special Management Areas	RMP includes no decisions specific to Wilderness Study Areas (WSAs). However, large portions of the Bodie Hills, Granite Mountain and Benton Management Areas are encumbered by WSAs that significantly limit opportunities to implement habitat improvement projects for sage grouse.	
Vegetation (sagebrush) management	Vegetation will be a key element in the plan and management will be directed toward the achievement of desired plant community goals (pg 9). Increase to 60% the amount of sagebrush habitat within 2 miles of leks that has optimum characteristics for sage grouse (pg 17). Manage sagebrush-bitterbrush areas within 2 miles of sage grouse leks to meet desired plant community goals (pg 17). Meet DPC goals on 1,780 acres (25%) of sagebrush-bitterbrush to provide cover and forage for mule deer and sage grouse (pg 27, Bridgeport Valley Management Area). Meet DPC goals on 22,250 acres (50%) of sagebrush-bitterbrush to provide cover and forage for mule deer, pronghorn and sage grouse (pg 32, Bodie Hills Management Area). Meet DPC goals on 8,570 acres (25%) of sagebrush-bitterbrush to provide cover and forage for mule deer, pronghorn and sage grouse (pg 36, Granite Mountain Management Area).	Desired plant community [DPC] description for the big sagebrush (*Artemisia tridentata*)/bitterbrush (*Purshia tridentata*) or big sagebrush/bitterbrush/aspen (*Populus tremuloides*) vegetation type in the Bridgeport Valley and Bodie Hills Management Areas: The goal is to maximize vegetative habitat characteristics for management indicator species like sage grouse and mule deer. The DPC will apply to those areas identified as habitat for sage grouse and mule deer on the GIS resource maps. For sage grouse the description applies to the various components of the vegetation within 2 miles of a strutting ground (lek). Dense brushy areas up to 1 mile from a lek would be managed for 30-40% shrub canopy cover. The area from 1-2 miles from a lek would be managed for 20-50% shrub canopy cover. Within the 2 mile radius, big sagebrush and bitterbrush height would range between 12-14" over 60% of the area with a density of 1 plant for every 4-9 ft^2 and include a grasslike understory of 1 plant per 0.75 ft^2. Preference would be given to sage grouse habitat needs where mule deer and sage grouse habitat overlap. Vegetation outside the 2 mile radius of leks would be managed for near optimal mule deer habitat characteristics to include hiding cover, which would consist of large shrubs and/or trees which offer the hiding capability over a minimum of 0.75 acres,

Major Land Use or Activity that Affects Habitat	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGE-GROUSE HABITAT conservation	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGEBRUSH conservation
	Meet DPC goals on 1,100 acres (25%) of sagebrush-bitterbrush to provide cover and forage for mule deer, pronghorn and sage grouse (pg 39, Long Valley Management Area).	thermal cover, which would consist of saplings or shrubs at least 5 feet tall with 75% or more crown cover, a minimum patch size of 2-5 acres and 300 feet width, and fawning cover, which would consist of low shrubs or small trees from 2-6 feet tall ranging from 70-100% understory vegetative cover, under a tree overstory of approximately 50% crown cover with a minimum patch size of 1-5 acres. The proportion of hiding cover: thermal cover: fawning cover would be approximately 20%: 15%: 5% with the remainder as forage area. Due to edaphic, slope, and aspect conditions, not all habitat within the management area can provide the above vegetative parameters. Those areas which have the capability, will be managed for the described vegetative condition. Specific vegetation characteristics for forage areas will be developed in activity plans but must be consistent with the goal of this DPC. Where possible, management will seek to maximize cover and vigor of bitterbrush. Desired plant community description for the big sagebrush (*Artemisia tridentata*)/bitterbrush (*Purshia tridentata*) vegetation type in the Granite Mountain Management Area: The goal is to maximize vegetative habitat characteristics for management indicator species like mule deer and pronghorn. For those areas with site potential, mule deer habitat characteristics will include hiding cover: vegetation at least 24 inches tall and capable of concealing 90% of a bedded adult deer at 150 feet. Patches of hiding cover should be a minimum of 8 acres in size. Thermal cover would consist of stands of evergreen or deciduous trees and shrubs at least 5 feet tall with a crown closure of $\geq$ 75%. Minimum stand size should be 2 acres with a stand width $\geq$ 300 feet. Fawning habitat should consist of low shrubs or small trees $\geq$ 2.2 feet with at least 40% canopy cover, a minimum patch size of 1 to 5 acres, and understory vegetative cover ranging from 70-90% (only along stream riparian and riparian/shrub ecotones). Ratios of habitat types within deer range should provide 55% forage area, 20% hiding cover, 10% thermal cover and 15% fawning habitat. Specific vegetation characteristics for forage areas will be developed in activity plans but must be consistent with the goal of this DPC. In mule deer foraging areas, management will seek to maximize cover and vigor of bitterbrush where possible. For those areas with site potential,

Major Land Use or Activity that Affects Habitat	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGE-GROUSE HABITAT conservation	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGEBRUSH conservation
		pronghorn vegetative habitat characteristics would include 10-40% grass, 5-15% forbs and 10-45% shrubs by composition with ground cover averaging 50%. Mean vegetation height would be 15 inches. A minimum of 750-1000 lbs/acre of air dried pronghorn forage should be available following livestock turnoff. Desired plant community description for the big sagebrush (*Artemisia tridentata*)/bitterbrush (*Purshia tridentata*) vegetation type in the Long Valley Management Area: The goal is to maximize vegetative habitat characteristics for sage grouse, a management indicator species. The description applies to the various vegetative components within a 2 mile radius of a strutting ground (lek). The area up to 1 mile from a lek would be managed for 30-40% shrub canopy cover. The area from 1-2 miles from a lek would be managed for 20-50% shrub canopy cover. Within the 2 mile radius, big sagebrush and bitterbrush height would range between 12-14" over 60% of the area with a density of 1 plant for every 4-9 ft^2 and include a grasslike understory of 1 plant per 0.75 ft^2. Preference would be given to sage grouse habitat needs where mule deer and sage grouse habitat overlap.
Wild Horse & Burros	RMP includes no decisions specific to wild horse management. The Montgomery Pass Wild Horse Territory is the only recognized territory in the resource area.	
Other Applicable Standards	Actions that interfere significantly with efforts to maintain or enhance sage grouse habitat will generally not be allowed (pg 9). Manage candidate species, sensitive species and other species of management concern in a manner to avoid the need for listing as state or federal endangered or threatened species (pg 12). Consult with the California Department of Fish and Game prior to design and accomplishment of wildlife habitat improvement projects (pg 12). Inventory sage grouse wintering areas and strutting grounds (pg 37, Granite Mountain Management Area). Develop water sources in the Mono Basin and Granite Mountain areas for sage grouse, mule deer and pronghorn (pg 37).	Desired plant community description for springs and associated wetlands in the Bridgeport Valley and Bodie Hills Management Areas: The goal is to maximize essential habitat characteristics for the vertebrate and invertebrate fauna using the site. A site in which standing or flowing water or saturated soil would be present for a portion or all of the year. The site, typically, would be dominated by a dense growth of herbaceous monocots. The vegetation is composed mostly of species in the following genera: *Arnica*, *Carex*, *Eleocharis*, *Hesperochiron*, *Hordeum*, *Potentilla*, *Senecio*, *Ranunculus*, and other native herbaceous plants. Shrubs like big sagebrush (*Artemisia tridentata*), bitterbrush (*Purshia tridentata*), green rabbitbrush (*Chrysothamnus viscidiflorus*) and others would be found in only trace amounts in the site. Foliar cover of all plant species on the site would be 95% or greater. At least 4-6 inches of residual herbaceous plant height will remain at the end of the growing

Major Land Use or Activity that Affects Habitat	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGE-GROUSE HABITAT conservation	Plan standards and/or prescriptions that contribute positively to on-the-ground SAGEBRUSH conservation
	Prepare a Habitat Management Plan for sage grouse in cooperation with the California Department of Fish and Game, Inyo National Forest, and City of Los Angeles Department of Water and Power (pg 39). Coordinate with Mono County to protect sage grouse habitat (pg 39). Meet DPC goals on 85 acres (75%) of wet meadows to increase wildlife habitat diversity and reduce erosion (pg 27, Bridgeport Valley Management Area). Meet DPC goals on 101 acres (50%) of wet meadows to increase wildlife habitat diversity and reduce erosion (pg 32, Bodie Hills Management Area). Meet DPC goals on 100% of the area's wet meadows to increase wildlife habitat diversity and reduce erosion (pg 36, Granite Mountain Management Area). Meet DPC goals on 50% of the area's wet meadows to increase wildlife habitat diversity and reduce erosion (pg 39, Long Valley Management Area).	season or at the time of livestock turnoff, whichever is later. Trees such as aspen (*Populus tremuloides*), Fremont's cottonwood (*Populus fremontii*) or willow (*Salix* sp.) would occasionally border the site. Desired plant community description for springs and associated wetlands in the Granite Mountain and Long Valley Management Areas: The goal is to maximize essential habitat characteristics for the vertebrate and invertebrate fauna using the site. A site in which standing or flowing water or saturated soil would be present for a portion or all of the year. The site would be dominated by a dense growth of herbaceous monocots. Shrubs common to the Great Basin would be found in only trace amounts on the site. Foliar cover of all herbaceous species on the site would be 95% or greater. At least 4-6 inches of residual herbaceous plant height will remain at the end of the growing season or at the time of livestock turnoff, whichever is later. Willow (*Salix* sp.) would occasionally border the site.

Bishop Resource Management Plan (RMP) 1993
Sage-Grouse Related Land Use Plan Guidance

Area Manager's Guidelines

6. Actions that interfere significantly with efforts to maintain or enhance sage grouse habitat will generally not be allowed (pg 9).

Standard Operating Procedures

Grazing Management Practices

1. Salting and supplemental feeding locations will not be located within ¼ mile of riparian zones, aspen groves and meadows, or on sage grouse strutting grounds, sensitive plant habitats or sites that are highly susceptible to soil erosion (pg 11).

3. Sheep bedding grounds will be designated, and will not be located within ¼ mile of riparian zones, aspen groves, meadows and sage grouse strutting grounds, or on sensitive plant habitats or sites that are highly susceptible to soil erosion (pg 11).

Range Improvement Project Development

1. Livestock watering and handling facilities (corrals, chutes, dipping vats, etc.) will normally not be located within ¼ mile of riparian zones, aspen groves and meadows, or on sage grouse strutting grounds, sensitive plant habitats or sites that are highly susceptible to soil erosion (pg 11).

2. Fences will not be located on sage grouse strutting grounds or sites that are highly susceptible to soil erosion. Let-down fences will be constructed in areas where sage grouse are susceptible to strikes on wire as they enter or leave a lek site (pg 11).

11. Brush control will be prohibited on sage grouse breeding complexes and wintering grounds (pg 12).

Wildlife

3. Manage candidate species, sensitive species and other species of management concern in a manner to avoid the need for listing as state or federal endangered or threaten species (pg 12).

RMP Decisions

Area-Wide

- Yearlong Protection of endangered, threatened, candidate, and sensitive plant and animal habitats (pg 17). Note: Sage-grouse are a California BLM designated sensitive species.

- Yearlong Protection within 1/3 mile of sage grouse leks (pg 17).

- Seasonal Protection within 2 miles of active sage grouse leks from 5/1 to 6/30 (pg 17).
- No camping within 1/3 mile of sage grouse leks from 3/1 to 6/30 (pg 17).
- Increase to 60% the amount of sagebrush habitat within 2 miles of leks that has optimum characteristics for sage grouse (pg 17).
- Manage sagebrush-bitterbrush areas within 2 miles of sage grouse leks to meet desired plant community goals (pg 17).
- Manage livestock use of sagebrush vegetation types within 2 miles of sage grouse leks to achieve shrub structure and density characteristics more homogeneous (less patchy) than average. Horizontal cover (grass, forb and shrub combined) in these areas will range between 8 and 20% (pg 22).

Bridgeport Valley Management Area

- Meet DPC goals on 1,780 acres (25%) of sagebrush-bitterbrush to provide cover and forage for mule deer and sage grouse (pg 27).

Bodie Hills Management Area

- Seasonal Protection and no snowmobile use in sage grouse wintering areas from 11/15 to 5/1 (pg 32).
- Vehicle routes impacting sensitive plant habitats or habitats where mule deer or sage grouse concentrate will be closed, seasonally closed or rerouted to improve and protect habitat (pg 32).
- Meet DPC goals on 22,250 acres (50%) of sagebrush-bitterbrush to provide cover and forage for mule deer, pronghorn and sage grouse (pg 32).

Granite Mountain Management Area

- Meet DPC goals on 8,570 acres (25%) of sagebrush-bitterbrush to provide cover and forage for mule deer, pronghorn and sage grouse (pg 36).
- Develop water sources in the Mono Basin and Granite Mountain areas for sage grouse, mule deer and pronghorn (pg 37).
- Inventory sage grouse wintering areas and strutting grounds (pg 37).

Long Valley Management Area

- Seasonal protection and no snowmobile use in sage grouse wintering areas from 11/15 to 5/1 (pg 37).
- Manage livestock use to enhance meadow habitat for sage grouse on the Hot Creek and Wilfred Creek allotments (pg 39).

- Acquire up to 475 acres of private land to protect sage grouse habitat (pg 39).
- Meet DPC goals on 1,100 acres (25%) of sagebrush-bitterbrush to provide cover and forage for mule deer, pronghorn and sage grouse (pg 39).
- Prepare a Habitat Management Plan for sage grouse in cooperation with the California Department of Fish and Game, Inyo National Forest, and City of Los Angeles Department of Water and Power (pg 39).
- Coordinate with Mono County to protect sage grouse habitat (pg 39).

Benton Management Area

- Seasonal Protection of sage grouse wintering areas from 12/1 to 5/1 (pg 40).

RMP Definitions

Seasonal Protection - During the period specified, no discretionary actions which would adversely affect target resources would be allowed. Existing uses and casual use would be managed to prevent disturbance which would adversely affect the target resource. Locatable mineral exploration and development could continue, with appropriate mitigation (pg G-6).

Yearlong Protection - No discretionary actions which would adversely affect target resources would be allowed. Existing uses and casual use would be managed to prevent disturbance which would adversely affect the target resource. Locatable mineral exploration and development could continue, with appropriate mitigation (pg G-7).

Note: Greater sage-grouse are a BLM California designated sensitive species and a candidate for federal listing under the Endangered Species Act of 1973 (ESA). Greater sage-grouse populations on public lands administered by the Bishop Field Office are part of the Bi-State distinct population segment (DPS).

Appendix E

Sage-Grouse Conservation Measures from the BLM Carson City Field Office Consolidated Resource Management Plan (2001, as amended).

Appendix E. Sage-Grouse Conservation Measurers from the Carson BLM Resource Management Plan (RMP).

Grouse-specific Standard Operating Procedures (SOP)

- Vegetation control measures will be prohibited within 100 yards of a stream or meadow, on sage grouse breeding complexes, or wintering grounds, unless they are intended to improve sage grouse habitats.

- Brush control by herbicides, prescribed burning, or by mechanical means will be in accordance with the Memorandum of Understanding between the Nevada Division of Wildlife and the Bureau of Land Management. The procedures specify, among other things, that vegetation control measures will be prohibited on sage grouse breeding complexes, wintering grounds, or within 100 yards of a stream or meadow.

- BLM will adhere to current habitat modification guidelines prepared by the Western Sage Grouse Committee of the Western Association of Fish and Wildlife Agencies.

Grouse-specific Land Use Allocations

Areas Where Some Restrictions Apply to Oil and Gas Leasing:

A. No Surface Occupancy (NSO) within 500 feet of any water
B. Seasonal Restrictions on Activities
    1. Spring Restrictions
        a. Six Sage Grouse Strutting Grounds
    2. March 1 to July 30 Restrictions
        a. Sage Grouse Habitat
        b. Pine Nut Mountains

Areas Where Some Restrictions Apply to Geothermal Leasing:

A. No Surface Occupancy (NSO) within 500 feet of any water.
B. Seasonal Restrictions on Activities
    1. Spring Restrictions
        a. Sage Grouse Strutting Grounds
    2. March 1 to July 30 Restrictions
        a. Sage Grouse Habitat
        b. Pine Nut Mountains

Appendix F

Sage-Grouse Conservation Measures from the
Toiyabe National Forest Land and Resource Management Plan (1986).

Appendix F. Sage-Grouse Conservation Measures from the Toiyabe National Forest Land and Resource Management Plan (1986).

Mule deer, desert bighorn sheep and elk (central Nevada and Las Vegas), antelope, mountain lion, sage-grouse, blue grouse, and mountain quail are some of the important game species." (p. II-19). The following standards apply to sage grouse habitats (p. IV-49):

1. Use dropping counts, sage-grouse sightings, and historical records to reveal location and importance of sage-grouse habitat.

2. Maintain 20 percent to 55 percent canopy cover on sage-grouse range.

3. Use irregularly designed patterns when manipulating brush in sage-grouse habitat.

4. Maintain meadows in sage-grouse range in high ecological status. Where meadows have lost their natural characteristics because of lowered water table, trampling, overgrazing, road building, or for other reasons, take measures to restore the meadows.

5. Maintain desirable sagebrush habitat within two miles of leks.

6. Retain irregular leave strips of untreated sagebrush approximately 100 yards wide adjacent to stream bottoms and meadows.

7. Include use of a combination of forbs and grasses desirable to sage-grouse when rehabilitating sage-grouse habitat.

8. Maintain desirable sagebrush habitat on known sage-grouse wintering areas.

9. As appropriate, National Forest personnel will arrange a joint on-the-ground review of proposed projects with the proper local or state wildlife biologist so details of wildlife coordination can be explained and discussed.

10. Protect critical areas for sage-grouse brood rearing.

Sage grouse are designated as an Management Indicator Species (MIS) (implied, p. V-15).

Monitoring plan for sage grouse (p. V-15):

- Monitor livestock impact on key areas. Establish district record of key areas.

- Intent of monitoring: To maintain suitable habitat.

- Expected precision reliability: Medium.

- Responsibility: NDOW/CDFG Surveys. FS habitat surveys.

- Frequency of measurement / reporting period: Annually.
- Level of monitoring / sample size: Forest-wide.
- Variability would initiate further evaluation: Sensitive species. Declines not permissible due to habitat alteration of deterioration.

Appendix G

Sage-Grouse Conservation Measures from the
Inyo National Forest Land and Resource Management Plan
(1988, as amended).

Appendix G. Sage-Grouse Conservation Measures From The Inyo National Forest Land and Resource Management Plan

Inyo National Forest Land and Resource Management Plan (USFS 1988) (covers the Mono Lake, Mammoth, White Mountain and Nt. Whitney Ranger Districts)

1. Maintain a shrub canopy cover of at least 20 percent on at least 30 percent of vegetation treatment areas within six miles of known strutting grounds (leks).

2. Allow no vegetation treatment in sage grouse habitat that would have a significant negative impact on this species.

3. Recognize the sensitivity of sage grouse leks during the period from March 1 and April 30. Resolve conflicts in favor of sage grouse.

4. Cooperate with the California Department of Fish and Game in reintroduction efforts.

Other design features implemented in livestock grazing Environmental Assessments

1. No grazing authorized during nesting season.

2. Drain water systems after use so it does not become a vector for West Nile virus.

Other changes to proposed fuels reduction projects

1. Keep vegetation treatment units small (a few acres) and use adaptive management to guide further treatments in these areas following monitoring of vegetation response to prescribe burns.

Sage grouse are designated as a Management Indicator Species (MIS) in the Inyo National Forest LRMP and as amended by the Sierra Nevada Forests Management Indicator Species Amendment, Record of Decision (2007). Management Indicator Species are defined in FSM 2620.5 as:

> [P]lant and animal species, communities, or special habitats selected for emphasis in planning, and which are monitored during forest plan implementation in order to assess the effects of management activities on their populations and the populations of other species with similar habitat needs which they may represent.

Population Monitoring Requirement:

> Population trends of the management indicator species will be monitored and relationships to habitat changes determined." Cooperate with state fish and wildlife agencies to extent practicable. FR 219.19(a)(6)
>
> Each Forest Supervisor shall obtain and keep current inventory data appropriate for planning and managing the resources under his or her jurisdiction." FR 219.12(d)