



**2014 Nevada  
Greater Sage-Grouse  
Conservation Plan**

**DRAFT—August 21, 2014**

2014 Nevada Greater Sage-Grouse  
Conservation Plan

August 21, 2014

Presented To:  
Governor Brian Sandoval

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1 **LIST OF ACRONYMS**

<b>AML</b>	Appropriate Management Levels
<b>AMP</b>	Allotment Management Plans
<b>AUM</b>	Animal Unit Months
<b>BAR</b>	Burned Area Rehabilitation
<b>BIA</b>	Bureau of Indian Affairs
<b>BLM</b>	Bureau of Land Management
<b>CCS</b>	Conservation Credit System
<b>CDP</b>	Conservation Districts Program
<b>DCNR</b>	Department of Conservation and Natural Resources
<b>DOD</b>	Department of Defense
<b>DRI</b>	Desert Research Institute
<b>EIS</b>	Environmental Impact Statement
<b>ERT</b>	Expert Review Team
<b>ES</b>	Emergency Stabilization
<b>ESA</b>	Endangered Species Act
<b>ESD</b>	Ecological Site Description
<b>FIAT</b>	Fire and Invasives Assessment Team
<b>HA</b>	Herd Areas
<b>HMA</b>	Herd Management Areas
<b>HTNF</b>	Humboldt-Toiyabe National Forest
<b>HQT</b>	Habitat Quantification Tool
<b>HSI</b>	Habitat Suitability Index
<b>LAWG</b>	Local Area Working Group
<b>LUP(A)</b>	Land Use Plan (Amendment)
<b>MOU</b>	Memorandum of Understanding
<b>NAC</b>	Nevada Administrative Code

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<b>NBMG</b>	Nevada Bureau of Mines and Geology
<b>NDA</b>	Nevada Department of Agriculture
<b>NDEP</b>	Nevada Division of Environmental Protection
<b>NDF</b>	Nevada Division of Forestry
<b>NDOW</b>	Nevada Department of Wildlife
<b>NEPA</b>	National Environmental Policy Act
<b>NGO</b>	Non-governmental Organization
<b>NOAA</b>	National Oceanic and Atmospheric Administration
<b>NRCS</b>	Natural Resources Conservation Service
<b>NRS</b>	Nevada Revised Statutes
<b>NWCG</b>	National Wildfire Coordination Group
<b>PFC</b>	Proper Functioning Condition
<b>P-J</b>	Pinyon and juniper
<b>PMU</b>	Population Management Unit
<b>ROW</b>	Right-of-Way
<b>RSF</b>	Resource Selection Function
<b>SAP</b>	Strategic Action Plan
<b>SD</b>	Standard Deviation
<b>SEC</b>	Sagebrush Ecosystem Council
<b>SEP</b>	Sagebrush Ecosystem Program
<b>SETT</b>	Sagebrush Ecosystem Technical Team
<b>SEZ</b>	Solar Energy Zone
<b>SGMA</b>	Sage-grouse Management Area
<b>SUA</b>	Special-Use Authorization
<b>TNR</b>	Temporary Non-Renewable
<b>UNR</b>	University of Nevada, Reno
<b>USDA –</b>	U.S. Department of Agriculture – Agricultural Research Service
<b>ARS</b>	

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<b>USDA-</b>	U.S. Department of Agriculture - Animal and Plant Health Inspection
<b>APHIS</b>	Service
<b>USFS</b>	US Forest Service
<b>USFWS</b>	US Fish and Wildlife Service
<b>USGS</b>	US Geological Survey
<b>WAFWA</b>	Western Association of Fish and Wildlife Agencies
<b>WHBT</b>	Wild Horse and Burro Territories

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1 **1.0 INTRODUCTION**

2 Nevada has been proactive in conservation of greater sage-grouse (*Centrocercus*  
3 *urophasianus*; hereafter, sage-grouse) since 2000 when then Governor Kenny Guinn  
4 appointed a task force representing various interest groups and agencies to develop a  
5 plan that would conserve and protect Nevada’s sage-grouse and their habitat. In  
6 October 2001 the Nevada Sage-grouse Conservation Strategy identified challenges,  
7 offered potential solutions, and laid the groundwork for the formation of local area  
8 working groups (LAWG) and Population Management Units (PMU). It provided guidance  
9 for developing conservation plans and subsequent legislative endorsements in 2004 and  
10 2010 reinforced Nevada’s commitment to conserve the species.

11 From 2001 to 2004 the Governor’s Sage-grouse Conservation Team under leadership of  
12 the Nevada Department of Wildlife (NDOW) completed an intensive planning effort for  
13 the State in which LAWGs developed plans for their respective areas and PMUs. In June  
14 2004, the *1st Edition of the Greater Sage-grouse Conservation Plan for Nevada and*  
15 *Eastern California* (2004 State Plan) was completed. Between 2004 and the present,  
16 resource management agencies have implemented conservation projects and instituted  
17 policies to support the conservation goals in the 2004 State Plan.

18 On March 23, 2010, the U.S. Fish and Wildlife Service (USFWS) determined that sage-  
19 grouse warranted protection under the Endangered Species Act of 1973, as amended  
20 (ESA), but precluded due to higher priority species. Consequently, sage-grouse were  
21 placed on the federal candidate species list. The USFWS later entered into a court  
22 settlement with several environmental groups, which included a schedule for making  
23 listing determinations on over 200 candidate species, including the sage-grouse. A  
24 proposed decision for sage-grouse is scheduled for September 2015.

25 In response, the Bureau of Land Management (BLM) and U.S. Forest Service (USFS)  
26 developed their National Greater Sage-grouse Planning Strategy in late 2011, a process

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1 to revise existing land use plans (LUPs) in order to provide regulatory mechanisms to  
2 conserve sage-grouse and their habitat. Secretary Salazar invited the states impacted by  
3 a potential sage-grouse listing to develop state-specific regulatory mechanisms to  
4 conserve the species which could be considered as an alternative in the BLM and USFS  
5 LUP revision process.

6 On March 30, 2012, Governor Sandoval fortified Nevada's commitment to sage-grouse  
7 conservation, by issuing Executive Order 2012-09, which established the Governor's  
8 Greater Sage-grouse Advisory Committee (Advisory Committee) with a directive to  
9 provide updated recommendations for sage-grouse conservation in Nevada in order to  
10 preclude the need to list sage-grouse under the ESA and provide an alternative for  
11 consideration in the BLM/ USFS LUP revision process for Nevada. Those efforts resulted  
12 in the *Strategic Plan for Conservation of Greater Sage-Grouse in Nevada* (2012 State  
13 Plan), completed on July 31, 2012, which consisted of a list of primary threats to sage-  
14 grouse in Nevada and recommendations to the Governor on strategies and actions to  
15 conserve sage-grouse in Nevada.

16 One of the main recommendations of the 2012 State Plan was the creation of the  
17 Sagebrush Ecosystem Program (SEP), which consists of the Sagebrush Ecosystem Council  
18 (SEC) and the Sagebrush Ecosystem Technical Team (SETT; see Section 5.0). The SEC  
19 was originally established under Executive Order 2012-19, on November 19, 2012, and  
20 later solidified into state statute under NRS 232.162. The SETT began work on February  
21 11, 2013. On April 22, 2013, the SEC directed the SETT to further develop the  
22 recommendation in the 2012 State Plan into a more comprehensive and detailed  
23 strategy. The SEC considered proposed revisions over a series of meetings starting in  
24 July 2013. Each SEC meeting was held in compliance with the Nevada Open Meeting  
25 Law, including multiple opportunities for public comment. The result of those efforts is  
26 this document, the *2014 Nevada Greater Sage-grouse Conservation Plan* (2014 State  
27 Plan).



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1 The 2014 State Plan represents the best available scientific information, as well as  
2 stakeholder input, to develop a sage-grouse conservation plan specific to Nevada. This  
3 is meant to be a “working document” that will be updated as new science emerges and  
4 lessons are learned through implementation of the 2014 State Plan, through an adaptive  
5 management framework. This document will be updated periodically, as needed.

6 In addition to the 2014 State Plan, Nevada is in the process of developing a *Nevada*  
7 *Sage-grouse Strategic Action Plan (SAP)*. The 2014 State Plan provides broad goals,  
8 objectives, and management actions to ameliorate the primary threats to sage-grouse in  
9 Nevada. The SAP will be a companion document to the 2014 State Plan and will go into  
10 greater detail and identify areas to focus conservation efforts in order to achieve the  
11 broad goals and objectives outlined in the 2014 State Plan. The SAP will identify where  
12 the primary threats to sage-grouse habitat are located across the landscape and provide  
13 specific guidance on how to ameliorate these threats based on local area conditions,  
14 resistance and resilience regimes, and ecological site descriptions. The SAP will help  
15 guide how and where the management efforts identified in the 2014 State Plan are  
16 prioritized in order to achieve landscape-scale conservation of sage-grouse and the  
17 sagebrush ecosystem.

1 **2.0 DEFINITIONS**

2 **Acts of Nature** – An event resulting from natural processes of the earth which occur  
3 outside human control and may be unpredictable, such as wildfires or drought.

4 **Anthropogenic Disturbance** – Any human-caused activity or action and/ or human-  
5 created physical structures that may have adverse impacts on sage-grouse and/  
6 or their habitat. The term anthropogenic disturbance and its associated  
7 conservation policies will include, but not limited to the following project  
8 categories: mineral development and exploration and its associated  
9 infrastructure; renewable and non-renewable energy production, transmission,  
10 and distribution and its associated infrastructure; paved and unpaved roads and  
11 highways; cell phone towers; landfills; pipelines; residential and commercial  
12 subdivisions; special use permits; right-of-way applications; and other large-  
13 scale infrastructure development. Livestock operations and agricultural  
14 activities and infrastructure related to small-scale ranch and farm businesses  
15 (e.g. water troughs, fences, etc.) are not included in this definition.

16 **Conservation** – The preservation, enhancement, or restoration of the natural  
17 environment; including: ecosystem processes, vegetation, and wildlife.

18 **Conservation Credit System (CCS)** – A pro-active solution to ensure impacts from  
19 human activities generate a net benefit for the species, while enabling human  
20 activities vital to the Nevada economy and way of life. The Credit System creates  
21 new incentives for 1) human activities to avoid and minimize impacts to  
22 important habitat for the species, and 2) private landowners and public land  
23 managers to preserve, enhance, restore, and reduce the threat of wildfire to  
24 important habitat for the species.

25 **Enhancement** – Manipulation of existing habitat to improve specific habitat  
26 functionality.

1 **Habitat** – An area that provides food, cover, water, and space for an organism. It is the  
2 resources and conditions present in an area that are required by a species to  
3 carry out its life. Habitat implies more than just vegetation or vegetation  
4 structure; it is the sum of the specific resources that are needed by an organism.  
5 Other resources that influence habitat include physical and biological  
6 characteristics, such as: climate, precipitation, elevation, topography, water  
7 availability, soil type, etc.

8 *Specific to this State Plan:*

9 **Suitable Habitat** – Areas identified through the habitat suitability index (Section  
10 6.0) with index values greater than 1.5 standard deviations below the mean  
11 value of the index. These areas are identified as generally meeting the needs  
12 for sage-grouse to survive and reproduce.

13 **Non-Habitat** – Areas identified through the habitat suitability index (Section 6.0)  
14 with index values less than 1.5 standard deviations below the mean value of the  
15 index. These areas are identified as generally not meeting the needs for sage-  
16 grouse to survive and reproduce.

17 **Habitat Quantification Tool (HQT)** – The method for quantifying impacts (“debits”) or  
18 benefits (“credits”) to sage-grouse habitat characteristics generated by  
19 participants in the Nevada CCS. It is intended to provide an effective means for  
20 targeting credits and debits to the most beneficial locations for the sage-grouse,  
21 and tracking the contribution of the CCS to sage-grouse habitat and population  
22 goals.

23 **Invasive Plants** – A non-native plant that effectively reproduces, is able to outcompete  
24 native plants, may alter ecosystem processes, and may be difficult to control or  
25 eradicate. Invasive plants can be considered by the State Quarantine Officer for  
26 the designation of “noxious”.

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1 **Lek** – Traditional courtship display and mating areas attended by sage-grouse in or  
2 adjacent to sagebrush dominated nesting habitat. Leks are generally situated  
3 on gentle terrain in relatively open areas with less herbaceous and shrub cover  
4 than surrounding areas (Connelly et al 2004).

5 **Noxious Weeds** – Any species of plant which is currently or likely to become  
6 detrimental, destructive and/or difficult to control and is designated by the  
7 State Quarantine Officer as “noxious”. These weeds are regulated by Nevada  
8 Revised Statute 555.130 – 555.201 and the designation and categorization of  
9 noxious weeds can be found in Nevada Administrative Code 555.010.

10 **Population Management Units (PMUs)** – General delineations of sage-grouse  
11 populations for management in Nevada. PMUs are based on aggregations of  
12 leks, understanding of habitat, and potential boundaries to populations (such as  
13 mountains and valleys). These were developed by NDOW for the 2001 State  
14 plan and refined in the 2004 State Plan.

15 **Preservation** – Maintenance or retention of existing habitat currently used by or in  
16 close proximity to habitat used by greater sage-grouse through variety of  
17 management tools, both active and passive.

18 **Reclamation** – This term has two definitions in this State Plan: 1) Re-vegetation of a site  
19 to achieve basic ecological functions, such as preventing soil erosion, but which  
20 does not return a site to its reference state according to its ecological site  
21 description. 2) A requirement of mining projects to return a site to pre-  
22 disturbance conditions after mining activities cease.

23 **Resource Selection Function (RSF)** – Any model that yields values proportional to the  
24 probability of use of a resource unit. RSF models often are fitted using  
25 generalized linear models (GLMs) although a variety of statistical models might

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1 be used. RSFs were used in the development of the habitat suitability model  
2 (Section 6.0; Boyce et al. 2002).

3 **Restoration** – The reestablishment of ecologically important habitat or other ecosystem  
4 resource characteristics and function(s) at a site where they have ceased to  
5 exist, or where they exist in a substantially degraded state, and that renders a  
6 positive biological response by the habitat.

7 **Sage-Grouse Management Area (SGMA)** – The spatial extent of sage-grouse  
8 management in Nevada. The overarching objective of Nevada’s plan is to  
9 achieve conservation through no net unmitigated loss of sage-grouse habitat  
10 due to anthropogenic disturbances within the SGMA.

11 **Core Management Areas** – Areas of high estimated space use in suitable sage-  
12 grouse habitat in the State of Nevada. These areas represent the strongholds (or  
13 “the best of the best”) for sage-grouse populations in the State and support the  
14 highest density of breeding populations.

15 **Priority Management Areas** – Areas that are determined to be highly suitable  
16 habitat for sage-grouse as well as areas of high space use that are not contained  
17 within the Core Management Areas.

18 **General Management Areas** – Areas determined to be suitable habitat for sage-  
19 grouse, though less suitable than Priority Management Areas, and are not  
20 contained within the Core Management Areas.

21 **Non-Habitat Management Areas** – Areas within the SGMA determined to be  
22 unsuitable for sage-grouse.

23 **Site Specific Consultation Based Design Features** – Measures or actions designed to  
24 minimize adverse effects to sage-grouse and their habitat due to disturbances.

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- 1 **Space Use Index** – Continuous surface mapping developed based on lek attendance and
- 2 density coupled with probability of sage-grouse occurrence relative to distance
- 3 to nearest lek.
  
- 4 **WAFWA Management Zones** – Range-wide sage-grouse management delineations
- 5 based on populations within floristic provinces. These were developed to guide
- 6 sage-grouse conservation goals and range-wide management outlined in the
- 7 2006 Greater Sage-grouse Comprehensive Conservation Strategy developed by
- 8 WAFWA.

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1 **3.0 CONSERVATION GOALS AND OBJECTIVES**

2 The State’s goal for the conservation of sage-grouse in the State of Nevada is to  
3 provide for the long-term conservation of sage-grouse by protecting the sagebrush  
4 ecosystem upon which the species depends. Redundant, representative, and resilient  
5 populations of sage-grouse will be maintained through amelioration of threats;  
6 enhancement and/ or ~~protection~~-preservation of key habitats; mitigation for loss of  
7 habitat due to anthropogenic disturbances; and restoration or rehabilitation of habitat  
8 degraded or lost due to Acts of Nature.

9  
10 The State’s goal for the conservation of sage-grouse will provide benefits for the  
11 sagebrush ecosystem and for many other sagebrush obligate species. Sage-grouse are  
12 known to be an “umbrella species” for many sagebrush obligate and associated species.  
13 The enhancement and restoration measures that bring resiliency and restore ecological  
14 functions to sagebrush ecosystems will also serve to ensure quality habitat for sage  
15 thrasher, sage sparrow, Brewer’s sparrow, sagebrush vole, pygmy rabbit, pronghorn  
16 antelope, mule deer, and many other species.

17  
18 The State’s goal will be met through conservation objectives for anthropogenic  
19 disturbances and Acts of Nature, principally large acreage wildland fires and subsequent  
20 invasion by non-natives species. This combined strategy creates the regulatory  
21 framework through which sage-grouse habitat can be conserved and the decline of  
22 sage-grouse populations can be stopped in the State of Nevada. This section of the Plan  
23 details related polices and an adaptive management approach that will provide  
24 guidance to achieve these objectives.

25  
26 The guiding principles that create the balanced foundation and vision for a coordinated,  
27 management approach for conservation of sage-grouse and the sagebrush ecosystem in

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1 Nevada are as follows:

- 2       • Conserve sage-grouse and their habitat in Nevada while maintaining the  
3       economic vitality of the State.
- 4       • Due to the broad reach of sage-grouse habitat, effective management and  
5       implementation of sage-grouse conservation actions must be conducted  
6       through a collaborative, interagency approach that engages private, non-  
7       governmental, local, state, Tribal and federal stakeholders to achieve sufficient  
8       conservation of the sage-grouse and their habitat.
- 9       • Adaptive management will be employed at all levels of management in order to  
10      acknowledge potential uncertainty upfront and establish a sequential  
11      framework in which decision making will occur in order to learn from previous  
12      management actions.



1 **3.1 Anthropogenic Disturbances**

2  
3 *3.1.1 Conservation Objective – No net unmitigated loss due to anthropogenic*  
4 *disturbances*

5  
6 The overarching objective of Nevada’s plan is to achieve conservation through no net  
7 unmitigated loss of sage-grouse habitat due to anthropogenic disturbances within the  
8 Sage-Grouse Management Area (SGMA; Figure 1) in order to stop the decline of sage-  
9 grouse populations. No net unmitigated loss is defined as the State’s objective to  
10 maintain the current quantity of quality of sage-grouse habitat within the SGMA at the  
11 state-wide level by protecting existing sage-grouse habitat or by mitigating for loss due  
12 to anthropogenic disturbances. Mitigation requirements are determined by the  
13 Conservation Credit System. This objective will be measured by the credit to debit ratio.

14  
15 Anthropogenic disturbance is defined here as any human-caused activity or action and/  
16 or human-created physical structures that may have adverse impacts on sage-grouse  
17 and/ or their habitat. The term anthropogenic disturbance and its associated  
18 conservation policies will include, but not limited to the following project categories:  
19 mineral development and exploration and its associated infrastructure; renewable and  
20 non-renewable energy production, transmission, and distribution and its associated  
21 infrastructure; paved and unpaved roads and highways; cell phone towers; landfills;  
22 pipelines; residential and commercial subdivisions; special use permits; right-of-way  
23 applications; and other large-scale infrastructure development. Livestock operations  
24 and agricultural activities and infrastructure related to small-scale ranch and farm  
25 businesses (e.g. water troughs, fences, etc.) are not included in this definition, though  
26 Section 6.5 and Appendix A address how to minimize impacts to sage-grouse and their  
27 habitat from these activities.

28  
29 *3.1.2 Conservation Policies – “Avoid, Minimize, Mitigate”*

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*The **S**state of Nevada’s overriding policy for all management actions within the SGMA is to “avoid, minimize, and mitigate” impacts to sage-grouse habitat.*

This is a fundamental hierarchical decision process that seeks to:

**Avoid** – Eliminate conflicts by relocating disturbance activities outside of sage-grouse habitat in order to conserve sage-grouse and their habitat. Avoidance of a disturbance within sage-grouse habitat is the preferred option.

**Minimize** –If impacts are not avoided, the adverse effects will need to be both minimized and mitigated. Impacts will be minimized by modifying proposed actions and/ or developing permit conditions to include measures that lessen the adverse effects to sage-grouse and their habitat. This will be accomplished through Site Specific Consultation - Based Design Features (Design Features), such as reducing the disturbance footprint, seasonal use limitations, co-location of structures, etc. Minimization does not preclude the need for mitigation of a disturbance. Any disturbance in habitat within the SGMA will require both minimization and mitigation.

**Mitigate** – If impacts are not avoided, after required minimization measures are specified, residual adverse effects on designated sage-grouse habitat are required to be offset by implementing mitigation actions that will result in replacement or enhancement of the sage-grouse habitat to balance the loss of habitat from the disturbance activity. This will be accomplished through the Conservation Credit System.

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1

2 Proposed anthropogenic disturbances within the SGMA will trigger [timely](#) consultation  
3 with the SETT for assessment of impacts to sage-grouse and their habitat and  
4 compliance with SEC and other relevant agency policies. [All currently mapped sage-](#)  
5 [grouse habitat is located within the SGMA.](#) ~~Project proponents considering projects in~~  
6 ~~sage-grouse habitat not located within the SGMA are encouraged to contact the SETT~~  
7 ~~for voluntary project planning guidance to avoid, minimize, and mitigate potential~~  
8 ~~disturbances.~~ Specifics of the SETT ~~C~~onsultation ~~are~~ [will be](#) detailed in a Memorandum  
9 of Understanding (MOU) [between the applicable State and Federal agencies, still under](#)  
10 [development in Appendix XX.](#) SETT ~~C~~onsultation is designed to provide a regulatory  
11 mechanism to ensure that sage-grouse conservation policies are applied consistently  
12 throughout the State and streamline the federal permitting process.

13

14 Determination of sage-grouse habitat will be based on the [NevadaUSGS](#) Habitat  
15 Suitability Map (Figure 2). At the onset of a proposed project, habitat evaluations or  
16 “ground-truthing” of the project site and its surrounding areas shall be conducted by a  
17 qualified biologist with sage-grouse experience using methods as defined in Stiver et al  
18 (2010) to confirm habitat type. Evaluations can be conducted by the SETT or NDOW at  
19 the request of the project proponent.

20

21 The specific steps for the implementation of the “avoid, minimize, mitigate” policy are  
22 as follows:

23

### 24 **Avoid**

25 Project proponents must first seek to avoid disturbance in sage-grouse habitat within  
26 the SGMA. If the project is located entirely outside of habitat, but within the SGMA it  
27 will still be analyzed for indirect effects, such as noise and visual impacts. A project will  
28 only be considered to have avoided impacts if it is physically located in non-habitat and

1 it is determined to have no indirect impacts effecting designated habitat within the  
2 SGMA. If this is determined, no further consultation with the SETT is required.

3

4 It is important to note that the avoid step is not an “all or nothing” concept. If the  
5 entirety of a project cannot be relocated to non-habitat, alternatives will be explored to  
6 relocate portions of the project to non-habitat. (For example, if a mine cannot be  
7 relocated into non-habitat, power distribution lines associated with the project may be  
8 relocated to non-habitat.) This may reduce minimization and mitigation requirements  
9 for the project proponent.

10

11 Anthropogenic disturbances should be avoided within the SGMA. If avoidance is not  
12 possible, the project proponent must demonstrate why it is not possible in order for the  
13 SETT to consider minimization and mitigation alternatives. The process to demonstrate  
14 that avoidance is not possible (the “avoid process”) is determined by four management  
15 categories\_(Figure 3), which consider both sage-grouse breeding population density and  
16 habitat suitability within the SGMA. This approach was taken in order to conserve large  
17 and functioning sage-grouse populations, as well as the habitat needed to support sage-  
18 grouse survival. Definitions and methods for developing the management categories are  
19 provided in Section 6.0.

20

21 The burden of proof to demonstrate that avoidance is not possible within the SGMA will  
22 be on the project proponent and will require the project proponent to demonstrate the  
23 specified criteria listed in Table 3-1 as determined by the management categories the  
24 proposed project is located in. Exemptions to the avoid policy will be granted if all the  
25 criteria in Table 3-1 is met. A higher burden of proof is set for project proponents to  
26 demonstrate that avoidance is not possible in areas that have higher densities of sage-  
27 grouse populations and suitable habitat.

28

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**Table 3-1. The "Avoid Process" for Proposed Anthropogenic Disturbances within the SGMA**

Anthropogenic disturbances should be avoided in habitat within the SGMA. If project proponents wish to demonstrate that a disturbance cannot be avoided, exemptions will be granted if the criteria listed in the table can be met for the applicable management category.

Core Management Areas ("best of the best")	Priority Management Areas	General Management Areas	Non-habitat Management Areas
<ul style="list-style-type: none"> <li>• Demonstrate that the project cannot be reasonably accomplished elsewhere – the purpose and need of the project could not be accomplished in an alternative location;</li> <li>• Demonstrate that the individual and cumulative impacts of the project would not result in habitat fragmentation or other impacts that would cause sage-grouse populations to decline through consultation with the SETT;</li> <li>• Demonstrate that sage-grouse population trends within the PMU are stable or increasing over a ten-year rolling average;</li> <li>• Demonstrate that project infrastructure will be co-located with existing disturbances to the greatest extent possible;</li> <li>• Develop Site Specific Consultation Based Design Features to minimize impacts through consultation with the SETT; and</li> <li>• Mitigate unavoidable impacts through compensatory mitigation via the Conservation Credit System. Mitigation rates will be higher for disturbances within this category.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate that the project cannot be reasonably accomplished elsewhere – the purpose and need of the project could not be accomplished in an alternative location;</li> <li>• Demonstrate that project infrastructure will be co-located with existing disturbances to the greatest extent possible. If co-location is not possible, siting should reduce individual and cumulative impact to sage-grouse and their habitat;</li> <li>• Demonstrate that the project should not result in unnecessary and undue habitat fragmentation that may cause declines in sage-grouse populations within the PMU through consultation with the SETT;</li> <li>• Develop Site Specific Consultation Based Design Features to minimize impacts through consultation with the SETT; and</li> <li>• Mitigate for unavoidable impacts through compensatory mitigation via the Conservation Credit System.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate that the project cannot be reasonably accomplished elsewhere – the purpose and need of the project could not be accomplished in an alternative location;</li> <li>• Demonstrate that project infrastructure will be co-located with existing disturbances to the greatest extent possible;</li> <li>• Develop Site Specific Consultation Based Design Features to minimize impacts through consultation with the SETT; and</li> <li>• Mitigate for unavoidable impacts through compensatory mitigation via the Conservation Credit System.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate that the project will not have indirect impacts to sage-grouse and their habitat. If it cannot be demonstrated, the project proponent will be required to develop Site Specific Consultation Based Design Features to minimize impacts and compensatory mitigation will be required.</li> </ul>

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*Core Management Areas*

The Core Management Areas supports areas of high densities of sage-grouse and areas of high estimated space use in suitable habitat in the State of Nevada. These areas include approximately 85% of space use by sage-grouse in the State of Nevada. These areas represent the strongholds (or "the best of the best") for sage-grouse populations in the State of Nevada and support the highest density of breeding populations. Thus, the management strategy is to conserve these areas by avoidance of anthropogenic disturbances in order to maintain or improve current sage-grouse population levels.

Project proponents must seek to avoid disturbances within the SGMA. If the project proponent wishes to demonstrate that avoidance is not possible within these areas, exemptions will be granted to this restriction as part of the SETT consultation. The project proponent must demonstrate that all of the following criteria listed below (also

1 see Table 3-1) are met as part of the SETT [C](#)onsultation process in order to be granted  
2 an exemption:

- 3
- 4 • Demonstrate that the project cannot be reasonably accomplished elsewhere –  
5 the purpose and need of the project could not be accomplished in an alternative  
6 location;
  - 7 • Demonstrate that the individual and cumulative impacts of the project would  
8 not result in habitat fragmentation or other impacts that would cause sage-  
9 grouse populations to decline through consultation with the SETT;
  - 10 • Demonstrate that sage-grouse population trends within the PMU are stable or  
11 increasing over a 10-year rolling average;
  - 12 • Demonstrate that project infrastructure will be co-located with existing  
13 disturbances to the greatest extent possible;
  - 14 • Develop Site Specific Consultation [-](#)Based Design Features to minimize impacts  
15 through consultation with the SETT; and
  - 16 • Mitigate unavoidable impacts through compensatory mitigation via the  
17 Conservation Credit System. Mitigation rates will be higher for disturbances  
18 within this category.

19

20 *Priority Management Areas*

21 The Priority Management Areas encompass areas that are determined to be highly  
22 suitable habitat for sage-grouse by the [USGS-Nevada](#) Habitat Suitability Model and areas  
23 of high space use that are not contained within the Core Management Areas.

24 Management in these areas provide more flexibility to project proponents, though  
25 avoidance in these areas is still the preferred option and project proponents are  
26 encouraged to develop outside of these areas whenever possible. Anthropogenic  
27 disturbances will be permitted in these areas if the criteria listed below (also see Table  
28 3-1) are met as part of the SETT [C](#)onsultation process:

- 1 • Demonstrate that the project cannot be reasonably or feasibly accomplished  
2 elsewhere – the purpose and need of the project could not be accomplished in  
3 an alternative location;
- 4 • Demonstrate that project infrastructure will be co-located with existing  
5 disturbances to the greatest extent possible. If co-location is not possible, siting  
6 should reduce individual and cumulative impacts to sage-grouse and their  
7 habitat;
- 8 • Demonstrate that the project should not result in unnecessary and undue  
9 habitat fragmentation that may cause declines in sage-grouse populations  
10 within the PMU through consultation with the SETT;
- 11 • Develop Site Specific Consultation Based Design Features to minimize impacts  
12 through consultation with the SETT; and
- 13 • Mitigate for unavoidable impacts through compensatory mitigation via the  
14 Conservation Credit System.

15 *General Management Areas*

16 The General Management Areas encompass areas determined to be suitable habitat for  
17 sage-grouse, though less suitable than Priority Management Areas and are not  
18 contained within the Core Management Areas. Management of these areas provides  
19 the greatest flexibility to project proponents. Anthropogenic disturbances will be  
20 permitted in these areas if the criteria listed below (also see Table 3-1) are met as part  
21 of the SETT consultation process:

- 22 • Demonstrate that the project cannot be reasonably or feasibly accomplished  
23 elsewhere – the purpose and need of the project could not be accomplished in  
24 an alternative location;
- 25 • Demonstrate that project infrastructure will be co-located with existing  
26 disturbances to the greatest extent possible;

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- 1       • Develop Site Specific Consultation\_-Based Design Features to minimize impacts  
2       through consultation with the SETT; and
- 3       • Mitigate for unavoidable impacts through compensatory mitigation via the  
4       Conservation Credit System.

5  
6

### 7 *Non-Habitat Management Areas*

8 The Non-Habitat Management Areas encompass areas determined to be unsuitable for  
9 sage-grouse by the [USGS-Nevada](#) Habitat Suitability Model. As specified above, all  
10 proposed projects within the SGMA, including in non-habitat within SGMAs must  
11 conduct habitat evaluation or ground-truthing to confirm presence or absence of sage-  
12 grouse habitat. If areas are confirmed by habitat evaluations to be non-habitat, an  
13 analysis for indirect impacts on sage-grouse within their habitat in the SGMA will be  
14 required to determine if Site Specific Consultation\_-Based Design Features to minimize  
15 impacts and compensatory mitigation are necessary as part of the SETT [C](#)onsultation  
16 process (also see Table 3-1).

### 17 **Minimize**

18 If a project cannot avoid adverse effects (direct or indirect) to sage-grouse habitat  
19 within the SGMA, the project proponent will be required to implement Site Specific  
20 Consultation\_-Based Design Features ([Design Features](#)) that minimize the project's  
21 adverse effects to sage-grouse habitat.

22  
23 Minimization will include [timely](#) consultation with the SETT to determine which ~~Site~~  
24 ~~Specific Consultation-Based~~ Design Features would be most applicable to the project  
25 when considering site conditions, types of disturbance, etc. Some general examples  
26 could include: reducing the footprint of the project, siting infrastructure in previously  
27 disturbed locations with low habitat values, noise restrictions near leks during breeding



1 season, and washing vehicles and equipment to reduce the spread of invasive species.  
2 Land use specific ~~Site-Specific-Consultation-Based~~ Design Features are included in  
3 Appendix A.

4  
5 A list of ~~Site-Specific-Consultation-Based~~ Design Features for the project must be  
6 specified and agreed upon by the SETT and project proponent prior to the start of the  
7 project and will become part of the permit/ contract requirements issued for the  
8 project. The project proponent will be required to implement, maintain, and monitor  
9 the required ~~DFs~~ Design Features in good working order throughout the duration of the  
10 project.

11

12 **Mitigate**

13 Mitigation involves the successful restoration, ~~or~~ enhancement, or preservation of  
14 sage-grouse habitat and is designed to offset the negative impacts caused by an  
15 anthropogenic disturbance. Mitigation will be required for all anthropogenic  
16 disturbances impacting sage-grouse habitat within the SGMA. Mitigation requirements  
17 will be determined by the State's Conservation Credit System (Section 8.0).

18

19 Options for mitigation will be identified in the State's Strategic Action Plan ~~for~~  
20 Mitigation. The State's Strategic Action Plan ~~for Mitigation~~ will identify prioritized areas  
21 on public and private lands to implement a landscape scale restoration effort. This will  
22 spatially identify where the primary threats to sage-grouse habitat are located  
23 throughout the State and provide management guidance for how to ameliorate the  
24 threats based on local area conditions and ecological site descriptions. The  
25 prioritization includes efforts to use mitigation funding in areas where sage-grouse will  
26 derive the most benefit, even if those areas are not adjacent to or in the vicinity of  
27 impacted populations. This Strategic Action Plan ~~for Mitigation~~ will be updated at least

1 every five years to reflect improvements in understanding and technology for mitigation  
2 activities.

3

4 *3.1.3 Adaptive Management*

5

6 The SETT, in close coordination with applicable federal and state agencies will evaluate  
7 and assess the effectiveness of these policies at achieving the objective of no net  
8 unmitigated loss and will provide a report to the SEC annually. The objective will be  
9 considered to have been met if there is a positive credit to debit ratio within the  
10 Conservation Credit System on an annual basis. ~~The State acknowledges that this may  
11 be difficult to achieve within the first five years of the Conservation Credit System due  
12 to an initial lag in the start of the program, but by leveraging funds, credits should  
13 outweigh debits over time.~~ If the State falls short of its objective, the SEC will reassess  
14 and update polices and management actions based on recommendations from the SETT  
15 using the best available science to adaptively manage sage-grouse habitat.

1 **3.2 Acts of Nature – Fire and Invasive Species**

2

3 **3.2.1 Conservation Objectives –**

4

5 The overarching objectives of Nevada’s plan is to achieve conservation through the  
6 following short and long term objectives for Acts of Nature in order to stop the decline  
7 of sage-grouse populations and restore and maintain a functioning sagebrush  
8 ecosystem:

9

10 **Short Term:**

- 11 • *Reduce the amount of sage-grouse habitat loss due to large acreage wildfires*  
12 *and invasion by non-native ~~species~~plants.*

13

14 **Long Term:**

- 15 • *Maintain an ecologically healthy and intact sagebrush ecosystem that is*  
16 *resistant to the invasion of non-native ~~species~~plants and resilient after*  
17 *disturbances, such as wildfire.*
- 18
- 19 • *Restore wildfire return intervals to within a spatial and temporal range of*  
20 *variability that supports sustainable populations of sage-grouse and other*  
21 *sagebrush obligate species.*

22

23 The Greater Sage-grouse Advisory Committee, using the best available science,  
24 identified fire and invasive plant species, principally cheatgrass, as the primary threat to  
25 sage-grouse and their habitat in the Sstate of Nevada. The State acknowledges these  
26 threats must be adequately addressed in order to achieve the conservation goal for  
27 sage-grouse within the Sstate of Nevada; however, it is not economically or ecologically  
28 feasible to restore all fire damaged or invasive species dominated landscapes at this

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1 point, nor is it possible to prevent all fires. The State will put forth a best faith effort to  
2 reduce the rate of sage-grouse habitat loss due to fire and invasive [plant](#) species. This  
3 objective will be measured by evaluating the amount of habitat lost due to fire and  
4 subsequently invaded by non-native [plant](#) species over a five year period.

### 6 *3.2.2a Conservation Policies – Fire Management: Paradigm Shift*

8 ~~1.—~~In order to address the threat of fire and invasive species, which has long  
9 challenged land managers throughout the western United States, the State  
10 proposes a paradigm shift. This would entail a more proactive, rather than  
11 reactive approach, to stop the dominance of invasive species and restore fire to  
12 within a range of variability to support sustainable populations of sage-grouse.

13 [For specific management actions associated with these policies, refer to Section](#)  
14 [7.1 of this State Plan.](#) ~~These policies include:~~

15 ~~2.— A shift in focus and funding from wildland fire suppression to pre-suppression.~~

16 ~~3.— Dedicate federal, state, and local funding for pre-suppression activities separate~~  
17 ~~from funding for suppression and post-fire rehabilitation activities. Post fire~~  
18 ~~rehabilitation/restoration funding should be available for up to three years~~  
19 ~~following each incident in order to monitor effectiveness and to accommodate~~  
20 ~~for poor initial success.~~

21 ~~4.— “Hold the line” against fire and invasive species near priority sage-grouse~~  
22 ~~habitat. Develop a prioritized pre-suppression plan that focuses on priority~~  
23 ~~sage-grouse habitat, similar to the Wildland Urban Interface planning analysis.~~

24 ~~5.— Emphasize “Strategic Fuels Management”. Location of fuels management~~  
25 ~~projects should be identified at the broad landscape level to provide protections~~  
26 ~~to areas of sage-grouse habitat that have compromised resilience, resistance,~~  
27 ~~and heterogeneity. They should also be implemented to protect against~~  
28 ~~catastrophically large wildfires and allow for repeated attempts to suppress~~

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- 1        ~~active fires. Provide consistent funding for maintenance of fuels management~~  
2        ~~projects. Establish effective monitoring plans to learn from implementation of~~  
3        ~~these tools and subsequent effectiveness during suppression. Fuels~~  
4        ~~management tools may include: fuels reduction treatments, including proper~~  
5        ~~livestock grazing; greenstripping; brownstripping; and maintaining riparian areas~~  
6        ~~as natural fuels breaks by managing for Proper Functioning Condition (PFC).~~
- 7        ~~6. Support robust, coordinated, and rapid fire suppression management using a~~  
8        ~~diversity of agencies, including federal, state and local government, as well as~~  
9        ~~empowering local landowners, such as through Rural Fire Protection Districts~~  
10       ~~and Wildfire Support Groups.~~
- 11       ~~7. Wildland fire should be used strategically and should not be suppressed in all~~  
12       ~~instances. Allow fires to burn naturally if located in areas that may benefit sage-~~  
13       ~~grouse habitat and would not risk the spread of invasive species, but only if~~  
14       ~~human lives and property are not at risk. Continue to suppress wildland fires~~  
15       ~~that may cause the spread of invasive species into sage grouse habitat. Use~~  
16       ~~ecological site descriptions and associated state and transition models to~~  
17       ~~identify such areas.~~
- 18       ~~8. Manage wildland fires in sage grouse habitat to retain as much habitat as~~  
19       ~~possible. Interior islands of vegetation in areas of habitat should be protected~~  
20       ~~through follow-up mop-up of the island's perimeter and interior, when fire crew~~  
21       ~~safety and welfare are not at risk.~~
- 22       ~~9. Post fire rehabilitation efforts should be collaborative and strategic in approach.~~  
23       ~~A wide variety of agencies, representing multiple disciplines should be involved~~  
24       ~~in order to leverage funding opportunities and provide knowledge on~~  
25       ~~appropriate site specific treatments. Rehabilitation efforts should focus on~~  
26       ~~preventing the spread of invasive species, particularly in or near sage-grouse~~  
27       ~~habitat.~~

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1 ~~10.1.\_\_\_\_\_ Emphasize continued research and provide funding to enhance~~  
2 ~~knowledge and understanding of how to prevent catastrophic wildfire, the~~  
3 ~~invasion of cheatgrass, and reclamation/ restoration techniques.~~

4  
5 3.2.2b Conservation Policies – Invasive ~~Species~~Plants: Prevent, Detect, Control, Restore,  
6 and Monitor

7  
8 ~~1. While wildfire is commonly the vector for the spread of invasive species~~plants,  
9 such as cheatgrass, invasive ~~species~~ plants are currently widespread throughout  
10 the Great Basin and can spread without the aid of wildfire. In order to address  
11 the general threat of invasive ~~plants~~species, the State proposes a policy of  
12 Prevent, Detect, Control, Restore, and Monitor. For specific management  
13 actions associated with these policies, refer to Section 7.1 of this State Plan.

14 ~~These policies include:~~

15 ~~2. **Prevent** the establishment of invasive species into uninvaded sage grouse~~  
16 ~~habitat. This will be achieved by conducting systematic and strategic detection~~  
17 ~~surveys, data collection, and mapping of these areas and engaging in early~~  
18 ~~response efforts if invasion occurs. This will be achieved by further developing~~  
19 ~~federal and state partnerships and working with local groups, such as Weed~~  
20 ~~Control Districts, Cooperative Weed Management Areas, and Conservation~~  
21 ~~Districts. This is the highest priority for the state of Nevada.~~

22 ~~3. **Control** invasive species infestations in sage grouse habitat already~~  
23 ~~compromised by invasion. Control techniques may include: biomass removal by~~  
24 ~~means such as strategic and targeted grazing, mowing, or using herbicides. In~~  
25 ~~addition, the State will continue to support research in the development of~~  
26 ~~biological control agents and deploy emerging technologies in Nevada as they~~  
27 ~~become available.~~

1 ~~4. **Restore** ecologically functioning sagebrush ecosystems in sage-grouse habitat~~  
2 ~~already compromised by invasion. Restoration may include revegetating sites~~  
3 ~~with native plants cultivated locally or locally adapted, non-native plant species~~  
4 ~~where appropriate. Control of invasives must be accompanied by ecosystem~~  
5 ~~restoration.~~

6 ~~5. Ecological site descriptions and associated state and transition models will be~~  
7 ~~used to identify target areas for resiliency enhancement and/ or restoration.~~  
8 ~~Maintaining and/or enhancing resilience should be given top priority. In the~~  
9 ~~Great Basin sagebrush-bunchgrass communities, invasion resistance and~~  
10 ~~successional resilience following disturbance are functions of a healthy~~  
11 ~~perennial bunchgrass component. Therefore a combination of active and~~  
12 ~~passive management will be required to ensure this functionality. Areas that~~  
13 ~~are in an invaded state that will likely transition to an annual grass monoculture~~  
14 ~~if a disturbance occurs and are located within or near sage-grouse habitat~~  
15 ~~should be prioritized for restoration efforts to increase resistance and resilience.~~

16 ~~6.1. **Monitor** and adaptively manage to ensure effectiveness of efforts to prevent,~~  
17 ~~control and restore.~~

18  
19 3.2.3 Adaptive Management

20  
21 Fire and the subsequent reestablishment of plant species (native or not) is a natural  
22 process, and consequently this threat is extremely challenging across the western  
23 United States as humans are still limited in our ability to directly control this cycle.  
24 However, scientific understanding of ecological processes and resource management  
25 techniques continue to improve. A commitment by the State to address this issue  
26 through adaptive management will lead to a greater understanding of the ecological  
27 mechanisms that drive these processes and will subsequently lead to improvements in

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1 resource management practices that prevent catastrophic wildfire and the subsequent  
2 invasion of cheatgrass.  
3  
4 The SETT will evaluate and assess the effectiveness of these policies at achieving the  
5 stated short and long term objectives and will provide a report to the SEC annually. The  
6 objectives will be met if there is a decrease or leveling off of the amount of habitat loss  
7 due to fire and subsequent invasion by annual grasses over a five year period. If the  
8 State and federal agencies fall short of this objective, the SEC will reassess and update  
9 policies and management actions based on recommendations from the SETT using the  
10 best available science to adaptively manage sage-grouse habitat.



1 **4.0 HABITAT OBJECTIVES FOR GREATER SAGE-GROUSE IN NEVADA**

2 The purpose of the habitat objectives for sage-grouse is to describe what is generally  
3 considered to be the highest quality seasonal habitat for greater sage-grouse, specific to  
4 Nevada. The objectives do not outline what is and what is not habitat, but depict the  
5 characteristics of seasonal habitats that sage-grouse in Nevada are using most  
6 successfully, based on research in Nevada. The objectives are appropriate at the site-  
7 scale and do not address landscape-scale patterns and characteristics.

8 The State of Nevada will work to maintain and manage sage-grouse habitat to meet  
9 these objectives across the sagebrush ecosystem in the state. The habitat objectives  
10 will be used to evaluate management actions that are proposed in sage-grouse habitat  
11 to ensure that 1) habitat conditions are maintained if currently meeting objectives, or 2)  
12 habitat conditions move toward these objectives if the current conditions do not meet  
13 these objectives. All proposed sage-grouse habitat mitigation, restoration, reclamation,  
14 or enhancement projects will incorporate these characteristics as project habitat  
15 objectives and will be the basis for determining success of these projects through long-  
16 term monitoring and adaptive management. When habitat within the state is identified  
17 as not meeting these objectives, the State will work with land managers to recommend  
18 adjustments in management to work towards these objectives, including an assessment  
19 of the causal factors. The proposed habitat objectives themselves are not regulatory,  
20 but are intended to help guide planning and adaptive management.

21 These objectives were developed by a team consisting of representatives from the  
22 USFWS, NDOW, USFS, USGS and BLM. The team reviewed and the Connelly et al. (2000)  
23 guidelines adding considerable detail and making adjustments based on regionally and  
24 locally derived data and analysis by the USGS. The State of Nevada's Science Work  
25 Group also reviewed these objectives before they were included in the State Plan.  
26 These habitat objectives are specific to Nevada and based on research conducted within

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1 the State. Additional information on the development of these objectives is provided in  
 2 Appendix B.

3 The State of Nevada recognizes that a resilient and resistant sagebrush ecosystem  
 4 should be heterogeneous across the landscape and that achievement of these  
 5 objectives resulting in a large-scale homogenous landscape is not desirable within the  
 6 State of Nevada. These objectives are intended to be used as guidelines at the site-level  
 7 and do not apply as objectives at the landscape-level.

8 [[Table 4-1 is the same as Table 2-6 in the BLM sub-regional EIS. The SETT would  
 9 recommend that these habitat objectives be the same for the state and federal  
 10 agencies. Table 2-6 is still undergoing review by a collaborative group (USGS, USFS, BLM,  
 11 NDOW, USFWS) and changes are still possible. To this end, the SETT recommends that  
 12 the Council approve this table with the caveat that the final Table 2-6 will be brought to  
 13 the Council (anticipated end of August) for review and incorporation in the September  
 14 Meeting. ]]

15 **Table 4-1. Habitat Objectives for Greater Sage-Grouse**

Life Requisite	Habitat Indicator	Objective	Citations
<b>GENERAL</b>			
All life stages	Rangeland Health Indicator Assessment	Meeting all standards <sup>1</sup>	
<b>LEK</b>			
Cover	Availability of sagebrush cover	Has adjacent sagebrush cover	Connelly et al. 2000 Blomberg et al. 2012
Security	Proximity of trees > 1 meter above shrub canopy	Within 1.86 miles (3 km): • none within line of sight of the lek	Connelly et al. 2000 (modified)
	Tree cover	Within 1.86 miles (3 km): • <3.5% conifer land cover	
<b>NESTING</b>			
Cover	Sagebrush canopy cover (%)	≥20	Kolada et al. 2009a Kolada et al. 2009b
	Sagebrush species present	Includes <i>Artemesia tridentata</i> subspecies	Coates et al. 2011 Kolada et al. 2009a

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Life Requisite	Habitat Indicator	Objective	Citations
			Kolada et al. 2009b
	Residual and live perennial grass cover (%)	≥10 if shrub cover <25 <sup>2</sup>	Coates et al. 2011 Coates and Delehanty 2010
	Annual grass (%)	<5	Blomberg et al. 2012
	Total shrub cover (%)	≥30	Coates and Delehanty 2010 Kolada et al. 2009a Lockyer et al. In review
	Conifer encroachment (%)	<5	Casazza et al. 2011 Coates et al. In prep (A)
Security	Proximity of tall structures	None within 3 miles (5km)	Coates et al. 2011
<b>BROOD-REARING/SUMMER</b>			
Cover	Sagebrush canopy cover (%)	≥10	Connelly et al. 2000
Cover and Food	Perennial forb canopy cover (%)	>5 arid >15 mesic	Casazza et al. 2011 Lockyer et al. In review
Food	Riparian Areas/Meadows	Manage for PFC	
	<a href="#">Plant Species Richness</a> <del>Perennial forb availability</del> (in the vicinity of riparian areas/meadows)	≥ 5 plant species present <sup>3</sup>	Casazza et al. 2011
Security	Conifer encroachment (%)	<3 phase I (>0% to <25% cover) No phase II (25 – 50% cover) No phase III (>50% cover) within 0.53-mile (850-meter) buffer of microhabitat plot	Casazza et al. 2011 Coates et al. In prep (A)
	Riparian Area/Meadow Interspersion with adjacent sagebrush	Perimeter to area ratio of 0.15-20 within <del>522656</del> -foot ( <del>159200</del> -meter) buffer <a href="#">from the center of data collection of the microhabitat</a> plot	Casazza et al. 2011
<b>WINTER</b>			
Cover and Food	Sagebrush canopy cover (%)	≥10	Connelly et al. 2000
	Sagebrush height in centimeters(cm)	≥25	Connelly et al. 2000
	Conifer encroachment (%)	<5 phase I (>0% to <25%	Coates et al. In prep (A)

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Life Requisite	Habitat Indicator	Objective	Citations
		cover) No phase II (25 – 50% cover) No phase III (>50% cover) within 0.53-mile (850-meter) buffer of microhabitat plot	Coates et al. In prep (B)
	Sagebrush extent (%)	>85% sagebrush land cover within 0.53-mile (850-meter) buffer of <del>the microhabitat</del> <u>from center of data collection</u> plot	Coates et al. In prep (B)
	Sagebrush species comp (%)	<i>A. t. tridentata</i> sites >50% <i>A. arbuscula</i> sites >25% <i>A. t. vaseyana</i> sites >25%	Coates et al. In prep (B)

- 1 <sup>1</sup>Upland standards are based on indicators for canopy and ground cover, including litter, live  
2 vegetation, and rock, appropriate to the ecological potential of the site. ~~The Rangeland Health~~  
3 ~~Indicator Assessment is already implemented on BLM lands. The assessment process will not~~  
4 ~~trigger specific land use decisions, but instead will provide information to determine if further~~  
5 ~~action is necessary.~~  
6 <sup>2</sup>Assumes upland rangeland health standards are being met.  
7 <sup>3</sup>Standard considered in addition to PFC. Measured ESD/Daubenmire (25cm x 50cm frame).  
8 Includes all mesic plant species, ~~not only perennial forbs.~~

1 **5.0 IMPLEMENTATION RESPONSIBILITIES**

2 The creation of the Sagebrush Ecosystem Program (SEP) was one of the main  
3 recommendations of the 2012 Governor’s Sage-grouse Advisory Committee. The SEP  
4 consists of the Sagebrush Ecosystem Council (SEC) and the Sagebrush Ecosystem  
5 Technical Team (SETT). The program is established under the Department of  
6 Conservation and Natural Resources – Division of State Lands. The program is a  
7 collaborative, multi-stakeholder approach, charged to carry out programs to preserve,  
8 restore, and enhance sagebrush ecosystems in the [State](#) of Nevada. In addition, the  
9 SEP will work with Local Area Working Groups (LAWGs) and Conservation Districts to  
10 help identify and implement on-the-ground sage-grouse and sagebrush ecosystem  
11 conservation efforts. [Also, though urbanization is currently not a major threat to sage-](#)  
12 [grouse in Nevada, the SEP will work with local governments to avoid future conflicts.](#)

13 **Sagebrush Ecosystem Council (SEC)**

14 The SEC was originally established under Executive Order 2012-19 and later solidified  
15 into state statute under NRS 232.162. The SEC consists of a nine voting member board,  
16 appointed by the Governor with representatives from the following interests:  
17 agriculture, energy, general public, conservation and environmental, mining, ranching,  
18 local government, Native American tribes, and Board of Wildlife Commissioners. In  
19 addition, the state directors of the Nevada Departments of Conservation and Natural  
20 Resources (DCNR), Wildlife (NDOW), and Agriculture (NDA), as well as the state  
21 directors for the federal agencies of BLM, USFWS, and HTNF will serve as ex-officio  
22 members. The SEC is responsible for determining policy associated with the sagebrush  
23 ecosystem and sage-grouse.

24 The objective of the SEC is to establish and guide a consistent, transparent process to  
25 coordinate disturbance and conservation activities and set policy in the SGMA in order

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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1 to provide for a resilient and resistant sagebrush ecosystem and stable or increasing  
2 sage-grouse populations.

3 The specific duties of the SEC include:

- 4 • Consider the best science available in its determinations regarding the  
5 conservation of sage-grouse and sagebrush ecosystems in this State;
- 6 • Establish and carry out strategies for: 1) the conservation of the sage-grouse  
7 and sagebrush ecosystems in this State; and 2) managing land which includes  
8 those sagebrush ecosystems, taking into consideration the importance of those  
9 sagebrush ecosystems and the interests of the State;
- 10 • Establish and carry out a long-term system for carrying out strategies to manage  
11 sagebrush ecosystems in this State using an adaptive management framework  
12 and providing for input from interested persons and governmental entities;
- 13 • Oversee the SETT;
- 14 • Establish and set policy for the Conservation Credit System (CCS);
- 15 • Solicit suggestions and information and, if necessary, prioritize projects  
16 concerning the enhancement of the landscape, the restoration of habitat, the  
17 reduction of nonnative grasses and plants and the mitigation of damage to, or  
18 the expansion of, scientific knowledge of sagebrush ecosystems;
- 19 • If requested, provide advice for the resolution of any conflict concerning the  
20 management of the sage-grouse or a sagebrush ecosystem in this State;
- 21 • Coordinate and facilitate discussion among persons, federal and state agencies,  
22 and local governments concerning the maintenance of sagebrush ecosystems  
23 and the conservation of the sage-grouse;
- 24 • Provide information and advice to persons, federal and state agencies and local

1 governments concerning any strategy, system, program or project carried out  
2 under this State Plan;

3 • Provide direction to state agencies concerning any strategy, system, program or  
4 project carried out pursuant to this State Plan and resolve any conflict with any  
5 direction given by another state board, commission, or department jointly with  
6 that board, commission or department, as applicable;

7 • Submit reports twice a year to the Governor;

8 • Pursuant to the “Inter-Tribal Council of Nevada, Inc. Resolution & Letter of  
9 Support,” (Appendix C) integrate Tribal participation in the statewide  
10 conservation effort, and acknowledge traditional Tribal ecological knowledge  
11 when available to update SGMA;

12 • Establish policies for the identification and prioritization of landscape-scale  
13 enhancement, restoration, fuel reduction, and mitigation projects based upon  
14 ecological site potential, state and transition models, and other data that will  
15 contribute to decision making informed by science to increase resiliency; and

16 • Encourage and facilitate land management education and training for all user  
17 groups of sage-grouse habitat.

18 **Sagebrush Ecosystem Technical Team (SETT)**

19 The SETT is a multi-disciplinary, interagency team with representation from DCNR –  
20 Divisions of State Lands and Forestry, NDOW, and NDA. The SETT serves as staff to the  
21 SEC and advises them on the best available science.

22 The objective of the SETT is to implement a multi-disciplinary approach for the  
23 administration of this State Plan that incorporates various scientific and technical  
24 expertise and provides a well-defined process for assessing impacts and permitting  
25 activity in the SGMA.

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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1 The specific duties of the SETT include:

- 2 • Serve as staff to the SEC and advise the SEC on the best available science in  
3 order for them to set policy;
- 4 • Develop a comprehensive State Plan based on the recommendations from the  
5 Governor’s Sage-grouse Advisory Council;
- 6 • Oversee the day-to-day implementation of the goals, objectives, and  
7 management actions established under this State Plan. Propose revisions to the  
8 State Plan as needed;
- 9 • Coordinate the development of the ~~Conservation Credit System~~ [CCS](#). In  
10 accordance with SEC policy, administer and operate the CCS once it is  
11 established;
- 12 • Work with the USGS and other technical experts to development sage-grouse  
13 habitat and management maps;
- 14 • Establish and manage a process in cooperation with applicable federal and state  
15 agency partners to update sage-grouse habitat and management maps using  
16 the best available science;
- 17 • Coordinate with the BLM and USFS and other federal and state agencies on the  
18 development of the Nevada and Northeastern California Greater Sage-grouse  
19 Land Use Plan Amendment (LUPA) and Environmental Impact Statement (EIS);
- 20 • Enter into an MOU with the BLM and USFS for agency coordination on sage-  
21 grouse management and administration of the CCS;
- 22 • Compile and submit state-wide data for the USFWS data call for the sage-grouse  
23 listing decision;
- 24 • Work with scientific and technical experts for advise on the best available



- 1 science for implementing and updating management actions;
- 2 • Identify and prioritize landscape-scale enhancement, restoration, fuel reduction,  
3 and mitigation projects based upon ecological site potential, state and transition  
4 models, and other data that will contribute to decision making informed by  
5 science to increase resiliency following wildfire;
- 6 • Provide timely consultation for project proponents who want to conduct  
7 activities in the SGMA to avoid, minimize, and mitigate impacts to sage-grouse.  
8 This may include robust ground-truthing for the presence or absence of habitat.  
9 Foster and maintain collaborative processes with state and federal agencies to  
10 expedite permitting, while providing for the conservation of sage-grouse;
- 11 • Secure grants and other funding opportunities to implement habitat  
12 enhancement and restoration projects;
- 13 • Develop and oversee a monitoring and adaptive management program and  
14 provide recommendations to the SEC on how to update policies based on new  
15 information learned; and
- 16 • Establish a geographic database repository to maintain the inventory of  
17 development and mitigation projects, population data, and monitoring results.

18 **Local Area Working Groups (LAWGs)**

19 The LAWGs provide all stakeholders with an opportunity to work together in actively  
20 managing and restoring landscapes across boundaries. Even with collaboration there is a  
21 realization that to be successful there is a need for more investment from all sources to  
22 achieve sage-grouse conservation objectives. LAWG membership includes  
23 representation from private land owners, tribes, federal land management agencies,  
24 local governments, conservation districts, USFWS, USGS, NDOW, NGOs, USDA-ARS,  
25 UNR, ~~USDA~~-NRCS, DOD, sportsmen, mining, energy, OHV users, agricultural and

1 environmental interests.

2 The SEP will work with the LAWGs to:

- 3 • Develop and implement site-specific plans to accomplish enhancement and
- 4 restoration projects in areas that are identified by the SEP important areas for
- 5 sage-grouse conservation;
- 6 • Monitor and adaptively manage conservation actions;
- 7 • Identify potential habitat enhancement and restoration projects; and
- 8 • Provide local, site-specific expertise on a variety of issues.

9 **Conservation Districts Program (CDP)**

10 The CDP provides administrative support to the State Conservation Commission, which  
11 develops policy and regulations for Nevada's twenty-eight locally elected conservation  
12 districts. The CDP is comprised of a program coordinator and three staff specialists  
13 stationed in Ely, Winnemucca, and Elko. The CDP's role in the implementation of this  
14 State Plan is to assist in the development of on-the-ground conservation projects.

15 The SEP will work with the CDP to:

- 16 • Implement on-the-ground conservation and mitigation projects identified by the
- 17 SEP and LAWGs. Provide recommendations to the SEP on possible additional
- 18 projects; and
- 19 • Facilitate communication between individual CDs, SEP, LAWGs, and other
- 20 stakeholders in order to more effectively achieve on-the-ground conservation.

21 **Local Governments**

22 [Thirteen of Nevada's sixteen counties, as well as several cities are located within the](#)  
23 [SGMA. The SEP will work with local governments to address any potential urbanization](#)

1 [conflicts with sage-grouse habitat.](#)

2 [The SEP will work with local governments to:](#)

- 3     • [When a county or city considers a change to its master plan for a land use of](#)  
4 [higher intensity affecting a SGMA, the county or city should consult with the](#)  
5 [SETT.](#)

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1 **6.0 MAPPING**

2 The SEP contracted with the USGS to serve in a lead technical role and science advisory  
3 capacity for the development of a habitat suitability index (HSI) for sage-grouse in  
4 Nevada using resource selection function (RSF) modeling. The SEP used the HSI to  
5 develop habitat and management maps to be implemented through this State Plan. The  
6 SETT assembled an Expert Review Team, comprised of local sage-grouse technical  
7 experts from the UNR, BLM, NDOW, USFWS, and HTNF to advise the SETT on technical  
8 aspects of the mapping process.

9

10 Methods

11 The State's process for developing spatially explicit maps for sage-grouse habitat and  
12 sage-grouse management areas was completed in four stages: 1) development of the  
13 HSI; 2) classification of the HSI into suitability categories; 3) development of a space use  
14 index; and 4) merging the habitat suitability categories and space use index to develop  
15 management categories. The methods for each of these stages are outlined below.

16 *Habitat suitability index*

17 Model averaged RSFs were used to develop HSIs that ranked areas of the State based on  
18 a continuum of sage-grouse selection, from highly selected for to strongly avoided. The  
19 modeling is driven by actual location data obtained using radio-telemetry information,  
20 informed by >31,000 telemetry locations from >1,500 radio-marked sage-grouse across  
21 12 study areas within Nevada and California collected over a 15-year period, and by  
22 environmental factors including land cover composition, water resources, habitat  
23 configuration, elevation, and topography, each at multiple spatial scales that are  
24 relevant to sage-grouse movement patterns. The modeling process contrasted these  
25 environmental factors for sites used by sage-grouse (telemetry data) with available sites  
26 (randomly generated locations). Contrasting the environmental factors of used versus

1 available sites provided information about what factors were correlated with greater  
2 sage-grouse selection or avoidance (e.g., streams, pinyon-juniper).

3 RSFs were applied to calculate an overall probability of use per pixel<sup>1</sup>. This created a  
4 single sage-grouse HSI and resulted in a surface of predicted use by sage-grouse across  
5 Nevada. This surface, the HSI, is represented by probability values that range across a  
6 continuous spectrum of 0.0 to 1.0 (Figure 4).

#### 7 *Habitat Suitability Categories*

8 To identify suitable habitat, the HSI described above was classified into three categories  
9 of suitability (high, moderate, and non-habitat) using cutoff values based on the  
10 standard deviation (SD) from the mean HSI ( $\bar{x}$ ) value. High suitability habitat was  
11 comprised of all HSI values greater than 0.5 SD below  $\bar{x}$ . Moderate suitability habitat was  
12 comprised of HSI values between 1.5 and 0.5 SD below  $\bar{x}$ . Non-suitable habitat was  
13 comprised of HSI values 1.5 SD below  $\bar{x}$ . This bottom cut-off point was validated by a  
14 cost-benefit ratio looking at the trade-off between additional area to telemetry points.  
15 The equalization point occurs at 1.5 SD. The resulting habitat categories were then  
16 aggregated at the 1 km scale to account for corridors and smoothed at the 1.2 km scale  
17 to remove "islands" (Figure 2).

#### 18 *Space use index*

19 An index of space use was developed based on lek attendance and density coupled with  
20 probability of sage-grouse occurrence relative to distance to nearest lek. This index was  
21 then categorized in to two categories high use and low to no use area. High use areas  
22 consisted of areas that included up to 85 percent of the highest SUI density and low-to-  
23 no use area consisted of areas with less than 15 percent.

#### 24 *Management Categories*

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<sup>1</sup> Pixels are the 30 x 30 meter resolution of the RSFs.

1 To create a management prioritization for the implementation of this State Plan, the  
2 habitat suitability classes were intersected with the space use categories as follows:

3 **Core Management Areas** – areas of suitable sage-grouse habitat use found  
4 within areas of estimated high space use;

5 **Priority Management Areas** – high suitability habitat that is found in areas of  
6 estimated low space use, and areas of non-habitat that overlap with areas of  
7 estimated high space use;

8 **General Management Areas** – moderate suitability habitat that is found in areas  
9 of estimated low space use; and

10 **Non-habitat Management Areas** – non-suitable habitat that is found in areas of  
11 estimated low space use (Figure 3).

12 Full methods for the development of the Nevada HSI, Habitat Suitability Map, and  
13 Management Category Map are detailed in “Spatially Explicit Modeling of Greater Sage-  
14 Grouse Habitat in Nevada and Northeastern California: A Decision Support Tool for  
15 Management” (Coates et al. 2014).

16 The Nevada sage-grouse habitat and management mapping process is a product of the  
17 SETT and is a collaborative group process with state and federal agency review and  
18 input and with the USGS serving as the scientific contractor on the habitat suitability  
19 model.

20

#### 21 Map revisions

22 The habitat and management mapping process will be reviewed and refined every 3 to 5  
23 years. New or improved spatial data (*e.g.*, additional sage-grouse telemetry data,  
24 updated or improved vegetation community data) will be incorporated during the

- 1 refinement process. The review and refinement process will be scientifically based and
- 2 included review and input from SETT, NDOW, BLM, USFS, and USFWS. It is anticipated
- 3 that the habitat suitability modeling processes will be the basis for refinements, unless
- 4 more rigorous methods are developed.

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1 **7.0 THREAT ASSESSMENT—GOALS, OBJECTIVES, AND MANAGEMENT ACTIONS**

2 Threats to sage-grouse and their habitat in Nevada were based on those identified in  
3 USFWS' 2010 proposed rule for sage-grouse and further developed in their Conservation  
4 Objectives Team Report, as well as from input by local areas experts. The list of threats  
5 and proposed actions was originally determined by the Advisory Committee and further  
6 developed in greater detail by the SEP.

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1 **7.1 Fire and Invasive Plants**

2 In 2012, Nevada’s Greater Sage-grouse Advisory Committee, using the best available  
3 science, identified fire and invasive plants, principally cheatgrass, as the primary threat  
4 to sage-grouse and their habitat in the state of Nevada. Wildland fires and the  
5 subsequent invasion by cheatgrass and other invasive plants continue to create large-  
6 scale habitat loss and fragmentation. This current rate of habitat loss is not sustainable  
7 for long-term sage-grouse population persistence.

8 While the vast majority of fires in sage-grouse habitat are suppressed in the initial attack  
9 phase, the continued loss of large areas in sage-grouse habitat occurs most often during  
10 periods of ‘Extreme Fire Danger Conditions’ when fire behavior has the greatest impact  
11 on suppression capabilities. These ‘Extreme’ conditions can exist simultaneously over  
12 large areas of the western U.S, creating a shortage of regional/national firefighting  
13 assets due to pre-existing large fires with greater values at risk (Murphy et al. 2013).

14 The State acknowledges these threats must be adequately addressed in order to achieve  
15 the conservation goal for sage-grouse and actions must be taken to increase overall  
16 preparedness, strategically ~~locate~~[locating](#) fuels management projects, [using resistance](#)  
17 [and resilience concepts \(Chambers et al. In preparation\)](#), increase local suppression  
18 capabilities, ~~improve~~[and improving](#) rehabilitation/restoration capabilities.

19 To this end, the State has begun to address these threats by creating the Sagebrush  
20 Ecosystem Program, composed of the Sagebrush Ecosystem Council, with its attendant  
21 Sagebrush Ecosystem Technical Team, to develop and approve a state plan that  
22 facilitates best available science review and technology transfer to State and local  
23 agencies and works in coordination with federal land managers and other public and  
24 private partners. In addition, the State has also approved and is implementing the  
25 Nevada Division of Forestry’s (NDF) Wildland Fire Protection Program, which allows for  
26 full implementation of Nevada Revised Statute 472, improving delivery of financial,

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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1 technical and equipment/human resources to Nevada counties in fuels reduction  
2 planning and implementation, wildfire management and suppression, and restoration of  
3 burned areas.

4 Nevada Revised Statute (NRS) 555 and Nevada Administrative Code (NAC) 555 address  
5 both noxious and invasive plants, their status, and any regulations regarding the control  
6 of such plants. The State has established a priority list of noxious weeds that require  
7 some form of control. Other widespread invasive plants, such as cheatgrass, while not  
8 on the noxious weed priority lists, pose a significant threat to Nevada's landscapes and  
9 habitats and will be addressed on a priority basis, particularly when it is compromising  
10 sage-grouse habitat objectives (see Section 4.0).

11 The introduction of exotic invasive plant species in Nevada has likely been occurring  
12 since the early European settlers arrived and has been knowingly and unknowingly  
13 occurring since that time. While some species may go seemingly unnoticed, many  
14 currently pose significant threats to the sagebrush ecosystem, wildlife habitats, and our  
15 landscape in general. While all of these identified species are currently considered by  
16 the State as invasive plants, some warrant further declaration as 'noxious'. Noxious  
17 weeds are defined in NRS 555.130 as: "Any species of plant which is likely to be  
18 detrimental, destructive and/or difficult to control, but is not already introduced and  
19 established in the State to such an extent as to make its control or eradication  
20 impracticable in the judgment of the State Quarantine Officer". Plants that do not meet  
21 this definition are generally considered to be invasive or nuisance weeds. Cheatgrass  
22 falls into the 'invasive' category due to its expansive footprint within Nevada's  
23 sagebrush ecosystem.

24 Cheatgrass (*Bromus tectorum*) is an exotic species from the Middle East that was  
25 introduced in North America in the late nineteenth century and has become one of the  
26 most adaptive and dominant invasive plants in the Western U.S. This is especially true

1 following fire and other major ground disturbing activities in sagebrush ecosystems,  
2 particularly at lower elevations and precipitation zones in Nevada.

3 Many factors will be considered when prioritizing treatments for fire and invasive plants  
4 (i.e. noxious weed presence, sage-grouse breeding densities, habitat suitability  
5 (abundance, quality, and connectivity), existing additional threats, resistance, resilience,  
6 ecological site description, state and transition models, etc.). Additionally, further  
7 prioritization may be determined by the type of action required (conservation related,  
8 prevention based, or restoration or rehabilitation activities), presence of or proximity to  
9 sage-grouse habitat, and the amount of funding available for treatment in a given year.

10 **Goals, Objectives, and Management Actions**

11 The overarching direction of Nevada's plan is to stop the decline of sage-grouse  
12 populations and restore and maintain a functioning sagebrush ecosystem. Currently, it  
13 is not economically or ecologically feasible to restore all fire damaged or invasive plant  
14 dominated landscapes, nor is it possible to prevent all fires, though the State  
15 acknowledges that this threat must be addressed in order to provide for the  
16 conservation of sage-grouse. In order to achieve this goal, the State will take a phased  
17 approach through a series of short term and long term objectives and management  
18 actions. The State will first seek to reduce the amount of habitat loss, with the long-  
19 term objective of restoring ecosystem functions and processes. This will require a  
20 concerted and consistent commitment to achieve these objectives over the long-term.

21

22 The State has already taken steps to achieve these objectives through statewide  
23 adoption and implementation of the Nevada Division of Forestry's Wildland Fire  
24 Protection Program, creating a tiered system that gives equal priority to cooperative  
25 pre-suppression fire prevention projects; adopting and incorporating National Wildfire  
26 Coordination Group (NWCG) approved training and firefighting techniques that can help

1 preserve habitat; and, cooperative post-suppression rehabilitation and restoration  
2 activities in and around areas of important habitat.

3

4 **Goal 1:** Ameliorate the threat of fire and invasive plants in order to provide for the  
5 conservation of sage-grouse and their habitat.

6

7 Short term objectives and management actions:

8 **Objective 1.1:** Reduce the amount of sage-grouse habitat loss due to large acreage  
9 wildfires and invasion by non-native plants.

10

11 *Pre-suppression*

12 In order to address the threat of fire and invasive plants, which continues to  
13 challenge land managers throughout the western United States, the State  
14 proposes a paradigm shift. This entails a shift in focus from the current  
15 suppression-centric approach to a more nuanced, cost effective, and proactive  
16 approach focusing on pre-suppression activities; which if adequately supported,  
17 will contribute greatly to Federal, State and local efforts to stop the dominance  
18 of invasive plants, reduce catastrophic wildfire incidence, and restore fire to  
19 within a range of variability to support sustainable populations of sage-grouse in  
20 Nevada.

21

22 **Management Action 1.1.1a:** Develop, and provide sustainable, predictable  
23 federal, state, and local funding sources for pre-suppression activities (including  
24 maintenance) separate from ~~and independent of~~ funding for suppression and  
25 post-fire rehabilitation activities.

26

27 **Management Action 1.1.1b:** Dedicated funding will be used to plan and  
28 implement cost effective pre-suppression activities with an emphasis on

1 strategic, scalable cooperative projects informed by best available science;  
2 utilizing cost efficient methods and tools; and followed up with effective,  
3 repeatable monitoring.

4  
5 **Management Action 1.1.1c:** Pre-suppression planning and fuels management  
6 projects will be informed by the best available science. This information will be  
7 incorporated into the planning process to inform locations of landscape and  
8 local scale fuels management projects and to provide protection to areas of  
9 sage-grouse habitat that have compromised resilience, resistance, and  
10 heterogeneity (see Appendix {X} for modeling and planning tools commonly  
11 used).

12  
13 **Management Action 1.1.1d:** Prioritize pre-suppression fuels management  
14 projects, fire prevention planning, and invasive plant control activities in and  
15 around Core and Priority Management Areas. Pre-suppression projects will be  
16 identified, designed and prioritized so that they facilitate firefighter safety,  
17 protect private property, prioritize important sage-grouse habitat, and work to  
18 maintain natural resource functions.

19  
20 **Management Action 1.1.1e:** Establish, maintain, and fund an effective,  
21 repeatable pre-suppression monitoring and adaptive management program that  
22 informs future project planning and implementation.

23  
24 *Suppression*

25 State and federal agencies will provide safe, cost-effective fire management  
26 programs that support the conservation of sage-grouse habitat through  
27 collaborative planning, coordination, training, staffing, resource allocation, and  
28 fire management oversight.

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**Management Action 1.1.2a:** Support robust, coordinated, and rapid fire suppression management using a diversity of agencies, including federal, state, tribal and local government, as well as creating, empowering and training (to latest Nevada and National Wildfire Coordinating Group (NWCG) standards) Rural Fire Associations, Fire Protection Districts and Wildfire Support Groups.

**Management Action 1.1.2b:** Support and improve interagency wildfire prevention activities and education statewide, including: interagency agreement updates, wildfire workshops, demonstration projects, and public service announcements on wildfire and sage-grouse habitat loss.

**Management Action 1.1.2c:** When prioritizing wildland firefighting actions in the Sage Grouse Management Area (SGMA), top priority should be given to Core Management Areas, followed by Priority and General Management Areas during fire operations.

**Management Action 1.1.2d:** Wildland fire can be used strategically to accomplish resource management objectives. Fire may not have to be suppressed in all instances. Resource and fire managers should consider beneficial fire use if located in areas that may benefit sage-grouse habitat, but only if:

- it would not risk the net spread of invasive plants;
- human lives, property, and important natural resource functions are not at risk;
- wildland fires exhibit prescribed/desired fire behavior characteristics and are located in designated sage-grouse habitats appropriate for beneficial fire use; and

- 1           • will not increase the net spread of invasive plants into sage-grouse  
2           habitat

3  
4           **Management Action 1.1.2e:** Manage wildland fires in sage-grouse habitat to  
5           retain as much habitat as possible. Interior unburned islands of vegetation in  
6           areas of habitat should be protected through follow-up mop-up of the island’s  
7           perimeter and interior, when fire crew safety is not at risk.

8  
9           *Post-Fire Restoration/ Rehabilitation*

10          Emergency stabilization (ES) and burned area rehabilitation (BAR) funding  
11          streams are instrumental in the process of stabilizing soils and reestablishing  
12          adapted perennial vegetation on federal lands post-fire. Currently, these  
13          programs typically provide funding for rehabilitation treatment immediately  
14          post-fire usually, which does not reflect the need to accommodate for poor  
15          initial success due to lack of precipitation and other environmental variables.

16  
17          **Management Action 1.1.3a** Work with federal, tribal, and local governments to  
18          develop dedicated funding sources that allow for up to five years of additional  
19          post-fire restoration treatments in order to better insure projects meet goals  
20          and objectives.

21  
22          **Management Action 1.1.3b** Until such time as dedicated funding sources for  
23          multi-year post-fire restoration treatments can be developed, federal, state,  
24          tribal, and local governments should submit budget requests and projections  
25          that reflect the need for funding that will cover actual and contingent yearly  
26          costs associated with successful multiyear post-fire rehabilitation efforts.

1        **Management Action 1.1.3c:** Use the concepts of resistance and resilience and  
2        products developed by BLM’s FIAT (Fire and Invasives Assessment Team) group  
3        to determine if post-fire restoration actions are necessary to achieve sage-  
4        grouse habitat objectives (see Section 4.0).

5  
6        **Management Action 1.1.3d:** Control the spread of invasive plants post-fire.

7  
8        **Management Action 1.1.3e:** Post-fire rehabilitation efforts in sage-grouse  
9        habitat should be collaborative and strategic in approach. Federal, state, tribal  
10       and local agencies should coordinate and collaborate on rehabilitation projects  
11       in sage-grouse habitat where responsibilities and land ownership interests  
12       intersect.

13  
14       **Management Action 1.1.3f:** Post-fire restoration treatments in Core, Priority,  
15       and General Management Areas should be designed to meet sage-grouse  
16       habitat objectives (see Section 4.0). Consider the use of native plant materials  
17       based on availability and probability of success. When native plant materials  
18       are not available or the probability of success is low, use non-native plant  
19       materials that will best meet sage-grouse habitat objectives. All seed used on  
20       rehabilitation and restoration projects must be certified weed-free.

21  
22       **Management Action 1.1.3g:** Monitor post-fire restoration treatments to ensure  
23       long term persistence of restored habitat, and that the monitoring continues at  
24       least until treatment objectives are met.

25  
26       *Invasive plants*

27       While wildfire is commonly the facilitator for the domination of invasive plants,  
28       such as cheatgrass, invasive plants are currently widespread throughout the



1 Great Basin and can spread without the aid of wildfire. In order to address the  
2 general threat of invasive plants, the State will pursue a strategy of Prevent,  
3 Detect, Control, Restore, and Monitor, using the best available science. The  
4 Nevada Department of Agriculture (NDA) will utilize its EDDMaps program to  
5 assist the State in the implementation of these efforts.

6  
7 **Management Action 1.1.4a:** Prevent the establishment of invasive plants into  
8 uninvaded sage-grouse habitat. This will be achieved by conducting systematic  
9 and strategic detection surveys, data collection, and mapping of these areas and  
10 engaging in early response efforts if invasion occurs. This will be achieved by  
11 further developing federal and state partnerships and working with counties,  
12 cities, and local groups, such as Weed Control Districts, Cooperative Weed  
13 Management Areas, and Conservation Districts. This is the highest priority for  
14 ~~the state of Nevada for~~ invasive plant control [in the state of Nevada](#).

15  
16 **Management Action 1.1.4b:** Proposed anthropogenic disturbance should  
17 employ Site Specific Consultation Based Design Features (see Appendix A) in  
18 order to minimize land disturbance and prevent the spread of invasive plants.

19  
20 **Management Action 1.1.4c:** Require anthropogenic disturbance proponents to  
21 monitor for the existence of invasive plants pre-disturbance and to report all  
22 findings to the NV EDDMaps database. Pre- and post-disturbance activities  
23 must include prevention strategies prior to entering sites, control, restoration,  
24 and monitoring for one full growing season following the disturbance. All sites  
25 must be certified weed free prior to any relinquishment of obligations that  
26 authorized the disturbance.

27

1       **Management Action 1.1.4d:** Detect new invasive plant infestations, whether it  
2       is a single plant or a small patch. If it can be detected and mapped early in the  
3       invasion and control begins immediately, then the likelihood for eradication will  
4       increase dramatically. NDA will use its EDDMaps program to assist in the  
5       effective and efficient implementation of this action.

6  
7       **Management Action 1.1.4e:** Within sage-grouse habitat, and where funding  
8       may be a limiting factor, the first priority will be to control invasive plants that  
9       are compromising attainment of sage-grouse habitat objectives (see Section  
10       4.0).

11  
12       **Management Action 1.1.4f:** Restore ecologically functioning sagebrush  
13       ecosystems already compromised by invasion to meet sage-grouse habitat  
14       objectives (see Section 4.0). Restoration may include revegetating sites with  
15       native plants cultivated locally or locally adapted, and/or non-native plant  
16       species where appropriate. Control of invasives must be accompanied by  
17       ecosystem restoration.

18  
19       **Management Action 1.1.4g:** Ecological site descriptions and associated state  
20       and transition models will be used to identify target areas for resiliency  
21       enhancement and/or restoration. Maintaining and/or enhancing resilience  
22       should be given top priority. In the Great Basin sagebrush-bunchgrass  
23       communities, invasion resistance and successional resilience following  
24       disturbance are functions of a healthy perennial bunchgrass component.  
25       Therefore a combination of active and passive management will be required to  
26       ensure this functionality. Areas that are in an invaded state that will likely  
27       transition to an annual grass monoculture if a disturbance occurs and are  
28       located within or near sage-grouse habitat should be prioritized for pre-fire

1 management favoring native and adapted perennials and post-fire restoration  
2 efforts to increase resistance and resilience.

3  
4 **Management Action 1.1.4h:** Engage climatological and meteorological  
5 professionals and their agencies to identify opportunities to increase both  
6 effectiveness and efficiency in the timing of restoration activities. Additional  
7 activities could include weather augmentation through cloud seeding, and  
8 assistance with both short term and longer term weather prediction model  
9 guidance or shorter term weather indicators.

10  
11 **Management Action 1.1.4i:** Monitor and adaptively manage to ensure  
12 effectiveness of efforts to prevent, detect, control and restore. Use the  
13 resource mapping functions within EDDMaps to identify and map infestations as  
14 well as any preventive, restoration, or rehabilitation efforts.

15  
16 Long term objectives and management actions:

17 **Objective 2a:** Maintain an ecologically healthy and intact sagebrush ecosystem that  
18 is resistant to the invasion of non-native species and resilient after disturbances,  
19 such as wildfire.

20  
21  
22 **Objective 2b:** Restore wildfire return intervals to within a spatial and temporal  
23 range of variability that supports sustainable populations of sage-grouse and other  
24 sagebrush obligate species.

25  
26 **Management Action 1.2.1** Develop consistent and dedicated funding sources in  
27 order to provide a consistent commitment to pre-suppression, suppression,  
28 post-fire restoration, and invasive plant management actions described above.

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**Management Action 1.2.2:** Federal, state, tribal, and local governments, as well as private entities should work collaboratively to consistently implement the management actions described above.

**Management Action 1.2.3:** Monitor and adaptively management all management actions to evaluate and assess the effectiveness at achieving objectives.

**Management Action 1.2.4:** Emphasize continued research and provide funding to enhance knowledge and understanding of how to further reduce the prevalence of catastrophic wildfire, the invasion of annual grasses (primarily cheatgrass), fire behavior, and reclamation/ restoration techniques.

DRAFT

1 **7.2 Pinyon-Juniper Encroachment**

2 In Nevada, pinyon and juniper (P-J) woodlands are composed of single leaf pinyon pine  
3 (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*). In northwestern Nevada  
4 pinyon and Utah juniper are replaced with western juniper (*J. occidentalis*). P-J  
5 woodlands currently cover 13% of Nevada, or approximately 9.1 million acres (Mitchell  
6 and Roberts 1999). Of the 9.1 million acres in Nevada, approximately 64% is found on  
7 BLM land, 26% on USFS land, 5% on private land, and the remaining 5% on other lands  
8 (DOD, NRC, USFWS, BIA, etc.)(DCNR-NDF 2010).

9 From a historical standpoint, the area occupied by pinyon and/or juniper has increased  
10 125 to 625 percent since 1860. The increase in trees is a result of infill into shrub-steppe  
11 communities that contained low numbers of trees, and expansion of P-J into areas that  
12 previously did not support trees. (Miller et al. 2008). Potential reasons for the expansion  
13 may include: altered fire regimes, improper livestock grazing, natural range expansion,  
14 and changing climate (Romme et al. 2009).

15 In Nevada, P-J encroachment is ranked as the second highest threat to sage-grouse,  
16 after fire and invasive plants. This continued woodland expansion is a challenge for land  
17 and wildlife managers, with two primary concerns being the continuing steady  
18 conversion of sagebrush habitat to woodland and increased risk of large area  
19 destructive wildfires that may convert woodlands to monocultures of invasive annual  
20 grasses and other weedy species.

21 *Pinyon – Juniper Woodland Encroachment into Sagebrush Communities –*  
22 *Characterization*

23 P-J woodland encroachment is characterized by three phases (Miller et al 2005):

24 Phase I – Trees are present but shrubs and herbaceous vegetation are the dominant  
25 vegetation that influences ecological processes on the site;

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1 Phase II – Trees are co-dominant with shrubs and herbaceous vegetation and all three  
2 vegetation layers influence ecological processes on the site; and

3 Phase III – Trees are the dominant vegetation and the primary plant layer influencing  
4 ecological processes on the site.

5 If a wildfire occurs before Phase III is reached, the original vegetation community has an  
6 opportunity to return to the site via successional pathway that is dependent upon the  
7 fire's surviving plant species, seed produced by the remaining shrubs, surviving  
8 herbaceous vegetation, and/or their viable seed remaining in the soil seed bank. This  
9 return to the original community is also dependent on the native plants being abundant  
10 enough to out compete any on-site invasive annual grasses like cheatgrass (*Bromus*  
11 *tectorum*) or medusahead grass (*Taeniatherum caput-medusae*) and perennial invasive  
12 weeds (knapweeds, etc.) following the fire.

13 With time, and little or no fire, these invaded brush communities become Phase III  
14 woodlands, characterized by very little understory, the only evidence of the former  
15 plant community being skeletons of sagebrush and other woody brush species and a  
16 sparse population of weakened herbaceous plants . At this point, run-off from the soil  
17 surface of spaces between trees increases, due to the loss of herbaceous ground cover.  
18 In turn, the increased rate and speed of soil erosion can trigger difficult to reverse  
19 changes to the biogeochemical cycles of the plant community. If a fire burns through the  
20 woodland at this point, the potential for the area to return to a sagebrush plant  
21 community is greatly reduced, particularly if cheatgrass, medusahead, and/or perennial  
22 invasive weeds are present in the understory.

23 In the Great Basin there are approximately 100,000 + acres a year moving into Phase III  
24 woodlands. (Miller et al.2008). At this rate of encroachment, management of sagebrush  
25 habitats becomes a race between a potentially permanent loss of sagebrush habitat to

1 P-J woodland versus how much Phase I and II woodlands can reasonably be treated each  
2 year before they reach Phase III.

3 Land managers have to consider removal of trees from areas that historically have been  
4 sagebrush dominated as a priority activity. Numerous studies have documented the  
5 expansion of P-J woodlands into sagebrush communities (Cottam and Stewart 1940;  
6 Adams 1975; Burkhardt and Tisdale 1976; Tausch et al. 1981; Tausch and West 1988,  
7 1995; Gedney and others 1999; Miller and Rose 1995, 1999; Miller et al. 2005). In recent  
8 years, research has looked at woodland dynamics and new approaches to measure the  
9 extent that P-J has replaced or are encroaching sagebrush communities, versus  
10 dynamics on sites that have supported woodlands in the past (Miller et al. 2008).

11 [Another area of recent research increasing land managers understanding of vegetation](#)  
12 [dynamics and increasing decision making options is the inclusion of concepts of](#)  
13 [resistance and resilience. These concepts can be used in conjunction with sage-grouse](#)  
14 [habitat requirements to develop lists of appropriate management actions and to](#)  
15 [identify effective management strategies at landscape scales \(Wisdom and Chambers](#)  
16 [2009 & Chambers et al. in preparation\).](#)

17 *Pinyon – Juniper Woodland Encroachment into Sagebrush Communities – Greater Sage-*  
18 *grouse Impacts*

19 The continued expansion of woodland has become a primary threat to greater sage-  
20 grouse and other sagebrush obligate wildlife species. In the instance of sage-grouse,  
21 woodland expansion contributes to the loss of important seasonal habitats. It also  
22 increases raptor presence and predation associated with the coniferous trees  
23 (Commons et al. 1999). Several studies that demonstrate that sage-grouse avoid areas  
24 encroached by P-J, P-J removal will increase sage-grouse habitat quality, and some  
25 evidence that sage-grouse will return to an area once P-J is removed:

- 1       • During both the breeding and summer seasons, sage-grouse preferred cover  
2       types with less than 5% juniper canopy cover compared to those same cover  
3       types with greater than 5% juniper canopy cover. (Freese 2009).  
4
- 5       • Juniper can also indirectly influence birds' avoidance of habitats through its  
6       influences on plant community compositional and structural changes, such as a  
7       reduction in the herbaceous understory (Knapp and Soule 1998, Miller et al.  
8       2000).  
9
- 10      • Sage-grouse avoided conifer at the 0.65 km scale (850m x 850m). Sage-grouse  
11      avoided mixed sagebrush/tree ( $\leq 40$  trees/ha) at scales of 7.3 and 159.2 ha.  
12      Avoidance was most statistically supported when patch widths exceeded 200 m  
13      (Doherty 2008).
- 14      • Sage-grouse avoid areas encroached by P-J at scales of 7.9 ha to 226.8 ha  
15      (Casazza et al 2011).
- 16      • Recent modeling efforts by the Sage-grouse Initiative have shown that no leks  
17      remained active when P-J cover exceeded  $>4\%$  and recommended focusing P-J  
18      removal treatments in Phase I stands (Baruch-Mordo et al 2013).
- 19      • Research focused on treatment effectiveness indicated that mechanical tree  
20      thinning increased native understory biomass by 200 percent (Brockway et al  
21      2002).
- 22      • Removal, by cutting, of pinyon- juniper trees/shrubs in association with brush-  
23      beating to reduce height of mountain big sagebrush and deciduous brush  
24      resulted in doubling numbers of male sage grouse counted on treatment leks in  
25      years 2 and 3 post-treatment (Commons 1999).

26   **Goals, Objectives, and Management Actions**



1 **Goal 1:** Establish and maintain a resilient sagebrush ecosystem and restore sagebrush  
2 vegetation communities in order to provide for the conservation of sage-grouse and  
3 their habitat.

4 **Objective 1.1:** Reduce the expansion of P-J woodlands into otherwise suitable sage-  
5 grouse habitat.

6 **Management Action 1.1.1:** Inventory and prioritize areas for treatment of  
7 Phase I and Phase II encroachment that is contiguous with suitable sage-grouse  
8 habitat in Core, Priority, and General Management Areas in order to achieve  
9 sage-grouse habitat objectives (Table 4.1). Treat areas that have the greatest  
10 opportunity for recovery to suitable sage-grouse habitat based on ecological site  
11 potential.

12 **Management Action 1.1.2:** Prioritize areas for treatment of Phase III pinyon-  
13 juniper encroachment in strategic areas only to break up continuous, hazardous  
14 fuel beds, create movement corridors, or connect habitats. Treat areas that  
15 have the greatest opportunity for recovery to suitable sage-grouse habitat  
16 based on ecological site potential. Old growth trees should be protected on  
17 woodland sites.

18 **Management Action 1.1.3:** Aggressively implement plans to remove Phase I and  
19 Phase II encroachment in areas contiguous with suitable sage-grouse habitat.  
20 Only treat areas in Phase III encroachment to reduce the threat of severe  
21 conflagration, create movement corridors, or connect habitats. Phase III  
22 treatments may need additional rehabilitation actions if perennial understory  
23 vegetation is absent.

24 **Management Action 1.1.4:** Allow temporary road access to P-J encroached  
25 treatment areas. Construct temporary access roads where access is needed with

1 minimum design standards to avoid and minimize impacts. Remove and restore  
2 temporary roads upon completion of treatment.

3 **Management Action 1.1.5:** Seek sufficient resources to address habitat loss and  
4 degradation in the next ten years.

5 **Management Action 1.1.6:** Share project funding among all appropriate  
6 agencies and jurisdictions by designing and completing NEPA for large-scale,  
7 watershed-based treatments over a period of years.

8 **Management Action 1.1.7:** Incentivize and assist in the development of bio-  
9 fuels and other commercial uses of pinyon and juniper resources, where  
10 utilization is appropriate and can expand site-specific restoration and  
11 rehabilitation goals and objectives

12 **Management Action 1.1.8:** Increase the incentives for private industry  
13 investment in biomass removal, land restoration, and renewable energy  
14 development by authorizing stewardship contracts for up to 20 years.

15 **Management Action 1.1.9:** Work with federal, state, local, tribal, and private  
16 partners to treat at least 100,000 acres annually. Monitor, adaptively manage,  
17 and report progress to the Nevada Sagebrush Ecosystem Council.

18 **Management Action 1.1.10:** Use pre-suppression fuels management treatments  
19 in strategic areas so fire in P-J areas can be managed appropriately.

20 **Management Action 1.1.11:** Work with federal, state, and local fire  
21 management partners to pre-plan for fire use and prescribed natural fire where  
22 and when appropriate.

23

24

1    **7.3 Predation**

2    Predation is a natural factor operating on all sage-grouse populations. Historically, given  
 3    appropriate quality and quantity of habitat, sage-grouse populations have persisted  
 4    despite naturally high levels of predation with which they evolved (Schroeder and  
 5    Baydack 2001, Hagen 2011). Prey species have evolved ways to avoid predation such as  
 6    coloration that conceals them, behavioral adaptations, and specialized reproductive  
 7    strategies. Sage-grouse populations typically mitigate impacts of predation through  
 8    cryptic nesting, increased chick production, re-nesting efforts, and response to annual  
 9    habitat variation. When population levels become depressed below a particular  
 10    threshold, quantity and quality of habitat may be diminished, or predator populations  
 11    may become abundant enough to serve as a limiting factor, the behaviors and life-  
 12    history strategies of prey species may not be able to compensate for losses from  
 13    predators depending on numerous factors influencing predator densities and effects.  
 14    These factors include: predator search efficiency, prey switching, and food subsidies  
 15    (Cote and Sutherland 1997, Schroeder and Baydack 2001, Hagen 2011).

16

17    **Predator Species**

18    Predators can affect sage-grouse during various life stages in three ways: 1) nesting  
 19    success, 2) survival of chicks during the first few weeks after hatch, and 3) annual  
 20    survival of breeding age birds (Schroeder and Baydack 2001). Table 7-1 outlines  
 21    potential predator species in Nevada that may influence each life stage.

22

23    **Table 7-1 Potential Sage-grouse Predator Species in Nevada**

Predator Species	Life Stage		
	Nest	Chick	Juvenile and Adult
American badger ( <i>Taxidea taxus</i> )	X		X

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Bobcat ( <i>Lynx rufus</i> )	X		
Coyote ( <i>Canus latrans</i> )	X		X
Fox ( <i>Vulpes</i> spp.)	X		
Great Basin gopher snake ( <i>Pituophis catenifer</i> )		X	
Raptors ( <i>Buteo</i> spp., <i>Aquila</i> spp. <i>Circus</i> spp, etc.)			X
Common raven ( <i>Corvus corax</i> )	X	X	
Weasels ( <i>Mustela</i> spp.)	X	X	

1 (Connelly et al. 2004, Coates et al. 2008, Lockyer et al. 2013)

2

3 None of these predators depend on sage-grouse as their primary prey species. Many  
 4 depend primarily on rodents or lagomorphs but will opportunistically consume sage-  
 5 grouse, especially during specific life phases (e.g. badgers during the nesting season  
 6 (Coates and Delehanty 2010).

7

8 The common raven (*Corvus corax*) is identified as the most frequent predator during  
 9 nesting season in sage-grouse predator studies conducted recently in the Great Basin  
 10 (Coates et al. 2008, Lockyer et al. 2013). Raven populations have increased over 200  
 11 percent from 1992 to 2012 in both the Great Basin and in Nevada, based upon USGS  
 12 Breeding Bird Survey results (Sauer et al. 2014). Subsidized food sources such as  
 13 landfills and road kill; elevated nest platforms provided by transmission lines; and  
 14 landscape alterations [such as transitions to annual grasses](#), can increase raven  
 15 populations (Boarman 2003, Boarman and Heinrich 1999, Webb et al. 2004). Raven  
 16 abundance is often tied to habitat quality, particularly in areas where recently burned  
 17 areas abut unburned habitat (Howe et al. 2014, Coates et al., In Review). Raven control  
 18 has been shown to be an effective, short-term, tool during the early nesting season to  
 19 gain increased survival through the nesting and early brood life cycle stages (Coates et

1 al. 2007) when ravens are the limiting factor affecting nest success. Long-term effects at  
2 the population level are still not understood.

3  
4 Given that ravens have been found to be increasing across the West and juvenile  
5 survival of ravens is tied to anthropogenic subsidies (Webb et al. 2004), localized lethal  
6 efforts are not likely to be successful in reducing state-wide populations (Webb et al.  
7 2004). Thus, effective raven management needs to also include efforts to reduce food,  
8 water, and nesting subsidies.

9  
10 **Current State Predation Management Efforts for Sage-grouse**

11 The following presents information on the State of Nevada's current predator control  
12 efforts to benefit sage-grouse populations.

13  
14 *Predator control*

15 NDOW is partnered with USDA-APHIS-Wildlife Services for predator control focusing on  
16 carnivores (primarily badgers and coyotes) and ravens. NDOW currently has a  
17 depredation permit from the FWS for 2,500 ravens. Much of the take under this permit  
18 is conducted using poisoned eggs (hard-boiled chicken eggs that contain DRC-1339, an  
19 avicide). Poisoned eggs are placed at specific leks for ravens as a means of limiting  
20 raven populations during the sage-grouse nesting season. (See Appendix D for  
21 additional details regarding FWS depredation permits for ravens.)

22  
23 *Road kill removal*

24 In cooperation with NDOT, county road crews, USFWS, and UNR, NDOW has hired  
25 wildlife technicians to experimentally remove road carrion from three treatment areas  
26 in northern Nevada, in and around priority sage-grouse nesting habitat.

27  
28 *Landfill management*

1 NDOW is working in cooperation with city and county municipalities, private entities,  
2 and the USFWS in Humboldt, Eureka, and Lander Counties to improve waste stream  
3 policies to minimize access by predator species and to increase the frequency of food  
4 waste and dead animal pit burials.

5

6 **Goals, Objectives, and Management Actions**

7 **Goal 1:** Reduce sage-grouse mortality due to predation where predation mortality is  
8 likely additive or is a limiting factor influencing sage-grouse populations.

9 The following three objectives should be carried out concurrently as part of an  
10 integrated predator management plan.

11 The management actions identified under Objective 1.1 should be carried out at the  
12 state-wide level, or at a more localized, targeted scale, as appropriate.

13

14 **Objective 1.1:** Reduce anthropogenic subsidies to ravens, such as food sources (e.g.  
15 road kill, landfills), and nesting substrates (e.g. power lines), especially cognizant in  
16 landscapes with heterogeneous land cover, such as burned and unburned areas.

17 **Management Action 1.1.1:** Coordinate with NDOT and local governments to  
18 identify high density road kill areas to focus interagency road kill removal  
19 efforts. Provide information to agency staff that explains the need for the effort  
20 and outlines disposal options and procedures.

21 **Management Action 1.1.2:** Work with city and county governments to develop  
22 and adopt procedures that minimize availability of refuse in the urban interface  
23 that acts as food and water sources for predators.

24 **Management Action 1.1.3:** At landfills and waste transfer facilities, work with  
25 Nevada Division of Environmental Protection and facility managers to develop  
26 and adopt procedures that eliminate food and water sources for predators.

1       **Management Action 1.1.4:** Work with livestock owners, land managers, and  
2       regulatory authorities to develop and implement effective methods to reduce or  
3       eliminate exposed animal carcasses or other livestock by-products that may  
4       provide a food subsidy for predators.

5       **Management Action 1.1.5:** Collaborate with and provide informational material  
6       to stakeholders, such as Nevada Association of Counties, League of Cities,  
7       sportsmen’s groups, Nevada Cattlemen’s Association, and the general public on  
8       raven subsidy issues; such as refuse in urban areas, livestock carcasses and by-  
9       products, and wildlife carcasses (coyote, squirrels, rabbits).

10       **Management Action 1.1.6:** Research and develop management techniques to  
11       limit or reduce the availability of water subsidies to ravens. This may be very  
12       challenging and will likely require new technologies and techniques given  
13       Nevada’s arid environment, distance between natural water sources, and the  
14       need for anthropogenic watering sites accessible to both livestock and wildlife.

15       **Management Action 1.1.7:** Reduce and eliminate artificial hunting perches and  
16       nesting substrate for aerial predators (e.g., removal of non-operational fences  
17       and power lines, installation of anti-perch devices on existing and new power  
18       lines).

19       **Management Action 1.1.8:** Encourage continued research in the development  
20       of more effective perching and nesting deterrent options.

21       **Management Action 1.1.9:** Monitor the effects of efforts to reduce  
22       anthropogenic subsidies on raven populations and adapt management  
23       accordingly.

24       Objectives 1.2 and 1.3 should be implemented in localized areas where predation has  
25       been identified as a limiting factor on sage-grouse population. Use the “Process to

1 Prioritize Integrated Predator Management Projects” (See Appendix E) before engaging  
2 in Objectives 1.2 and 1.3. .

3  
4 **Objective 1.2:** Maintain or improve habitat integrity by increasing visual cover to  
5 reduce detection by predators or by reducing fragmentation to limit habitat for  
6 ravens.

7 **Management Action 1.2.1:** Maintain a mosaic of shrub cover conditions with  
8 ≥20% sagebrush cover and ≥30 percent total shrub cover and decreasing  
9 opportunities for large fires using pre-suppression strategies in nesting habitat  
10 to provide increased cover for nesting and escape (Gregg et al. 1994, Coates and  
11 Delehanty 2010).

12 **Management Action 1.2.2:** Maintain residual grass cover in nesting habitat to  
13 provide increased cover for nesting and escape (Gregg et al. 1994, Gregg and  
14 Crawford 2009, Coates and Delehanty 2008). This factor is more important if  
15 shrub cover is low.

16 **Management Action 1.2.3:** Where appropriate, begin recovery of degraded  
17 sites to decrease edge of non-native annual grasses next to intact Core or  
18 Priority Management Areas and to reduce fragmentation.

19  
20 **Management Action 1.2.4:** Minimize disturbance activities near leks during lek  
21 season (i.e., when males are inattentive and most vulnerable to predation) and  
22 near nest sites during nesting season that may result in adults flushing off nests  
23 or away from young. (In this instance, disturbance activities are anything that  
24 may cause birds to flush such as startling noise [explosions], road traffic, human  
25 presence, etc.). Use seasonal restrictions on activities, when appropriate, to  
26 minimize disturbances.



1     **Objective 1.3:** Conduct targeted predator control, based on monitoring and adaptive  
2     management. Objective 1.3 should be implemented pursuant to steps to achieve  
3     objectives 1 and 2.

4             **Management Action 1.3.1:** From the outcome of the Process to Prioritize  
5             Integrated Predator Management Projects (see below), establish a predator  
6             control program based on biological assessments appropriate to local  
7             conditions. Conduct predator control to coincide with the life stage impacted  
8             by predation. Program development needs to include specific goals and  
9             objectives and identification of triggers or endpoints for management practices.  
10            Monitor pre- and post-treatment predator numbers or densities as appropriate,  
11            and effects of predator control on sage-grouse vital rates and adapt control  
12            strategies accordingly.

13  
14            **Management Action 1.3.2:** When conducting raven control programs using  
15            DRC-1339, the [methods outlined in Coates et al. \(2007\) should be adhered. The](#)  
16            following points should be evaluated [when conducting raven control programs:](#)

- 17            • The assumed ratio of number of ravens removed to baited eggs placed
- 18            • Need for pre-baiting to accustom ravens to their presence
- 19            • Length of time eggs should be left in the environment
- 20            • Spacing of egg and number of eggs placed together
- 21            • Consideration to implement treatment yearly, based on monitoring of
- 22            raven population response
- 23            • Treatment should be conducted early in sage-grouse incubation period
- 24            (within the first 40 days following first average nest initiation for the
- 25            season) to coincide with greatest raven predation period (Coates and
- 26            Delehanty 2008, Lockyer 2013)

1 ~~[[This management action will be further fleshed out to provide a “how to”~~  
2 ~~guide based on best available science. Still to be developed\_\_]]Following~~  
3 ~~objectives 1, then 2, then 3.~~The SETT will work with subject experts (USGS,  
4 NDOW, Wildlife Services) to develop a standardized protocol for effective raven  
5 removal efforts.

6 **Management Action 1.3.3:** Consider option to oil or addle eggs in nests of  
7 territorial ravens found on anthropogenic structures as part of raven control  
8 program, when appropriate.

9 **Management Action 1.3.4:** Document success through a rigorous monitoring,  
10 analysis, and reporting of population responses to control efforts. For raven  
11 control programs, if there is a demonstrated benefit to sage-grouse via  
12 scientifically valid documentation, submit a request to USFWS for increased  
13 allowable take of ravens, assuming personnel availability from NDOW and  
14 Wildlife Services to appropriately identify locations and conduct work.

1 **7.4 Wild Horses and Burros Management**

2 The State of Nevada supports multiple uses on public lands and the responsible and  
3 active management of those lands uses, including wild horses and burros, which are  
4 protected by the Wild Free-Roaming Horses and Burros Act (the Act) of 1971. While  
5 that Act protects them from harassment and unjustified removal or destruction, it also  
6 allows for the proper management of wild horse and burro populations within the Herd  
7 Management Areas (HMAs) on BLM land and Wild Horse and Burro Territories (WHBTs)  
8 on USFS land that are within Herd Areas (HAs). Proper management of herd  
9 populations serves to protect their health as well as that of the habitat they and other  
10 species rely upon. The Act acknowledges the need to maintain the wild horses and  
11 burros within established Appropriate Management Levels (AML). This State supports  
12 the Act as it was initially authorized and offers recommendations for alternative  
13 management actions necessary to attain and maintain herd sizes that promote the  
14 continued health and diversity among wild horses and burros and allows for a  
15 sustainable sagebrush ecosystem that is mutually beneficial to all land uses and users.

16 **How HAs, HMAs, WHBTs, and AMLs are established**

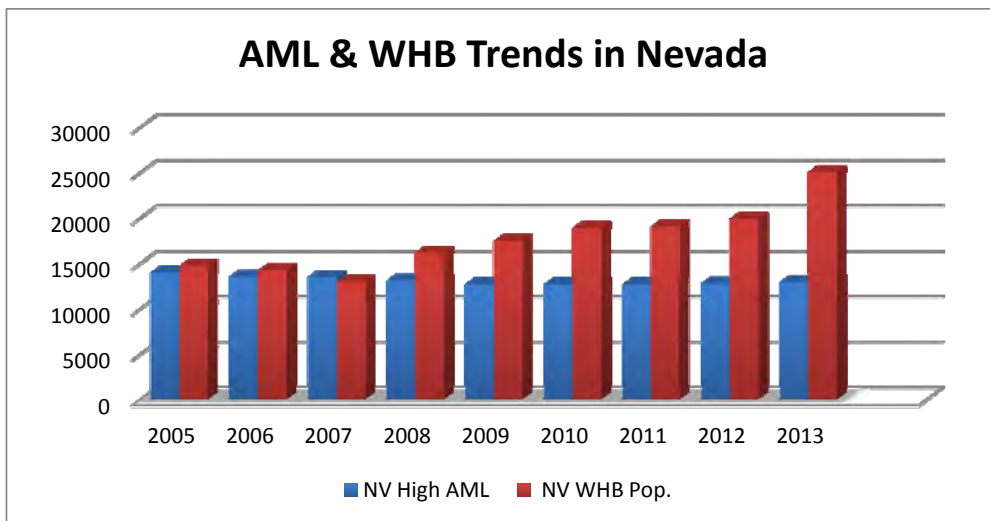
17 Under the Act, BLM and USFS are required to manage wild horses and burros only in  
18 HAs where they were found when the Act passed in 1971. Through land use planning,  
19 the BLM and USFS evaluated each HA to determine if it had adequate food, water,  
20 cover, and space to sustain healthy and diverse wild horse and burro populations over  
21 the long-term. The areas which met these criteria were then designated as HMAs and  
22 WHBTs (BLM 2013, BLM 2014).

23

24 BLM and USFS also evaluated each HMA to determine how much forage is available for  
25 use. The available forage is then allocated among wildlife, wild horses and burros and  
26 domestic livestock. The number of horses and burros which can graze without causing  
27 damage to the range is called the AML (BLM 2013, BLM 2014).

28

1 Nevada's annual AMLs as compared to Wild Horse and Burro (WHB) population  
2 estimates  
3 ([http://www.blm.gov/wo/st/en/prog/whbprogram/herd\\_management/Data.html](http://www.blm.gov/wo/st/en/prog/whbprogram/herd_management/Data.html)  
4 [2/28/1014](#))  
5



6  
7 **Current estimates of wild horses from the BLM and USFS are as follows (Shepherd**  
8 **2014, BLM 2013):**

- 9 • National: 37,300
- 10 • Nevada: 24,000-26,500
- 11 • National AML: 26,600
- 12 • Nevada AML: 12,688
- 13 • 84.3 percent of Nevada HMAs are at or exceed AML
- 14 • 70 of the 83 HMAs statewide are at or exceed AML
- 15 • 49 of the 62 HMAs overlapping sage-grouse habitat are at or exceed AML
- 16 • 10 of the 14 WHBTs overlapping sage-grouse habitat are at or exceed AML
- 17 • Nationally, over 50,000 horses are currently held in captivity in either short term  
18 holding facilities or long term private pastures

1

2 Wild horses are capable of increasing their numbers by 18 percent to 25 percent  
3 annually, resulting in the doubling of wild horse populations about every 4 years (Wolfe  
4 et al. 1989; Garrott et al. 1991). Wild horses are a long-lived species with survival rates  
5 estimated between 80 and 97 percent (Wolfe et al. 1980; Eberhardt et al. 1982; Garrott  
6 and Taylor 1990) and they are a non-self-regulating species. There are 62 HMAs and 14  
7 WHBTs that overlap with sage-grouse habitat in Nevada (BLM 2013, BLM 2014).

8

9 While nationally more than 220,000 wild horses and burros have been adopted by  
10 private citizens since the program began in 1971, the levels of adoption have decreased  
11 dramatically since 2007 (Shepherd, personal communication). In 2013 nationally there  
12 were 4,221 horses removed and 2,400 were either adopted or sold. In 2013 in Nevada  
13 there were 2,787 horses removed and 89 were adopted or sold (Shepherd 2014). In  
14 order to maintain current population levels in Nevada (most are currently near or  
15 exceeding the high range of AML), approximately 4,300 – 6,600 horses would need to be  
16 removed annually statewide, in the absence of using effective population growth  
17 suppression techniques.

18

19 The State of Nevada will work closely with federal agencies to develop new, and expand  
20 on existing strategies, policies, and best management practices to attain sustainable  
21 wild horse and burro populations within HMAs and WHBTs. The State of Nevada will  
22 also engage Congressional representatives and their staff to secure assistance in the  
23 implementation of the management activities authorized within the Act.

#### 24 **Goals, Objectives, and Management Actions**

25 **Goal 1:** Support, promote, and facilitate full implementation of the Wild Free-Roaming  
26 Horses and Burros Act of 1971, as amended, including to preserve and maintain a  
27 thriving natural ecological balance and multiple-use relationship, without alternation of  
28 its implementation by subsequent Congresses or Presidential administrations.

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Recognizing that if action is not taken until herd health has become an issue, the range and water resources are likely to be in a highly degraded and potentially irreversible state. Non-active management (e.g. let nature take its course, wait until horse health or resource conditions are critical) is not acceptable management. Non-management will negatively impact or potentially create irreversible habitat impacts within the SGMA; therefore, use all tools available to actively manage wild horses and burros within HMAs and WHBTs.

**Objective 1.1:** Maintain healthy and diverse wild horse and burro populations in the State of Nevada in a manner that meets sage-grouse habitat objectives (see Table 4.1).

**Management Action 1.1.1:** Focus expenditures of appropriated funds on management of wild horses and burros on public lands over care in captivity.

**Management Action 1.1.2:** Even if current AML is not being exceeded, yet habitat within the SGMA continues to become degraded, at least partially due to wild horses or burros, established AMLs within the HMA or WHBT should be reduced through the NEPA process and monitored annually to help determine future management decisions. Unless already meeting the lowest established AML level, during periods of drought, AMLs should be reduced to a level that is consistent with maintaining sage-grouse habitat objectives (see Table 4.1).

**Management Action 1.1.3:** Methods that were used to initially establish AMLs should be reevaluated to determine if they are still sufficient to achieve sage-grouse habitat objectives (see Table 4.1).

1       **Management Action 1.1.4:** Use professionals (botanists, rangeland ecologists,  
2       wildlife biologists, hydrologists, etc.) from diverse backgrounds to conduct land  
3       health assessments, and riparian proper functioning condition.

4       **Management Action 1.1.5:** Conduct annual site specific wild horse and burro  
5       grazing response indices assessments, and habitat objective assessments.

6       **Management Action 1.1.6:** When implementing management activities, water  
7       developments, or rangeland improvements for wild horses or burros, consider  
8       both direct and indirect effects on sage-grouse and use the applicable Site  
9       Specific Consultation Based Design Features (Design Features; see Appendix A)  
10      to minimize potential impacts or disturbances.

11      **Management Action 1.1.7:** In order to expedite recovery time and enhance  
12      restoration efforts following wildfire or sage-grouse habitat enhancement  
13      projects, consider a significant reduction and temporary removal or exclusion of  
14      all wild horses and burros within or from burned areas where HMAs and WHBT  
15      overlap with sage-grouse Core, Priority, and General Management Areas. Wild  
16      horse grazing behaviors and specialized physiological requirements make  
17      unmanaged grazing on recently burned/treated areas problematic for  
18      reestablishment of burned and/or seeded vegetation (Arnold and Dudzinski  
19      1978, Rittenhouse et al. 1982, Duncan et al. 1990, Hanley 1982, Wagner 1983,  
20      Menard et al. 2002, Stoddart et al. 1975, Symanski1994).

21      **Management Action 1.1.8:** If current AML is being exceeded, consider  
22      emergency short-term measures to reduce or avoid degradation of sage-grouse  
23      habitat from HMAs or WHBT that are in excess of established AML levels within  
24      the SGMA.

25      Plan for and implement an immediate reduction in herd size to a level that  
26      would enable the area to recover to meet the habitat objectives in Table 4.1 and

1 to preserve and maintain a thriving natural ecological balance and multiple-use  
2 relationship in that area. Consider lowering the AML levels to prevent future  
3 damage.

4 **Management Action 1.1.9:** If monitored sites are not meeting sage-grouse  
5 habitat objectives in Table 4.1, even if AML is being met, and it is determined  
6 that wild horses or burros are the primary causal factor, then implement  
7 protective measures as applicable in addressing similar emergencies (e.g. fire,  
8 flood, drought, etc.).

9 Consider exclusionary or controlled use pasture fencing of riparian or other  
10 mesic sites and implement water developments (following the Design Features  
11 as described in Appendix A) to ensure dispersal or avoidance of sites heavily  
12 impacted by wild horses (Feist 1971, Pellegrini 1971, Ganskopp and Vavra 1986,  
13 Naiman et al. 1992). A water source should be provided, as horses traditionally  
14 do not leave known water sources just because they are fenced.

15 **Management Action 1.1.10:** As climate data become available, adjust wild  
16 horse and burro and rangeland management practices to allow for Core,  
17 Priority, and General Management Areas to sustain or increase the sagebrush  
18 ecosystem resiliency and resistance.

19 **Management Action 1.1.11:** Collaborate with weather and climate  
20 professionals and agencies (UNR, DRI, NOAA, etc.) to proactively manage the  
21 rangelands resources and adjust, as necessary, the current wild horse and burro  
22 management policies. Ensure that sufficient ongoing public and political  
23 education is provided.

24 **Objective 1.2:** Evaluate conflicts with HMA designations in SGMAs and modify LUPs  
25 to avoid negative impacts on sage-grouse.



1       **Management Action 1.2.1:** Even if current AML is not being exceeded, yet  
2       habitat within the SGMA continues to become degraded, at least partially due  
3       to wild horses or burros, established AMLs within the HMA or WHBT should be  
4       reduced and resource objectives monitored annually to help determine future  
5       management decisions. Unless already meeting the lowest established AML  
6       level, during periods of drought, AMLs should be reduced to a level that is  
7       consistent with maintaining sage-grouse habitat objectives (see Table 4.1).  
8       *(same as Management Action 1.1.2)*

9       **Management Action 1.2.2:** Ensure that Herd Management Area Plans and  
10       WHBT plans are developed and/or amended within the Core, Priority, and  
11       General management areas, identified in the State's management areas map,  
12       taking into consideration the sage-grouse habitat objectives (see Table 4.1).

13       **Management Action 1.2.3:** Conduct herd management activities, as originally  
14       authorized, to avoid conflicts between the potential implementation of  
15       regulations within the Wild Free- Roaming Horses and Burros Act and the  
16       Endangered Species Act

17       **Goal 2:** As authorized in the Wild Free-Roaming Horses and Burros Act of 1971: Achieve  
18       and maintain wild horses and burros at or below established AMLs within the SGMA and  
19       manage for zero horse populations in non-designated areas within the SGMA to reduce  
20       impacts to sage-grouse habitat.

21  
22       **Objective 2.1:** Meet established AMLs in all HMAs and WHBTs in Core, Priority, and  
23       General Management Areas within five years.

24       **Management Action 2.1.1:** Focus expenditures of appropriated funds on  
25       management of wild horses and burros on public lands over care in captivity.  
26       *(same as Management Action 1.1.1)*

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**Management Action 2.1.2:** Even if current AML is not being exceeded, yet habitat within the SGMA continues to become degraded, at least partially due to wild horses or burros, established AMLs within the HMA or WHBT should be reduced and resource objectives monitored annually to help determine future management decisions. Unless already meeting the lowest established AML level, during periods of drought, AMLs should be reduced to a level that is consistent with maintaining sage-grouse habitat objectives (see Table 4.1). (same as Management Action 1.1.2)

**Management Action 2.1.3:** Methods that were used to initially establish AMLs should be reevaluated to determine if they are still sufficient to achieve sage-grouse habitat objectives (see Table 4.1). (same as Management Action 1.1.3)

**Management Action 2.1.4:** Given their capability to increase their numbers by 18%-25% annually, resulting in the doubling in population every 4-5 years (Wolfe et al. 1989; Garrott et al. 1991), wild horse gathers should be conducted to attain the lowest levels of AML. This in combination with continued and expanded use and development of effective forms of population growth suppression techniques will enable AML to be maintained for longer periods and reduce the frequency of gathers and associated cost and effort.

**Management Action 2.1.5:** If current AML is being exceeded, consider emergency short-term measures to reduce or avoid degradation of sage-grouse habitat from HMAs or WHBT that are in excess of established AML levels within the SGMA.

Plan for and implement an immediate reduction in herd size to a level that would enable the area to recover to meet the habitat objectives in Table 4.1 and to preserve and maintain a thriving natural ecological balance and multiple-use

1 relationship in that area. Consider lowering the AML levels to prevent future  
2 damage. (*same as Management Action 1.1.7*)

3 **Management Action 2.1.6:** Prioritize gathers for removal and/or population  
4 growth suppression techniques in HMAs, HAs, and WHBTs first within the  
5 State's Core Management Areas and then within the Priority and General  
6 Management Areas. Additional prioritization should be given for HMAs and  
7 WHBTs that are near AML or where a reduction would serve the most beneficial  
8 purpose. Proactively and adaptively manage herd sizes taking into  
9 consideration climate variability and other natural phenomena, similar to the  
10 restrictions placed on livestock managers.

11 **Goal 3:** Support and conduct science based research and monitoring to more efficiently  
12 and effectively maintain AMLs in HMAs and WHBTs.

13  
14 **Objective 3.1:** Implement more effective methods to conduct surveys and monitor  
15 wild horse and burro activities, populations, and responses to different herd  
16 management techniques.

17 **Management Action 3.1.1:** Work with professionals from other federal and  
18 state agencies, researchers at universities, and others to continue to develop,  
19 expand, and test more effective population growth suppression techniques,  
20 including contraception options.

21 **Management Action 3.1.2:** Implement a telemetry monitoring program for  
22 wild horses. Research regarding the direct interactions between, and in indirect  
23 effects of wild horses and sage-grouse is identified as a need and could further  
24 assist the agencies in the development of habitat selection maps (Beever and  
25 Aldridge et al. 2011) as well as offer a general understanding of the intensity,  
26 timing, and duration of use by wild horses within the SGMA.

- 1        **Management Action 3.1.3:** Investigate the use of automated or time-lapse
- 2        cameras or other monitoring methods to differentiate horse and livestock use
- 3        impacts at key areas such as late brood-rearing habitats, use appropriate
- 4        methods where combined use does not meet resource objectives.
- 5        Subsequently, make management changes based upon monitoring data and
- 6        resource objectives.

DRAFT

1 **7.5 Livestock Grazing**

2 Farming and ranching on private lands in unison with authorized livestock grazing on  
3 public lands has been a long standing arrangement for many private landowners in the  
4 State of Nevada. Historically, many homesteaders began to farm and ranch much of  
5 Nevada’s riparian and mesic landscapes due to the availability of surface water or  
6 springs. Once developed, many of these mesic areas were expanded by the artificial  
7 spreading of water or irrigation. These larger, irrigation induced, privately and publicly  
8 owned meadows served to support many species of wildlife in addition to livestock. The  
9 meadows are not sufficient to support livestock year round. Today, by allowing for the  
10 authorized use of proper and targeted livestock grazing on public lands, private  
11 landowners and federal land managers can serve to protect or even benefit each other  
12 if managed properly (by reductions in fuels, targeted grazing of specific habitats and  
13 cheatgrass, etc.). The State of Nevada recognizes and supports this long standing  
14 beneficial relationship.

15 Livestock grazing (primarily sheep and cattle) has occurred on the Nevada landscape for  
16 over 170 years at varying levels. Many variables have contributed to the growth and  
17 reduction of the size and number of homesteads, as well as the number of livestock  
18 using the range, over the past century. While livestock grazing continues to be a highly  
19 contested use on public lands in the West, the State supports the proper management  
20 of livestock grazing on allotted public lands in Nevada. Davies et al. (2011, p. 2575)  
21 concluded based on literature review that “Though appropriately managed grazing is  
22 critical to protecting the sagebrush ecosystem, livestock grazing per se is not a stressor  
23 threatening the sustainability of the ecosystem. Thus, cessation of livestock grazing will  
24 not conserve the sagebrush ecosystem.”

25  
26 Dependent on many factors, livestock grazing can have a negative effect, a positive  
27 effect, or a neutral effect on sage-grouse habitat (Davies et al. 2009; Knopf 1996;  
28 Oakleaf 1971; Sjejar et al. 2014; Whitehurst and Marlow 2013). If implemented

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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1 appropriately, the recommended actions listed in this section will assist landowners and  
2 land managers in managing appropriately to avoid or minimize negative impacts to  
3 sage-grouse habitat due to livestock grazing. The actions should also help to maintain  
4 the existing resistance and resilience of sagebrush communities and to protect the  
5 future persistence and sustainability of the diversity of other sage-grouse habitat types  
6 within the sagebrush ecosystem for those who depend on it.

7 The State supports grazing practices that incorporate a high level of flexibility through  
8 adaptive management to achieve the overall management and resource objectives  
9 agreed upon by the permittee and the land manager. The State will provide technical  
10 support to landowners through its combined resources and through partnerships with  
11 other governmental agencies and private industry. The State will continue to support  
12 the further understanding and development of rangeland management, resource  
13 conservation, rehabilitation, restoration, and protection that can be applied and  
14 supported, at least in part, by permittees and other land managers.

15 The State encourages private landowners to develop and implement conservation plans  
16 that serve to maintain or strengthen financial viability that also work to conserve or  
17 protect the renewable natural resources of Nevada, including sage-grouse and other  
18 wildlife species habitat.

19 The State will continue to support current, and development of new, public outreach  
20 and educational programs that assist with the proper understanding and  
21 implementation of the actions listed below to achieve the goals and objectives within  
22 this plan.

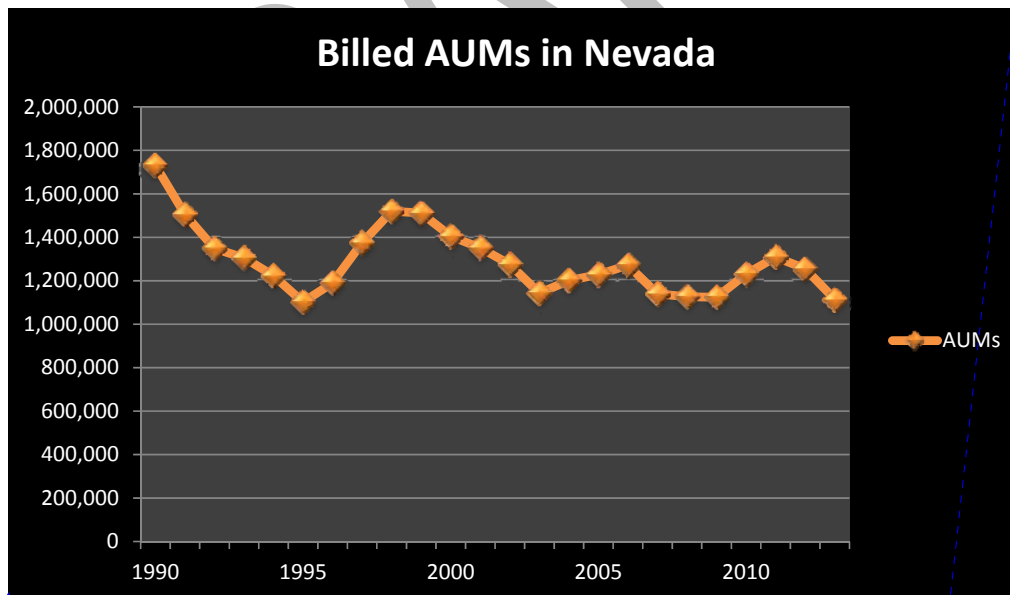
23 The State will also work with federal land managers and livestock owners to develop  
24 acceptable procedures to conduct consistent rangeland or resource monitoring with  
25 greater frequency. This should allow for greater flexibility in administering adaptive  
26 management decisions to achieve targeted goals and objectives.

27

## 2014 Nevada Greater Sage-grouse Conservation Plan

1 [The State encourages federal agencies to](#) ensure that any loss of grazing allotment rights  
2 that were not directly attributable to the permittees actions or inactions are mitigated  
3 to attain a no-net-loss of AUMs.

4  
5 [As of July 2014, there are 2,073,664 active permitted animal unit months \(AUMs\) on](#)  
6 [BLM lands in Nevada. Of those, 540,371 of them are suspended, and 14, 374 are](#)  
7 [temporarily suspended. The graph below indicates the number of billed AUMs whether](#)  
8 [permitted or trespass. Billed AUMs are comprised of permitted livestock including](#)  
9 [cattle, sheep, goats, and horses. The graph does not display the total active and](#)  
10 [suspended AUMs or authorized non-use. For 2013, the active permitted AUMs were](#)  
11 [2,133,562 with 572,618 suspended AUMs and the billed AUMs for 2013 were](#)  
12 [1,115,251\(BLM Rangeland Administration System\).](#)



### 17 Conservation Goal, Objective, and Management Actions

1

2 **Goal 1:** Ensure that existing grazing permits maintain or enhance sage-grouse habitat.  
3 Utilize livestock grazing when appropriate as a management tool to improve sage-  
4 grouse habitat quantity, quality, or to reduce wildfire threats. Based on a  
5 comprehensive understanding of seasonal sage-grouse habitat requirements, and in  
6 conjunction with the need for flexibility in livestock operations, make cooperative,  
7 timely, seasonal range management decisions to meet vegetation management  
8 objectives, including fuels reduction.

9 **Objective 1.1:** In sage-grouse habitat, manage for vegetation composition and  
10 structure that achieves sage-grouse seasonal habitat objectives (see Table 4.1),  
11 enhancing resilience and resistance based upon the ability of the ecological site to  
12 respond to management. This objective recognizes spatial and temporal variations  
13 across several stages.

14 **Management Action 1.1.1:** Within sage-grouse habitat, incorporate sage-  
15 grouse habitat objectives (see Table 4.1) and management considerations into  
16 all BLM and Forest Service grazing allotments through allotment management  
17 plans (AMPs), multiple use decisions, or permit renewals and/or Forest Service  
18 Annual Operating Instructions.

19 Implement appropriate prescribed grazing conservation actions at scales  
20 sufficient to influence a positive population response in sage-grouse habitat,  
21 such as NRCS conservation Practice Standard 528 for prescribed grazing (NRCS  
22 2011).

23 **Management Action 1.1.2:** In sage-grouse habitat, work cooperatively on  
24 integrated ranch planning within sage-grouse habitat so operations with deeded  
25 land, and BLM and/or Forest Service allotments, can be planned as single units,



1 providing flexibility and adaptive management across all ownerships and not  
2 altering stocking rates on operations for progressive management decisions.

3 **Management Action 1.1.3:** Continue land health assessments on BLM public  
4 lands or other monitoring methods on Forest Service-administered lands in  
5 sage-grouse habitat to evaluate current conditions as compared to sage-grouse  
6 habitat objectives described in Table 4.1. Incorporate the results of BLM and  
7 Forest Service monitoring and land health assessments into future management  
8 applications to ensure progress toward meeting sage-grouse habitat objectives.  
9 Incorporate terms and conditions into grazing permits and adjust these as  
10 needed through monitoring and adaptive management to meet sage-grouse  
11 habitat objectives.

12 **Management Action 1.1.4:** Implement management actions (grazing decisions,  
13 Annual Operating Instructions [Forest Service only], AMP/Conservation Plan  
14 development, or other agreements) to modify grazing management to meet  
15 seasonal sage-grouse habitat objectives as defined in Table 4.1 where current  
16 livestock grazing is identified as the causal factor of not meeting those  
17 objectives. Consider singly, or in combination, changes in:

- 18 1. Season, timing (duration) and/or rotation of use;
- 19 2. Distribution of livestock use;
- 20 3. Intensity of use;
- 21 4. Type of livestock (e.g., cattle, sheep, horses, llamas, alpacas and goats;  
22 Briske et al. 2011); and
- 23 5. Numbers/ AUMs of livestock and other ungulates (includes temporary  
24 nonrenewable (TNR) use, and nonuse).

25 Before imposing grazing restrictions or seeking changes in livestock  
26 stocking rates or seasons of permitted use, federal agencies in  
27 coordination with grazing permittees must identify and implement all

1 economically and technically feasible livestock distribution, forage  
2 production enhancement, weed control programs, prescribed grazing  
3 systems, off-site water development by the water rights holder, shrub  
4 and pinyon/juniper control, livestock salting/supplementing plans, and  
5 establishment of riparian pastures and herding. (Eureka County Master  
6 Plan 2010)

7  
8 **Management Action 1.1.5:** Grazing management strategies for riparian areas  
9 and wet meadows should, at a minimum, maintain or achieve riparian Proper  
10 Functioning Condition (PFC) and promote brood rearing/summer habitat  
11 objectives, as described in Table 4.1, within sage-grouse habitat. Within sage-  
12 grouse habitat, manage wet meadows to maintain a component of available  
13 perennial forbs with diverse species richness to facilitate brood rearing and  
14 stabilizing riparian species (Burton et al. 2011) near where water flows to  
15 achieve or maintain PFC. Use Ecological Site Descriptions (ESDs) or locally  
16 relevant information about soils, hydrology, soil moisture, and site potential to  
17 set realistic objectives and evaluate assessments and monitoring data (Swanson  
18 et al. 2006). Also conserve or enhance wet meadow complexes to maintain or  
19 increase amount of edge and cover near that edge to minimize elevated  
20 mortality during the late brood rearing period (Hagen et al. 2007; Kolada et al.  
21 2009a; Atamian et al. 2010) as observed throughout the stream/watershed and  
22 not limited to only easily accessible sites. Some defined areas of concentrated  
23 livestock use may be necessary to protect and enhance the overall riparian area.

24  
25 **Management Action 1.1.6:** Authorize new water development for diversion  
26 from spring or seep sources only when sage-grouse habitat would not be net  
27 negatively affected by the development. This includes developing new water

1 sources for livestock as part of an AMP/conservation plan to improve sage-  
2 grouse habitat.

3  
4 **Management Action 1.1.7:** Analyze springs, seeps and associated pipelines to  
5 find mutually beneficial enhancement opportunities for livestock and wildlife  
6 that restores functionality to riparian and mesic areas within sage-grouse  
7 habitat, and allow them to be developed.

8  
9 **Management Action 1.1.8:** In sage-grouse habitat, encourage and allow  
10 vegetation treatments that conserve, enhance, or adaptively restore resilience  
11 and resistance over time. This includes adaptive management as part of an  
12 AMP/Conservation Plan to improve sage-grouse habitat.

13  
14 **Management Action 1.1.9:** Evaluate the role of existing seedings that are  
15 currently composed of primarily introduced perennial grasses that are in and  
16 adjacent to sage-grouse habitat to determine if additional efforts should be  
17 made to restore sagebrush or to improve habitat quality for sage-grouse. If  
18 these seedings are part of an AMP/Conservation Plan or if they provide value in  
19 conserving, enhancing, or protecting the rest of the sage-grouse habitat, then  
20 no restoration may be necessary. Assess the compatibility of these seedings for  
21 sage-grouse habitat or as a component of a grazing system during the land  
22 health assessments (Davies et al. 2011), or other analyses such as the  
23 Humboldt-Toiyabe Resource Implementation Protocol for Rapid Assessment  
24 Matrices (USDAFS - HTNF 2007).

25  
26 **Management Action 1.1.10:** In sage-grouse habitat, ensure that the design of  
27 any new structural range improvements and plan the location of supplements  
28 (salt or protein blocks) to enhance sage-grouse habitat or minimize impacts in

1 order to meet sage-grouse objectives (see Table 4.1). Structural range  
2 improvements, in this context, include but are not limited to: cattle guards,  
3 fences, exclosures, corrals or other livestock handling structures; pipelines,  
4 troughs, storage tanks (including moveable tanks used in livestock water  
5 hauling), windmills, ponds/reservoirs, solar panels and spring developments.  
6 Potential for invasive species establishment or their increase following  
7 construction must be considered in the project plan and then monitored,  
8 treated, and rehabilitated post-construction.

9  
10 **Management Action 1.1.11:** Salting and supplemental feeding locations,  
11 temporary and/or mobile watering and new handling facilities (corrals, chutes,  
12 etc.) should be located at least 1/2-mile from riparian zones, springs, meadows,  
13 or 1 mile from active leks in sage-grouse habitat, unless the pasture is too small  
14 or another location offers equal or better habitat benefits. The distance should  
15 be based on local conditions.

16  
17 **Management Action 1.1.12:** To reduce sage-grouse strikes and mortality,  
18 remove, modify or mark fences in high risk areas within sage-grouse habitat  
19 based on proximity to lek, lek size, and topography (Christiansen 2009; Stevens  
20 2011). Consideration of the utility of the fence should also be taken into  
21 consideration to ensure that its removal does not promote degradation of the  
22 overall management for habitat or other objectives (Swanson et al. 2006).

23  
24 **Management Action 1.1.13:** In sage-grouse habitat, monitor, treat and, if  
25 necessary, rehabilitate sites with invasive species associated with existing range  
26 improvements (Gelbard and Belnap 2003; Bergquist et al. 2007). State listed  
27 noxious weeds (NRS 555) should be given the highest priority. In general,  
28 monitor, map, treat (using integrated pest management and associated tools),

1 and rehabilitate sites that have invasive and noxious weed species, especially  
2 those associated with disturbance activities.

3  
4 **Management Action 1.1.14:** All permit relinquishments should be voluntary.  
5 All options to allow responsible management of livestock grazing on an  
6 allotment should be considered before any voluntary withdrawal of a grazing  
7 permit is considered, in conformance with the multiple use sections of the  
8 Taylor Grazing Act.

9  
10 **Management Action 1.1.15:** Prior to implementation, establish project  
11 monitoring sites where vegetation treatment is planned and monitor at least  
12 annually during the recovery period. To ensure effective recovery, monitoring  
13 should continue for a number of years immediately following the livestock  
14 exclusion period, depending on local site conditions.

15  
16 **Management Action 1.1.16:** When conditions, i.e., climatic variations (such as  
17 drought) and wildfire, requiring unique or exceptional management, work to  
18 protect sage-grouse habitat on a case by case basis and implement adaptive  
19 management to allow for vegetation recovery that meets resistance, resilience,  
20 and sage-grouse life cycle needs in sage-grouse habitat as needed on an  
21 individual allotment basis.

22  
23 **Management Action 1.1.17:** During the annual grazing application, work with  
24 permittees to avoid consistent concentrated turn-out locations for livestock  
25 within approximately 3 miles of known lek areas during the March 1 to May 15  
26 period. During the March 1 to May 15 period, avoid domestic sheep use,  
27 bedding areas, and herder camps within at least 1.24 miles (2 kilometers) of  
28 known lek locations. Utilize land features and roads on maps provided to the

1            permittee to help demarcate livestock use avoidance areas. Require terms and  
2            conditions language for affected livestock grazing permits regarding livestock  
3            turnout locations during the lekking period. During the lekking period, use best  
4            management practices to avoid livestock aggregation around the lekking  
5            grounds.

6  
7            **Management Action 1.1.18:** Strive to improve and maintain regular  
8            communication at the allotment level between land management agency and  
9            the permittee to encourage proper management techniques. Land  
10           management agencies should coordinate with relevant state, local, and tribal  
11           government agencies and permittees to conduct regular trend monitoring at the  
12           allotment level. Encourage cooperative permittee monitoring, such as  
13           described in Perryman et al 2006, Swanson et al. 2006.

14  
15           **Management Action 1.1.19:** Promote and implement proper livestock grazing  
16           practices that promote the health of the perennial herbaceous vegetation  
17           component. Perennial grasses, especially, are strong competitors with  
18           cheatgrass (Booth et al. 2003; Chambers et al. 2007; Davies et al. 2008; Blank  
19           and Morgan 2012). Field research has demonstrated that moderate levels of  
20           livestock grazing can increase the resiliency of sagebrush communities, reduce  
21           the risk and severity of wildfire, and decrease the risk of exotic weed invasion  
22           (Davies et al. 2009 and Davies et al. 2010).

23  
24           **Management Action 1.1.20:** To reduce the risk of fire and enhance restoration  
25           in large contiguous blocks of cheatgrass-dominated sagebrush or sage-grouse  
26           habitats that are next to highly flammable cheatgrass dominated lands, create  
27           local NEPA documented plans to use tools (e.g. dormant season TNR AUM  
28           authorizations and stewardship contracted grazing), to reduce fuels in areas

1 dominated by invasive plants (Schmelzer et al. 2014). Use adaptive  
2 management to allow the use of TNR during other seasons, if science emerges  
3 demonstrating effectiveness of such practices. Planning should be conducted on  
4 an allotment specific basis, and may be contained in AMPs, multiple use  
5 decisions, or permit renewals.

6  
7 **Management Action 1.1.21:** To aid in planning adaptive management for the  
8 purpose of maintaining health of important forage plants (perennials needed for  
9 resilience and resistance), cooperatively strategize how various areas in sage-  
10 grouse habitat allotments can be managed differently each year to achieve  
11 positive grazing response index scores (Perryman et al 2006; Reed et al. 1999;  
12 Wyman et al. 2006; and USDA USFS 1996) and meet resource objectives.

1 **7.6 Anthropogenic Disturbances**

2 Anthropogenic disturbances, as defined in Section 3.0 of this State Plan, are a threat to  
3 sage-grouse and their habitat in Nevada; however these activities are a vital part of  
4 Nevada's economy. The State of Nevada seeks a balanced approach that allows for the  
5 preservation of Nevada's economy, while conserving and protecting sage-grouse  
6 populations and the sagebrush ecosystem upon which they need to survive. Nevada's  
7 strategy is to provide consultation for project planning to first avoid and minimize  
8 impacts to sage-grouse (see Section 3.0) and then to offset residual impacts through  
9 compensatory mitigation via the Conservation Credit System (see Section 8.0).

10 Anthropogenic disturbances can negatively impact sage-grouse both directly and  
11 indirectly, and through various mechanisms. Anthropogenic disturbances can directly  
12 impact sage-grouse by causing direct loss of habitat, avoidance behavior to  
13 infrastructure (Doherty et al. 2008) and to otherwise suitable habitat (Lyon and  
14 Anderson 2003, Holloran 2005, Kaiser 2006, Doherty et al 2008), direct mortality  
15 through collision with infrastructure (Beck et al 2006, Stevens et al 2012) and mosquitos  
16 carrying the West Nile virus (Walker and Naugle 2011) associated with artificial ponds  
17 created by development (Zou et al 2006), and negative impacts to survival and  
18 reproduction (Lyon and Anderson 2003, Holloran 2005, Kaiser 2006, Aldridge and Boyce  
19 2007, Holloran et al 2007). Indirect impacts on sage-grouse demographics can be  
20 caused by noise produced from operations (Braun et al 2002, Holloran 2005, Kaiser  
21 2006, Blickley et al 2012), vehicle traffic on associated roads (Lyon and Anderson 2003),  
22 and increased predation by raptors perching on associated power lines (Ellis 1984).  
23 Moreover, anthropogenic disturbances can lead to an increase in the presence of  
24 cheatgrass and other invasive plant species (Bradley and Mustard 2006, Manier et al  
25 2014). In addition, habitat fragmentation resulting from cumulative effects of multiple  
26 anthropogenic disturbances across the landscape has been shown to have long term



1 negative impacts on sage-grouse populations (Johnson et al 2011, Knick and Hanser  
2 2011, Knick et al 2013).

3 *Mining*

4 Mining is a vital part of the state of Nevada's economy both currently and historically.  
5 The initial discovery of the Comstock Lode silver ore deposit in Virginia City in the 1850s  
6 was central to the settling and development of Nevada, as well as a major reason for  
7 Nevada's admission into the United States in 1864. The Nevada Department of Taxation  
8 currently estimates the net assessed mineral value in the State to be approximately \$5.1  
9 billion (State of Nevada 2014) and the Nevada Bureau of Mines and Geology (NBMG)  
10 estimates the total production value at \$10.76 billion (NBMG 2014)<sup>2</sup>. The annual tax  
11 revenue collected in fiscal year 2013 was approximately \$236 million (State of Nevada  
12 2014). It is estimated that Nevada's mining economic output contributes a 6% share of  
13 Nevada's statewide GDP (Nevada Mining Association 2011).

14 The primary type of mineral exploration and development in the state of Nevada is  
15 locatable minerals, including gold, silver, and copper. Locatable mineral development  
16 and exploration is governed under the General Mining Law of 1872 and is a non-  
17 discretionary activity on federal lands. Additional federal, state, and local laws also  
18 govern locatable minerals. Salable and non-energy leasable mineral exploration and  
19 development also occurs, though to a lesser extent. Salable mineral materials, which are  
20 common varieties of construction materials and aggregates, such as sand, stone, and  
21 gravel are governed under the Materials Acts of 1947. Government and non-profit  
22 organizations may obtain these resources free of charge for community purposes on  
23 BLM and USFS administered lands. The Nevada Department of Transportation and local  
24 governments are the primary users of gravel and sand resources on federal lands in  
25 Nevada. Non-energy leasable minerals, such as potassium and sodium, which are

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<sup>2</sup> The State of Nevada 2014 estimate is for FY 12-13 (June 2012 – July 2013) and the NBMG estimate is for calendar year 2012. Both estimates also include geothermal energy and petroleum production.

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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1 governed under the Mineral Leasing Act of 1920 are also present, however there are  
2 currently no leases in sage-grouse habitat in Nevada (BLM 2013).

3 The extent of mining activities across the state of Nevada overlaps with the range of  
4 sage-grouse habitat. There are approximately 2 million acres of locatable mineral claims  
5 in sage-grouse habitat in Nevada (BLM 2013). The total “footprint” of mining in Nevada  
6 is estimated at 169,029 and 181,340 acres by BLM and NDEP respectively (~~Biaggi~~  
7 ~~personal communication 2014~~[Johnson personal communication 2014](#), [Holmgren](#)  
8 [personal communication 2014](#)). Mining and its associated facilities and infrastructure  
9 may result in habitat fragmentation, direct habitat loss, and indirect impacts decreasing  
10 the suitability of otherwise suitable habitat (USFWS 2013). The specific impacts of  
11 mining on sage-grouse and their habitat have not been studied (Manier 2013); ~~however~~  
12 ~~the consistency in findings from research evaluating the impacts of different types of~~  
13 ~~anthropogenic disturbances, principally oil and gas development, on sage-grouse~~  
14 ~~(Naugle et al 2011), may offer insights to the impacts of other anthropogenic~~  
15 ~~disturbances, such as mining.~~

### 16 *Non-Renewable Energy Production*

17 There is currently little oil and gas development in Nevada. Oil production in Nevada  
18 has been on a steady decline and is currently limited to approximately 336,000 barrels  
19 of oil production annually (Nevada Division of Minerals 2014a). Within sage-grouse  
20 habitat it is limited to two major basins, including the Railroad Valley and Pine Valley,  
21 with Railroad Valley being the predominant oil-producing valley in Nevada (BLM 2013).  
22 However, with recent federal approval of oil and gas exploration in, Nevada (BLM 2014),  
23 coupled with the emergence of new technologies, there may be potential for increased  
24 oil and gas production in the State pending results of the exploration.

25 In a comprehensive literature review of the impacts of energy development, principally  
26 oil and gas, on sage-grouse conducted by Naugle et al (2011), all studies reported  
27 negative effects, while no positive impacts to sage-grouse populations or habitat were

1 reported. Negative responses of sage-grouse were consistent regardless of whether lek  
2 dynamics or demographic rates were studied (Naugle et al 2011). The specific direct  
3 and indirect impacts are described above.

4 *Renewable Energy Production*

5 The development, transmission, and distribution of renewable and non-renewable  
6 energy is a high priority for the state of Nevada. Shifting national and state energy  
7 policies, as well as Nevada's favorable conditions for different types of renewable  
8 energy resources, renewable energy development is likely to increase in the State. The  
9 SEP supports Nevada's Renewable Portfolio Standard goal of 25% of Nevada's energy  
10 coming from renewable sources by 2025. In addition, the Nevada Public Utilities  
11 Commission this year ruled in accordance with Nevada S.B. 123 requiring the retirement  
12 of no less than 300 MW of coal-fired electrical generating capacity on or before  
13 December 31, 2014, and not less than 250 MW of coal-fired electrical generating  
14 capacity on or before December 31, 2017 (Public Utilities Commission of Nevada 2014).

15 Renewable energy resources in Nevada include geothermal, wind, solar, and biomass.  
16 Nevada has vast geothermal resources and is leading the way in geothermal energy  
17 development in the United States. As of the end of 2013, of the 3442 MW of installed  
18 generating capacity in the U.S. (Matek 2014), Nevada contributes 586 MW (Nevada  
19 Division of Minerals 2014b), representing approximately 17% of total installed capacity  
20 in the U.S. Nevada is outpacing the rest of the country in developing geothermal  
21 projects. Nevada accounted for approximately 41% of the total number of projects  
22 under development in the U.S. since 2011 (Matek 2014). Nevada currently has 22  
23 operating geothermal plants at 14 different locations (Nevada Division of Minerals  
24 2014b). There are significant geothermal resources in northern Nevada that coincide  
25 with the sage-grouse habitat range. Recent geothermal projects that coincide with  
26 sage-grouse habitat include the Tuscarora, McGinness Hills, and Jersey Valley  
27 Geothermal Power Plants.

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1 Wind energy is one of the fastest growing renewable energy sectors in the U.S.;  
2 however the potential viability for development of this resource in Nevada is currently  
3 limited. Analysis conducted as part of BLM's Wind Energy Development Programmatic  
4 EIS showed most of Nevada's wind power classification rated as poor to fair, with only  
5 small pockets classified as good to outstanding (BLM 2005). Some of those pockets  
6 however, overlap with sage-grouse habitat. Currently there is one wind generation  
7 facility in Nevada, the Spring Valley Wind Project; an approximately 150 MW facility  
8 located approximately 30 miles east of Ely, NV.

9 The BLM, as part of a Programmatic ~~Environmental~~ EIS for Solar Energy Development,  
10 developed Solar Energy Zones (SEZ), defined as areas well suited for utility scale  
11 production of solar energy. Five SEZs were identified for Nevada; all located in Clark,  
12 southern Nye, and Lincoln counties, outside the range of sage-grouse (BLM 2012).  
13 There are currently no solar energy rights of ways within sage-grouse habitat in Nevada  
14 (BLM 2013).

15 There is currently no significant commercial conifer biomass energy economy in Nevada  
16 (BLM 2013); however considering that pinyon-juniper expansion is one of the major  
17 threats facing sage-grouse in Nevada, the SEP encourages exploring and incentivizing  
18 biomass energy development in the State.

19 Renewable energy development can negatively impact sage-grouse both directly and  
20 indirectly, and through various mechanisms. Impacts to sage-grouse from geothermal  
21 energy development have not been assessed in the scientific literature because the  
22 development has been too recent to identify immediate and lag effects (Knick et al  
23 2011). There are currently no commercial solar projects operating in sage-grouse  
24 habitats at this time, so the impacts cannot be assessed. There has been one study on  
25 the effects on sage-grouse from wind energy developments recently completed in  
26 south-central Wyoming, which demonstrated that the relative probabilities of sage-  
27 grouse nest and brood success decreased with proximity to wind turbines (LeBeau

1 2012). Wind energy generation also requires tall structures, which can provide artificial  
2 nesting and perching substrate for sage-grouse predators (Knight and Kawashima 1993).  
3 Renewable energy development requires many of the same features for construction  
4 and operation as non-renewable energy, so it is anticipated that the potential impacts  
5 from direct habitat loss, habitat fragmentation through roads and power lines, noise,  
6 and increased human presence would most likely be similar to those for non-renewable  
7 energy production (USFWS 2010).

8 *Infrastructure*

9 Infrastructure whether related to energy production, mining, or any other purpose, can  
10 adversely impact sage-grouse. Infrastructure can result in habitat loss and  
11 fragmentation, sage-grouse avoidance of otherwise suitable habitat, provide a source  
12 for the spread of invasive species, and provide artificial subsidies for predators (USFWS  
13 2013). Infrastructure most common in Nevada includes transmission lines, distribution  
14 lines and roads. Other types of infrastructure may also include, but is not limited to,  
15 pipelines, communication towers, and fences.

16 Transmission and distribution lines (hereafter collectively referred to as power lines) are  
17 necessary for transmitting energy from power production facilities and distributing that  
18 power to homes and businesses. Power lines may directly impact sage-grouse through  
19 habitat loss and fragmentation (Knick et al 2013), as well as direct mortality due to  
20 collisions (Beck et al 2006). Indirect habitat loss due to avoidance of vertical structures,  
21 presumably due to increases in predator populations is also a concern (Manier 2013).  
22 Power lines have been shown to decrease male lek attendance (Ellis 1985) and  
23 probability of lek persistence (Walker et al 2007), as well as causing avoidance behavior  
24 of brood-rearing habitat (LeBeau 2012). Power lines have been shown to increase  
25 predator distributions and hunting efficiency resulting in increased predation on sage-  
26 grouse (Connelly et al 2004). Preliminary results from a ten-year study on the impacts  
27 of the Falcon-Gonder transmission line on sage-grouse population dynamics in Eureka

1 County, Nevada show a significant negative effect of the transmission line on nest  
2 success and female survival, weak negative effect on male survival, and no support for  
3 impacts on nest site selection and female nesting propensity (Gibson et al 2013). Nest  
4 success and female survival, along with chick survival, are the demographic rates that  
5 have been shown to be important for population growth (Taylor et al 2012).

6 Roads are widespread through the sage-grouse range and can impact sage-grouse  
7 through a variety of mechanisms. A study along I-80 in Wyoming and Utah between  
8 1970 and 2003 found no leks within 1.25 miles of the interstate, and fewer birds on leks  
9 within 4.7 miles of the interstate, than further distances (Connelly et al 2004). Roads  
10 can negatively impact sage-grouse through direct mortality due to vehicle collision,  
11 decreased male lek attendance due to increased traffic (Holloran 2005), avoidance  
12 behavior (Lyon and Anderson 2003, LeBeau 2012), and reduced nest initiation rates  
13 (Lyon and Anderson 2003). Roads can also facilitate the spread of invasive species  
14 (Gelbard and Belnap 2003).

15

16 **Goals, Objectives, and Management Actions**

17 **Goal 1:** Manage anthropogenic disturbance development in a manner that provides for  
18 the long-term conservation of sage-grouse and their habitat, while balancing the need  
19 for continued development of the resources.

20 **Objective 1.1:** Achieve no net unmitigated loss of sage-grouse habitat due to new  
21 anthropogenic disturbances and any associated facilities and infrastructure within  
22 the Sage-Grouse Management Area (SGMA) in order to maintain stable or increasing  
23 sage-grouse populations.

24 **Management Action 1.1.1:** All new proposed anthropogenic disturbances  
25 within the SGMA will trigger timely SETT Consultation for application of the  
26 “avoid, minimize, mitigate” process (see Section 3.0). This will serve as a

1 centralized impact assessment process that provides consistent evaluation,  
2 reconciliation and guidance for project development.

3  
4 **Management Action 1.1.2:** Avoid new anthropogenic disturbance activities and  
5 its associated facilities and infrastructure within the SGMA. Locate activities,  
6 facilities, and infrastructure in non-habitat wherever possible. Avoidance of a  
7 disturbance within sage-grouse habitat is the preferred option. If avoidance is  
8 not possible, the project proponent must demonstrate why it is not possible in  
9 order for the SETT to consider minimization and mitigation alternatives. The  
10 process to demonstrate that avoidance is not possible (the “avoid process”) is  
11 determined by the four management categories. (See Table 3-1 for more  
12 details on the avoid process.) If development cannot be sited in non-habitat, it  
13 should occur in the least suitable habitat.

14  
15 **Management Action 1.1.3:** If adverse impacts to sage-grouse and their habitat  
16 cannot be avoided, project proponents will be required to minimize impacts by  
17 employing Site Specific Consultation-Based Design Features (Design Features;  
18 see Appendix A) appropriate for the project. This may include seasonal  
19 operational restrictions, noise restrictions, clustering disturbances, and placing  
20 infrastructure in previously disturbed locations.

21  
22 **Management Action 1.1.4:** Technically evaluate and where reliability is not  
23 adversely impacted, seek to site new linear features in existing corridors (Figure  
24 11) or, at a minimum, co-locate with existing linear features in Core, Priority,  
25 and General Management Areas.

26  
27 **Management Action 1.1.5:** Reduce and eliminate artificial hunting perches and  
28 nesting substrate for aerial predators. This can be achieved by installing anti-

1 nesting and anti-perching devices on new power lines (see Section 7.3) or  
2 burying power lines. Bury distribution power lines of up to 35kV where ground  
3 disturbance can be minimized, and where technically and economically feasible.  
4 Where technology and economic factors allow, bury higher kV power lines (see  
5 Appendix A). Sage-grouse habitat objectives (see Section 4.0) will be  
6 incorporated when reclaiming the site.

7  
8 **Management Action 1.1.6:** Encourage continued research in the development  
9 of more effective perching and nesting deterrent options (see Section 7.3).

10  
11 **Management Action 1.1.7:** Aggressively engage in reclamation/weed control  
12 efforts during pre- and post-project construction.

13  
14 **Management Action 1.1.8:** If impacts from anthropogenic disturbances cannot  
15 be avoided and after minimization options have been exhausted, residual  
16 adverse impacts are required to be offset through compensatory mitigation.  
17 Mitigation obligations will be determined through the Conservation Credit  
18 System (see Section 8.0).

19  
20 **Objective 1.2:** Explore options to minimize impacts from existing and abandoned  
21 anthropogenic disturbances and associated infrastructure.

22  
23 **Management Action 1.2.1:** While SETT Consultation and the “avoid, minimize,  
24 mitigate” process does not apply retroactively to existing anthropogenic  
25 disturbances, existing operators are encouraged to incorporate the Design  
26 Features outlined in Appendix A and contact the SETT for timely input on  
27 techniques and practices to avoid and minimize existing impacts to sage-grouse  
28 and their habitat.



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**Management Action 1.2.2:** Inventory abandoned mine sites within sage-grouse habitat and, where practical, reclaim sites to meet sage-grouse habitat objectives (see Section 4.0). Coordinate with the Abandoned Mine Lands Program on this effort.

**Management Action 1.2.3:** Work with the energy industry to explore opportunities to install anti-nesting and anti-perching devices on existing power lines and tall structures and to bury existing power lines where practical and economically feasible.

**Management Action 1.2.4:** Inventory power lines and utility structures that are no longer in use and look for opportunities to decommission the lines and reclaim the sites to meet sage-grouse habitat objectives (see Section 4.0).

1 **7.7 Recreation & Off-Highway Vehicle Activities**

2 Nevada offers some of the most robust recreational and off-highway vehicle  
3 experiences in the nation due, in large part, to its high percentage of accessible federally  
4 managed public lands. Recreation, in all of its forms, creates a significant benefit to  
5 local and statewide economies. Extensive networks of roads and trails offer  
6 recreationists excellent access to most of Nevada’s expansive basin and range high  
7 desert ecosystems. This extensivity of roads and trails may also create impacts on  
8 sagebrush habitats and sage-grouse that may be difficult to measure.

9 While these activities are one of the many acceptable multiple-uses on our federal  
10 public lands, it also requires frequently reviewed and updated policies that allow for  
11 greater adaptive management. This may assist in ongoing efforts to protect and  
12 preserve sensitive land forms, plants, and animals from levels or types of disturbance  
13 that create unnatural or unduly negative impacts. Potential impacts on sage-grouse and  
14 their habitat associated with recreational activities include but are not limited to:  
15 increases in noise levels, distribution of invasive plants, generation of fugitive dust, and  
16 effects on predator prey relationships (Manier 2013).

17 In Nevada, the recent creation of the Commission on Off-Highway Vehicles provides a  
18 mechanism and a funding source to educate users on how to responsibly use off-  
19 highway vehicles while minimizing adverse effects of public land resources including  
20 important or restricted-access to sage-grouse habitats. It may also provide a funding  
21 source to allow the State to join with its federal agencies to better plan, develop, and  
22 manage a coordinated and designated system of off-road vehicle trails in Nevada. The  
23 off-highway vehicle registration system allows state law enforcement personnel to  
24 access vehicle registration information and identify vehicle titleholders in instances  
25 where state or federal laws pertaining to off-road access or use are violated.

26

27 **Conservation Goals, Objectives, and Management Actions**

1

2 **Goal 1:** Conserve sage-grouse and their habitat while allowing for continued  
3 recreational access to public lands.

4 **Objective 1.1:** In sage-grouse habitat, avoid or minimize recreation and OHV  
5 negative direct and indirect impacts to sage-grouse and their habitat and monitor  
6 sites for potential impacts.

7 **Management Action 1.1.1:** Establish appropriate ambient noise levels for  
8 undisturbed sage-grouse leks. This should generally be done between the hours  
9 of 6:00 p.m. to 8:00 a.m. as these are the hours most critical for  
10 communications of sage-grouse and auditory detection of predators (Patricelli  
11 et al. 2013).

12 **Management Action 1.1.2:** Take measures to minimize or reduce activities and  
13 to avoid an ambient noise level increase >10 dB at the edge of leks during the  
14 lekking season generally, March 1 through May 15 from one hour before sunrise  
15 until 9:00 AM.

16 **Management Action 1.1.3:** Assist in efforts to enhance collaborative  
17 monitoring through volunteer organizations, recreational groups, etc., to collect  
18 data that would assist in the protection, enhancement, or rehabilitation of sage-  
19 grouse habitat.

20 **Management Action 1.1.4:** Support studies that further the understanding of  
21 the relationship between recreational uses and their potential impacts on sage-  
22 grouse.

23 **Management Action 1.1.5:** Utilize sage-grouse habitat mapping to inform state  
24 and federal recreation management plans

1           **Management Action 1.1.6:** Where feasible locate recreation trails strategically  
2           to create or augment fuel breaks in the margins of sage-grouse habitats and  
3           landscapes and not create roads or trails where they cause net negative direct  
4           and indirect impacts.

5           **Objective 1.2:** Support and implement efforts to reduce the potential for additional  
6           sage-grouse habitat fragmentation from unauthorized 'trail making'.

7           **Management Action 1.2.1:** Support and promote efforts by state, local, and  
8           federal agencies and recreational groups to promote educational campaigns  
9           that encourage responsible OHV and recreation activities that avoid or minimize  
10          negative impacts to sage-grouse and their habitat, including the spread of  
11          invasive species.

12          **Management Action 1.2.2:** Work with state, local, and federal agencies and  
13          recreational groups to inventory unauthorized trails in Core, Priority, and  
14          General Management Areas and where feasible restore trails to meet sage-  
15          grouse habitat objectives (see Table 4-1).

16          **Objective 1.3:** Promote the leveraging of funding from all sources when addressing  
17          sage-grouse habitat enhancement, rehabilitation, or protection projects.

18          **Management Action 1.3.1:** Develop a database to share with interested  
19          agencies and groups to maximize efforts and leverage funding.

20          **Management Action 1.3.2:** Encourage and support the Commission on Off-  
21          Highway Vehicles to expend OHV registration funds to enhance, rehabilitate, or  
22          protect sage-grouse habitat.

1 **8.0 CONSERVATION CREDIT SYSTEM**

2 The Nevada Conservation Credit System (CCS)<sup>3</sup> is a pro-active solution that provides net  
3 conservation benefits for sage-grouse, while balancing the need for continued human  
4 activities vital to the Nevada economy and way of life. The CCS creates new incentives  
5 for private landowners and public land managers to preserve, enhance, restore, and  
6 reduce impacts to important habitat for the species.

7 The CCS is a market-based mechanism that quantifies conservation outcomes (credits)  
8 and impacts from anthropogenic disturbances (debits), defines standards for market  
9 transactions, and reports the overall progress from implementation of conservation  
10 actions throughout the sage-grouse range within Nevada. The CCS establishes the  
11 policy, operations, and tools necessary to facilitate effective and efficient conservation  
12 investments. The CCS is intended to provide regulatory certainty for industries by  
13 addressing compensatory mitigation needs whether or not the species is listed under  
14 the ESA.

15 Goal and Scope

16 The goal of the CCS is to achieve no net unmitigated loss of sage-grouse habitat due to  
17 anthropogenic disturbances with the Sage-grouse Management Area (SGMA; Figure 1),  
18 in order to stop the decline of sage-grouse populations. Proposed anthropogenic  
19 disturbances, as defined in Section 3.0 of this plan, must seek to avoid, minimize, and  
20 mitigate impacts to sage-grouse habitat. After all possibilities to avoid and minimize  
21 impacts to sage-grouse habitat have been exhausted, residual adverse impacts are  
22 required to be offset by mitigation requirements as determined through the CCS.

23 Anthropogenic disturbances occurring on BLM and USFS lands within the SGMA require  
24 timely consultation with the SETT. Private landowners are not required to mitigate

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<sup>3</sup> For more information please refer to *The Nevada Conservation Credit System Manual on the Sagebrush Ecosystem Program's Website*: <http://sagebrusheco.nv.gov/CCS/ConservationCreditSystem/>

1 anthropogenic disturbances on their land, but are welcome to voluntarily generate, sell,  
2 or purchase credits in the CCS. The CCS scope can be expanded in the future to support  
3 additional conservation needs or to include other states within the sage-grouse range.

4 *Roles and Responsibilities*

5 The *DCNR Division of State Lands*, holds ultimate authority over CCS design, operations,  
6 and management. The *SEC* oversees CCS operations and approves changes to the  
7 program. The *Administrator* manages the CCS's day-to-day operations, ongoing  
8 program improvements, facilitates transactions, and reports programmatic results. CCS  
9 operations are also informed by *Resource Managers* (e.g. BLM, NDOW, USFS, USFWS)  
10 and by a *Science Committee* to ensure it functions according to current laws, policies,  
11 and regulations and is consistent with the best available science.

12 *Credit Developers* are landowners, land managers, organizations, or agencies, that  
13 generate, register, or sell credits in the CCS. *Credit Buyers* are entities that purchase  
14 mitigation credits to offset impacts from anthropogenic disturbances or to meet other  
15 conservation objectives.

16 *What are Credits and Debits?*

17 *Credits* are the currency of the CCS. A credit represents a verified "*functional acre*" that  
18 meets the durability criteria defined by the CCS, such as committing to a Customized  
19 Management Plan that outlines actions to maintain habitat performance and to limit  
20 risks from future impact for the duration of the project. A functional acre is based on  
21 habitat quality ("function") relative to optimal conditions, and quantity (acres). This is  
22 determined through the Habitat Quantification Tool (HQT; see below).

23 Debits are similar to credits, but are the quantified and verified units of functional acres  
24 lost due to an anthropogenic disturbance.

25 *Generating and Purchasing Credits*

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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1 The steps for generating and purchasing credits are depicted below. Blue chevrons  
2 signify the steps undertaken to generate credits and green chevrons represent the  
3 purchase of credits.



4

### 5 Calculating Credits and Debits

6 *Habitat Quantification Tool (HQT)*<sup>4</sup>

7 The HQT is a method to estimate habitat quality and quantify debits and credits. The  
8 HQT uses a set of metrics, applied at multiple spatial scales, to evaluate vegetation and  
9 environmental conditions related to sage-grouse habitat quality and quantity. The HQT  
10 enables the CCS to create incentives to generate credits on the most beneficial locations  
11 for the sage-grouse, and to minimize impacts to existing high quality habitat.

12 The HQT is used to calculate scores for each type of seasonal habitat. Habitat condition  
13 is expressed in functional acres, relative to optimal conditions. The functional acre  
14 score is adjusted to account for indirect effects of the local area surrounding the site.  
15 Mitigation ratios are then applied.

16 *Mitigation Ratios*

17 Mitigation ratios incorporate biologically significant factors that cannot currently be  
18 incorporated into the HQT. They enable offset transactions to achieve a net benefit for  
19 the species by ensuring the functional acres of credit acquired is greater than the  
20 functional acres of debit. The mitigation ratios create incentives for avoidance of  
21 impacts and preservation, enhancement, and restoration of habitat in important areas.  
22 This includes avoiding and protecting seasonal habitats that are scarce for a particular  
23 population. Mitigation ratios are determined by the:

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<sup>4</sup> For more information please refer to *The Habitat Quantification Tool Scientific Methods Document* on the Sagebrush Ecosystem Program's Website: <http://sagebrusheco.nv.gov/CCS/ConservationCreditSystem/>

- 1 • Habitat Importance Factor: The value is influenced by the location of a credit or
- 2 debit site in Core, Priority, or General Management Areas (Figure 3)
- 3 • Seasonal Habitat Scarcity Factor: This is determined by the portion of seasonal
- 4 habitat type (nesting, late-brood rearing, and winter) impacted.

5 Debits are adjusted by its proximity to potential credit sites (Proximity Factor) to

6 determine the credit obligation that must be purchased to offset a debit project. This

7 incentivizes mitigation in close proximity to debit sites.

8

9 Regulatory Assurances

10 *Verification*

11 Credit and debit projects require verification to ensure that calculations represent a true

12 and accurate account of on-the-ground implementation and habitat function and

13 assurances that projects are maintained over time. *Third-party Verifiers*, trained and

14 certified by the Administrator, conduct independent checks using the HQT methods.

15 *Credit Verification* is required before credit release and every fifth year. *Debit*

16 *Verification* is required before the project begins, during project implementation, and

17 when debits end or decrease. Periodic spot checks and audits are also required.

18 *Reserve Account*

19 The *Reserve Account* is a pool of credits, functioning like an insurance fund, that replace

20 credits that are invalidated due to a force majeure event or competing land uses. A

21 percentage of credits from each credit transaction are deposited into the reserve

22 account. Factors that determine the Reserve Account contribution are: base

23 contribution, probability of wildfire, and probability of competing land uses. In the case

24 of unintentional credit reversal due to force majeure or competing land use events, the

25 Administrator withdraws credits from the reserve account to cover the invalidated

26 credits at no cost to the Credit Developer for a limited duration until the original credits

27 are replaced.



1 *Additionality and Stacking of Multiple Payments*

2 Projects that generate credits must be additional to activities that would occur in the  
3 absence of the CCS. On private and public lands, a credit project is additional if the land  
4 manager is not already performing or planning to perform conservation actions using  
5 funding sources other than the CCS. *Stacking* allows a Credit Developer to receive  
6 multiple payments for conservation actions on the same area of land, but only receive  
7 credit for the additional conservation benefits.

8 *Durability*

9 The CCS uses *performance assurances* on private and public lands to ensure the  
10 durability of credits generated throughout the life of the credit project. Performance  
11 assurances are implemented through contract terms and financial instruments. The  
12 *durability of projects on public lands* is safeguarded using land protection mechanisms  
13 (e.g. right-of-ways), financial instruments (e.g. contract performance bonds) and the  
14 Reserve Account.

15 *Additional Policy Considerations*

16 The *Service Area*, the area in which credits can be exchanged, for the CCS is the SGMA.

17 *Baseline* is the starting point from which credits and debits are measured. Credits and  
18 debits represent the change from baseline that results from implementing a project.  
19 *Credit baseline* is a state-wide standard for each seasonal habitat type equivalent to the  
20 average habitat functionality. Project sites must be at the credit baseline, at a minimum  
21 to begin generating credits. *Debit baseline* is the pre-project habitat function value for  
22 each seasonal habitat type for a proposed debit project.

23 *Credit release* occurs when performance criteria milestones which increase habitat  
24 function are achieved on a credit site. Specific performance criteria are defined in each  
25 project's *Customized Management Plan*. Credit release can occur in single or multiple  
26 increments depending on credit project type; including: *preservation projects*,  
27 *enhancement projects*, and *restoration projects*.

- 1 The CCS requires that the *project life* of a credit project must be equal to or greater than
- 2 the life of the debit project it is offsetting.
- 3 *Credit variability* may occur due to annual climatic or other natural conditions affecting
- 4 habitat functionality. As a result, a *tolerance threshold* of 10% below habitat function is
- 5 applied.

DRAFT

1 **9.0 MONITORING AND ADAPTIVE MANAGEMENT**

2 Monitoring and adaptive management are key components of successful resource  
3 management plans in order to derive the greatest environmental benefit given limited  
4 agency resources. Incorporation of these strategies in the planning process will help  
5 ensure management actions identified in this State Plan are implemented and effective  
6 at achieving the intended goals and objectives for the benefit of sage-grouse. Adaptive  
7 management allows for information learned through monitoring to be integrated into  
8 iterative decision making that can be adjusted as outcomes from management actions  
9 become better understood (Williams et al. 2009). Management that does not achieve  
10 intended goals and objectives can be modified through adaptive management and  
11 contribute to the emerging understanding of management action response, sage-grouse  
12 habitat requirements, sage-grouse behavior, and sagebrush ecosystem processes.

13 **Monitoring**

14 Two main categories of monitoring will occur for the State Plan: 1) inventory monitoring  
15 and 2) management action monitoring. These are described below. Within each of  
16 these categories, additional concepts will need to be considered: short and long-term  
17 monitoring, monitoring at multiple scales (e.g., site, landscape) (Swanson et al. 2006),  
18 and, for management action monitoring, monitoring for implementation and for  
19 effectiveness.

20 Inventory monitoring assesses the status/extent/condition of sage-grouse populations  
21 (e.g., sage-grouse population trends over time), sage-grouse habitat (e.g., gain/loss of  
22 sage-grouse habitat over time), and of the threats to sage-grouse (as identified in the  
23 State Plan, e.g., how many acres of PJ encroachment are occurring each year).  
24 Inventory monitoring provides a quantified understanding of changes in condition and  
25 extent of sage-grouse populations, habitat, and threats over time and space, can help  
26 prioritize efforts, and can help evaluate success in meeting short and long-term goals  
27 and objectives. Many of the state and federal agencies already provide a level of

1 inventory monitoring appropriate for the needs of the state plan and this will be  
2 incorporated into the state's monitoring plan- more detail is provided below.

3 This State Plan identified many management actions to address specific threats.  
4 Monitoring of management actions is necessary to ensure that individual actions are  
5 accomplishing what they are intended to do. The state will require that monitoring  
6 plans be developed for all management actions that occur under direction of the State  
7 Plan, including those intended to ameliorate threats outlined in Section 7.0. These plans  
8 will include monitoring for implementation and monitoring for effectiveness.  
9 Monitoring associated with the Conservation Credit System (see Section 8.0) is detailed  
10 in the Habitat Quantification Tool Scientific Methods Document<sup>5</sup> {currently under  
11 development}.

12 Management Action monitoring for implementation includes: 1) a brief description of  
13 the project and the work completed, 2) pre- and post-project photographs, 3) short  
14 term monitoring of weather (especially precipitation and when it occurs) and other  
15 events (e.g., fire, floods, insects, infestations, etc.) and on-going management (e.g.,  
16 season of livestock use and/or livestock, horse, and wildlife population levels) (Swanson  
17 et al. 2006), 4) lessons learned during implementation, 5) discussion of impacts to uses  
18 and other resources, 6) recommendations on the implementation of future projects, 7)  
19 maintenance performed, and 8) accounting of expenditures.

20 Management Action monitoring for effectiveness can play a key role in demonstrating  
21 the accountability, success, and value of management investments. Effectiveness  
22 monitoring is designed to determine if the project is effective at meeting its biological  
23 and ecological goals and objectives. Project-scale effectiveness monitoring measures  
24 environmental parameters to ascertain whether management actions were effective in  
25 creating the desired change(s) in habitat conditions and species response. There are at  
26 least three important reasons to conduct project-scale effectiveness monitoring on a

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<sup>5</sup> For more information please refer to The Habitat Quantification Tool Scientific Methods Document on the Sagebrush Ecosystem Program's Website: <http://sagebrusheco.nv.gov/CCS/ConservationCreditSystem/>

1 management action or a change in management: 1) to determine the biotic and abiotic  
2 changes resulting on, and adjacent to, the treatment area; 2) to determine if treatment  
3 and management actions were effective in meeting the objective(s); and 3) to learn  
4 from the management actions and to incorporate new knowledge in future treatment  
5 design.

6 The following concepts should be addressed in all monitoring plans:

- 7 • Identify the site conditions and the reasons for implementing management  
8 action(s) at the site.
- 9 • Set monitoring objectives and indicators – these should quantitatively or  
10 qualitatively evaluate the project objectives that will be used to evaluate project  
11 implementation and effectiveness in meeting objectives. Effectiveness in  
12 meeting objectives will need to be evaluated for both habitat changes and when  
13 appropriate and feasible, sage-grouse response.
- 14 • Identify anticipated site attribute changes in response to the management  
15 action, target values, and time frame under which changes are anticipated.
- 16 • Select monitoring sites and determine appropriate, effective methods. Include  
17 control or reference sites in method design. Baseline data on these will allow  
18 before, after, with, and without comparisons.
- 19 • Monitoring will be conducted for a minimum of three years or until  
20 management objects are met. If, as part of the treatment, grazing was  
21 restricted for a time period, post-treatment, monitoring should be conducted  
22 for three year following resumption of grazing practices. In addition, monitoring  
23 will be conducted at 10 years post-treatment as a follow-up for long-term  
24 monitoring.
- 25 • Any monitoring plans will be prepared jointly between a project proponent,  
26 relevant stakeholders (such as permittees), and land management agency, with  
27 final approval from the land management agency.

1 See resources listed at end of this section for development on monitoring plans.

2 **Adaptive Management**

3 Adaptive management as it relates to sage-grouse and their habitat is a structured,  
4 iterative process of robust decision making in the face of uncertainty, with an aim to  
5 reduce uncertainty over time through continued monitoring. Because adaptive  
6 management is based on a learning system, it improves long term management  
7 outcomes. The challenge in using the adaptive management approach lies in finding the  
8 correct balance between gaining knowledge to improve management in the future and  
9 achieving the best short-term outcomes based on current knowledge (Allan and Stankey  
10 2009).

11 “An adaptive management approach involves exploring alternatives  
12 ways to meet management objectives, predicting the outcomes of  
13 alternatives based on the current state of knowledge, implementing one  
14 or more of these alternatives, monitoring to learn about the impacts of  
15 management actions, and then using the results to update knowledge  
16 and adjust management actions” (Williams et al. 2009).

17 Adaptive management takes monitoring to the next level by establishing, prior to  
18 implementation, a framework from which an iterative implementation and learning  
19 process can be instituted. Adaptive management implements “learning by doing” and  
20 provides flexibility to act in the face of uncertainty.

21 The following are additional steps to monitoring that need to be addressed to  
22 successfully implement adaptive management (Adapted from Williams et al. 2009):

- 23
- 24 • Identify and record potential drivers of change in the system, threats to the  
25 system, and opportunities for beneficial actions. These should be incorporated  
26 in the model of response for each management action.
  - 27 • Development of “models” or hypotheses of the expected response and  
rationale.

- 1       • Development of how management actions should be adjusted following results  
2       from monitoring (this should include a set of potential alternatives to  
3       management based on the outcome of specific monitoring, allowing for  
4       flexibility while based on best available science).
- 5       • Implementation of iterative adjustments to management actions following  
6       implementation of actions and results of monitoring, following the process  
7       outlined in previous bullet.
- 8       • Project and management plans have to incorporate the ability to change  
9       methods when monitoring of the projects or management actions provides  
10      indication or when new science from research or other monitoring project  
11      emerges.

12      Consideration of when adaptive management is appropriate:

- 13      • Decision making must be able to be made in an iterative process
- 14      • Monitoring data must be available to decision makers
- 15      • It is not appropriate when risks associated with learning based-decision making  
16      are too high (i.e., if risk of management action is unknown and worst case  
17      scenario has irreversible consequences) in comparison to the risks of not doing  
18      so (i.e., the consequences of doing nothing).

19      See resources listed at end of this section for development on adaptive management  
20      plans.

21      **Incorporation of Monitoring and Adaptive Management into the State Plan**

22      A multi-scale monitoring approach is necessary as sage-grouse are a landscape species  
23      and conservation is scale dependent to the extent that management actions are  
24      implemented within or across seasonal habitats to benefit populations. The state needs  
25      to track the extent of threats to sage-grouse (e.g., fire, pinyon-juniper encroachment,  
26      etc.), through inventory monitoring, as well as the efforts to manage the threats (e.g.,  
27      number of acres of pinyon-juniper treated), through management action monitoring, to

1 be able to effectively manage for the species and understand progress in goals and  
2 objectives outlined in this plan. Many of the components of inventory monitoring are  
3 already being monitored by state and federal agencies. The SETT will work to compile  
4 annual monitoring reports that provide a synopsis of these monitoring efforts and  
5 metrics relevant to the state plans goals and objectives. The state will engage with  
6 stakeholders responsible for these components to facilitate when possible and ensure  
7 monitoring occurs. For components that are not currently under purview of agencies,  
8 the SETT will work to engage relevant stakeholders to develop a monitoring program.  
9 The SETT will develop a comprehensive database to store all monitoring information  
10 which will be accessible to the public.

11 To meet the need for the management action monitoring requirement, all management  
12 actions overseen by the SEP will develop monitoring plans following guidance provided  
13 in this section. If participating in projects developed by BLM/USFS, NDOW, NDA, NDF,  
14 or other agencies, projects should include similar aspects to those outlined here, if not  
15 all. As well, all management actions should be reviewed and those appropriate for the  
16 adaptive management process should additionally develop an adaptive management  
17 plan in coordination with the monitoring plan.

18 Table 9.1 presents the components (sage-grouse threats, habitat, and populations) that  
19 will be monitored to be able to better understand the level of threat to sage-grouse and  
20 sagebrush ecosystems and what can be done to respond to the threat for sage-grouse.  
21 Elements for inventory monitoring and management action monitoring are outlined as  
22 well as the relevant agencies from which monitoring information will be gathered.  
23 Monitoring information will be collected across the extent of SGMA and provided at the  
24 site, landscape, PMU and state levels and by core, priority, and general management  
25 areas. In addition, known changes in extent between years will be documented and  
26 total extent of treatments will be summarized.

27 Additional monitoring components may be identified in the future for inclusion in the  
28 annual monitoring report (above and beyond those monitoring components listed in



1 Table 9.1). As additional threats to sage-grouse are identified, components and leading  
 2 indicators should be included in inventory monitoring and management action  
 3 monitoring to better assess and understand the severity of threat and progress in  
 4 ameliorating the threat.

5 In addition to the annual monitoring report and database, the state of Nevada will  
 6 develop a methods document for monitoring plans and adaptive management plans  
 7 that provide recommended, standardized protocols and methods for objective based  
 8 monitoring that are consistent with other land jurisdictions and agencies, including BLM,  
 9 USFS, NDOW, and others.

10 **Table 9.1. Inventory and Management Action Monitoring for the State Plan**

Monitoring Component	Agency/Entity	Inventory Monitoring Elements	Management Action Monitoring Elements <sup>6</sup>
<b>Sage-grouse Parameters</b>			
Sage-grouse habitat	NDOW, BLM, USFS, SETT CCS	<ul style="list-style-type: none"> <li>• Land Health Assessments (BLM) (site, landscape, and state scale)</li> <li>• Resource Implementation Protocol for Condition Assessment Matrices (USFS)</li> <li>• Sagebrush landscape cover (BLM EIS)<sup>7</sup> (landscape scale)</li> <li>• CCS- functional acres lost due to debit projects, functional acres gained due to credit projects (concept of no net unmitigated loss)</li> </ul>	<ul style="list-style-type: none"> <li>• Treatment conducted and effectiveness of treatments (these would be treatments not included in subsequent monitoring components, e.g., meadow restoration)</li> </ul>
Sage-grouse	NDOW, BLM, USGS	<ul style="list-style-type: none"> <li>• Lek, lek cluster, PMU</li> </ul>	<ul style="list-style-type: none"> <li>• At this point, the state plan</li> </ul>

<sup>6</sup> Scale of Management Action Monitoring is dependent on management action details specified in Section 7.0

<sup>7</sup> As part of the Greater Sage-grouse Northern California and Nevada Sub-regional EIS/LUPA, the BLM/USFS have developed a Monitoring Framework (Appendix E of that document) that outlines monitoring for habitat loss, habitat degradation, and population trend (in coordination with NDOW) at the 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> order scale (Stiver et al. 2010).

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<b>Monitoring Component</b>	<b>Agency/Entity</b>	<b>Inventory Monitoring Elements</b>	<b>Management Action Monitoring Elements<sup>6</sup></b>
populations		counts, populations and trends <sup>1</sup> (all scales) <ul style="list-style-type: none"> <li>• Telemetry data collection (site to landscape scale-project dependent)</li> </ul>	does not outline management actions directly influencing sage-grouse numbers. Management actions outlined directly affect habitat and indirectly affect populations.
<b>Threat</b>			
Fire	BLM, USFS, NDF, NDOW <sup>8</sup>	<ul style="list-style-type: none"> <li>• Number of fire starts per year</li> <li>• Number and size of fires in each vegetation community, and resistance and resilience classes</li> </ul>	<ul style="list-style-type: none"> <li>• Number of fires “successfully” suppressed (&lt;1,000 acres)</li> <li>• Number of catastrophic fires</li> <li>• Fuels management treatments (conducted and effectiveness of treatments)</li> <li>• Rehabilitation efforts for each fire (implementation and effectiveness of treatments)</li> <li>• Document coordination efforts that aid in efficient and effective fire pre-suppress and suppression management</li> </ul>
Cheatgrass	SETT will coordinate with researchers to determine extent BLM, USFS, NDOW, Nevada Cheatgrass Action Team	<ul style="list-style-type: none"> <li>• Extent (spatial distribution, acres, and density of invasion)</li> </ul>	<ul style="list-style-type: none"> <li>• Treatments conducted and effectiveness of treatments (includes restoration efforts or efforts to improve resilience/resistance)</li> <li>•</li> </ul>
Noxious weeds <sup>9</sup> Medusahead (Taeniatherum caput-medusae) Hoary cress (Cardaria draba) Russian knapweed (Acroptilon repens) Leafy spurge (Euphorbia esula) Perennial pepperweed (Lepidium latifolium) Canada thistle (Cirsium arvense)	NDA, NDOW, University of Nevada Cooperative Extension, and SETT	<ul style="list-style-type: none"> <li>• Extent (spatial distribution, acres, and density of invasion)</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Treatments conducted and effectiveness of treatments</li> </ul>

<sup>8</sup> NDOW is engaged with BLM on post –fire treatment monitoring and provides monitoring in conjunction with these agencies post ES&R efforts.

<sup>9</sup> Weed species in Nevada identified as having, generally, greatest impact to sage-grouse habitats (S. Espinosa, B. Schultz personal communication)

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Monitoring Component	Agency/Entity	Inventory Monitoring Elements	Management Action Monitoring Elements <sup>6</sup>
Rush skeleton weed (Chondrilla juncea) Yellow starthistle (Centaurea solstitialis) Musk thistle (Carduus nutans) Spotted knapweed (Centaurea maculosa) Scotch thistle (Onopordum acanthium) Mediterranean sage (Salvia aethiopsis) <u>Other weeds</u> Red Brome (Bromus rubens) Rattlesnake chess (Bromus briziformis) Halogeton (Halogeton gomeratus) Purple mustard (Chorispora tenella)			
Pinyon juniper encroachment	BLM, USFS, NDF, NDOW, SETT, all stakeholders (including researchers at University of Nevada, Reno, and USGS)	<ul style="list-style-type: none"> <li>• Extent (spatial distribution, acres, and density of invasion)</li> </ul>	<ul style="list-style-type: none"> <li>• Treatments conducted and effectiveness of treatments</li> </ul>
Predation	NDOW, Wildlife Services, NDA, and SETT,	<ul style="list-style-type: none"> <li>• Baseline data collected prior to treatments- data will likely be site specific, not SGMA wide (road kill inventories, raven counts, habitat parameters, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Treatments conducted and effectiveness of treatments</li> <li>• Documentation of coordination efforts with city counties, landfills waste managers, livestock owners, research on perching and nest deterrent technology</li> </ul>
WHB populations	BLM, USFS	<ul style="list-style-type: none"> <li>• HMA/WHBT populations</li> <li>• Extent of resources damaged by WHB</li> </ul>	<ul style="list-style-type: none"> <li>• Gathers conducted</li> <li>• Treatments conducted and effectiveness of treatments</li> </ul>

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<b>Monitoring Component</b>	<b>Agency/Entity</b>	<b>Inventory Monitoring Elements</b>	<b>Management Action Monitoring Elements<sup>6</sup></b>
		<ul style="list-style-type: none"> <li>• Understand their timing of use on wetland resources</li> <li>• Trend monitoring regarding maintenance of a thriving natural ecological balance for adjusting AML (BLM 2010)</li> </ul>	
Livestock grazing	BLM, USFS, permittees and stakeholders	<ul style="list-style-type: none"> <li>• Allotment standards and guidelines</li> <li>• Dates of use and/or intensity of use by allotment</li> <li>• Monitoring of attainment of management objectives (Swanson et al. 2006)</li> </ul>	<ul style="list-style-type: none"> <li>• Documentation of changes in management prescriptions to improve management, when appropriate</li> </ul>
Anthropogenic disturbances	SETT, BLM, USFS, other federal agencies, all stakeholders	<ul style="list-style-type: none"> <li>• CCS- functional acres lost due to debit projects, functional acres gained due to credit projects (concept of no net unmitigated loss)</li> <li>• Surface acres impacted</li> <li>• Indirect acres impacted</li> <li>• Identification of existing infrastructure that could be retrofitted, as appropriate (inclusion on the list does not require retrofitting, simply identifying the opportunity)</li> </ul>	<ul style="list-style-type: none"> <li>• Management actions to mitigation for anthropogenic disturbances will be accounted for under the appropriate threat or under habitat and in reporting will be noted as credit projects.</li> <li>• Documentation of implementation of Site Specific Consultation Based Design Features</li> </ul>
Recreation and OHVs	SETT, BLM, USFS, Commission on Off-Highway Vehicles and other stakeholders	<ul style="list-style-type: none"> <li>• Permitted activities</li> <li>• Extent of authorized and unauthorized recreational trails and facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Treatments conducted to restore areas impacted by recreational activities and effectiveness of treatments</li> <li>• Documentation of coordination efforts with recreational groups</li> </ul>
Weather Variability	NOAA, DRI, State Climatologist, NRCS	<ul style="list-style-type: none"> <li>• U.S. Drought Monitor</li> <li>• Hydrologic Report</li> </ul>	<ul style="list-style-type: none"> <li>• Tracking changes in management actions due to</li> </ul>

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**2014 Nevada Greater Sage-grouse Conservation Plan**

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<b>Monitoring Component</b>	<b>Agency/Entity</b>	<b>Inventory Monitoring Elements</b>	<b>Management Action Monitoring Elements<sup>6</sup></b>
	Water and Climate Center, USGS BLM, USFS, and other stakeholders	<ul style="list-style-type: none"><li>• Climate data records (current and historic)</li></ul>	weather variability
Land Ownership	All agencies	<ul style="list-style-type: none"><li>• Tracking of land ownership changes</li></ul>	<ul style="list-style-type: none"><li>• Tracking of how changes in management actions due to land ownership affects habitat</li></ul>

1

2 **Existing monitoring and adaptive management plans and methods**

3 There are several key plans and methods that have been developed for use in Nevada  
4 and across the range of the sage-grouse. These should be referenced in the  
5 development of resource objectives, management action monitoring plans, and  
6 adaptive management plans. The following are recommended for consideration in the  
7 State Plan:

8 Monitoring

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10 V. Metscher, B. Perryman, P. Tueller, D. Weaver and D. Wilson. 2006. Nevada  
11 rangeland monitoring handbook. Second Edition. Educational Bulletin 06-03.  
12 University of Nevada Cooperative Extension, Natural Resources Conservation  
13 Service, Bureau of Land Management, U.S. Forest Service. USA. 84 pp. Available  
14 at: <https://www.unce.unr.edu/publications/files/ag/2006/eb0603.pdf>

15 Stiver, S.J., E.T. Rinkes, and D.E. Naugle. 2010. Sage-grouse Habitat Assessment  
16 Framework. U.S. Bureau of Land Management. Unpublished Report. U.S.  
17 Bureau of Land Management, Idaho State Office, Boise, Idaho. Available at:  
18 [http://sagemap.wr.usgs.gov/docs/rs/SG%20HABITAT%20ASSESSMENT%202010.](http://sagemap.wr.usgs.gov/docs/rs/SG%20HABITAT%20ASSESSMENT%202010.pdf)  
19 pdf

20 Bureau of Land Management. 2010 Wild Horses and Burros Management Handbook. H-  
21 4700-1. Available at:

1 [http://www.blm.gov/pgdata/etc/medialib/blm/wo/Information\\_Resources\\_Management/policy/blm\\_handbook.Par.11148.File.dat/H-4700-1.pdf](http://www.blm.gov/pgdata/etc/medialib/blm/wo/Information_Resources_Management/policy/blm_handbook.Par.11148.File.dat/H-4700-1.pdf)

3 *BLM AIM Strategy*

4 Toevs, G.R., J.W. Karl, J.J. Taylor, C.S. Spurrier, M. Karl, M.R. Bobo, and J.E. Herrick. 2011.  
5 Consistent Indicators and Methods and a Scalable Sample Design to Meet  
6 Assessment, Inventory, and Monitoring Information Needs Across Scales.  
7 Rangelands: 14-20.

8 Toevs, G.R., J.J. Taylor, C.S. Spurrier, W.C. MacKinnon, and M.R. Bobo. 2011. Bureau of  
9 Land Management Assessment, Inventory, and Monitoring Strategy: For  
10 Integrated Renewable Resources Management. Department of the Interior,  
11 Bureau of Land Management, National Operations Center, Denver, CO.  
12 Available at:  
13 [http://www.blm.gov/pgdata/etc/medialib/blm/wo/Information\\_Resources\\_Management/policy/ib\\_attachments/2012.Par.53766.File.dat/IB2012-080\\_att1.pdf](http://www.blm.gov/pgdata/etc/medialib/blm/wo/Information_Resources_Management/policy/ib_attachments/2012.Par.53766.File.dat/IB2012-080_att1.pdf)

15 *BLM AIM Monitoring Methods*

16 Herrick, J.E., J.W. Van Zee, K.M. Havstad, L.M. Burkett, and W.G. Whitford. 2009.  
17 Monitoring Manual for Grassland, Shrubland and Savanna Ecosystems. Volume  
18 I: Quick Start. Department of Agriculture, Agricultural Research Service, Jornada  
19 Experimental Range, Las Cruces, NM. Available at:  
20 [http://www.ntc.blm.gov/krc/uploads/281/Monitoring%20Manual%20for%20Grassland,%20Shrubland%20and%20Savanna%20Ecosystems%20Vol.%20I\\_Quick%20Start.pdf](http://www.ntc.blm.gov/krc/uploads/281/Monitoring%20Manual%20for%20Grassland,%20Shrubland%20and%20Savanna%20Ecosystems%20Vol.%20I_Quick%20Start.pdf)

23 Herrick, J.E., J.W. Van Zee, K.M. Havstad, L.M. Burkett, and W.G. Whitford. 2009.  
24 Monitoring Manual for Grassland, Shrubland and Savanna Ecosystems. Volume  
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2 Cruces, NM. Available at:  
3 <http://www.ntc.blm.gov/krc/uploads/281/Monitoring%20Manual%20for%20Grassland,%20Shrubland%20and%20Savanna%20Ecosystems%20Vol.%20II.pdf>  
4

5 Adaptive Management

6 Williams, B. K., R. C. Szaro, and C. D. Shapiro. 2009. Adaptive Management: The U.S.  
7 Department of the Interior Technical Guide. Adaptive Management Working  
8 Group, U.S. Department of the Interior, Washington, DC. Available at:  
9 <http://www.doi.gov/initiatives/AdaptiveManagement/TechGuide.pdf>

10 *Cooperative monitoring*

11 The state of Nevada recognizes the value of monitoring as well as the time and effort  
12 required to do so. Given limiting staffing and resources of agencies, the SETT will  
13 encourage and facilitate cooperative monitoring by interested stakeholders. The BLM  
14 has established a cooperative monitoring agreement for grazing allotment permittees to  
15 help conduct rangeland health assessments on their permitted allotments (See  
16 Attachment XXX). In compilation of the first annual monitoring report and through  
17 discussions with stakeholders, the SETT will work to develop similar cooperative  
18 monitoring agreements for additional resources with additional agencies and will  
19 facilitate development of such to meet the needs for training and quality control.

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1 **APPENDICES**

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**Appendix A:  
Site Specific Consultation Based Design Features**

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1 **Site Specific Consultation Based Design Features**

2 Site Specific Consultation Based Design Features (here after Design Features) are used  
3 to minimize impacts to [GRSGsage-grouse](#) and its habitat due to disturbances on a  
4 project by project and site by site basis. Design Features in the [State](#) of Nevada’s plan  
5 apply to all newly proposed projects and modifications to existing projects. Existing  
6 projects within SGMA~~s~~ are not currently subject to Design Features; however all Design  
7 Features listed below, according to program area, are required to be considered as part  
8 of the SETT Consultation process. The [State](#) of Nevada recognizes that all Design  
9 Features may not be practical, feasible, or appropriate in all instances considering site  
10 conditions and project specifications, nor is this list completely exhaustive. Therefore,  
11 the SETT in coordination with the project proponent, will consider all of the listed Design  
12 Features on a site-specific basis. If certain Design Features are determined to not be  
13 practical, feasible, or appropriate for the specific project site, the SETT will document  
14 the reasons the Design Features were not selected. The SETT may also consider  
15 additional Design Features that may minimize impacts to [GRSGsage-grouse](#) and its  
16 habitat that are not specifically listed here and document the reasons for selecting the  
17 additional Design Features.

Roads

18 [These Design Features apply to all new roads, whether a component of a mining/ energy](#)  
19 [project or for any other purpose.](#) {{NOTE TO SEC: All of the Design Features for Roads  
20 have already been approved by the SEC under the “Mineral Development” section. This  
21 just creates an individual “Roads” section.}}

22 • [Do not construct new roads where roads already in existence, could be used or](#)  
23 [upgraded to meet the needs of the project or operation.](#)

24  
25 • [Design roads to an appropriate standard, no higher than necessary, to accommodate](#)  
26 [their intended purpose and level of use.](#)

## 2014 Nevada Greater Sage-grouse Conservation Plan

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- 1 [• Locate roads outside of key sage-grouse seasonal habitat, such as leks and late brood](#)
- 2 [rearing habitat areas.](#)
- 3 [• Coordinate road construction and use among ROW or SUA holders, when the option is](#)
- 4 [available.](#)
- 5 [• Avoid constructing roads within riparian areas and ephemeral drainages \(note that](#)
- 6 [such construction may require permitting under section 401 and 404 of the Clean Water](#)
- 7 [Act\).](#)
- 8 [• Construct road crossings at right angles to ephemeral drainages and stream crossings.](#)
- 9 [• Work with local governments to enforce speed limits and design roads to be driven at](#)
- 10 [speeds appropriate to minimize vehicle/wildlife collisions.](#)
- 11 [• Establish trip restrictions \(Lyon and Anderson 2003\) or minimization through use of](#)
- 12 [remote access technology, such as telemetry and remote well control if applicable \(e.g.,](#)
- 13 [Supervisory Control and Data Acquisition\).](#)
- 14 [• Do not issue ROWs or SUAs to counties on newly constructed mining/ energy](#)
- 15 [development roads, unless for a temporary use consistent with all other terms and](#)
- 16 [conditions included in this document.](#)
- 17 [• Restrict vehicle traffic to authorized users on newly constructed routes by employing](#)
- 18 [traffic control devices such as signage, gates, fencing etc.](#)
- 19 [• Dust abatement on roads and pads will be based on road use, road condition, season,](#)
- 20 [and other pertinent considerations.](#)
- 21 [• Close and rehabilitate duplicate roads by restoring original landform and establishing](#)
- 22 [desired vegetation, in cooperation with landholders and where appropriate authority](#)
- 23 [exists to do so.](#)



- 1 [• Do not construct new roads when there are existing roads that could be used or](#)  
2 [upgraded to meet the needs of the project or operations.](#)

### Mineral Resources

3

#### 4 Fluid Minerals

##### 5 *Roads*

- 6 ~~• Do not construct new roads where roads already in existence, could be used or~~  
7 ~~upgraded to meet the needs of the project or operation.~~  
8  
9 ~~• Design roads to an appropriate standard, no higher than necessary, to accommodate~~  
10 ~~their intended purpose and level of use.~~  
11 ~~• Locate roads outside of key GRSG seasonal habitat, such as leks and late brood rearing~~  
12 ~~habitat areas.~~  
13 ~~• Coordinate road construction and use among ROW or SUA holders, when the option is~~  
14 ~~available.~~  
15 ~~• Avoid constructing roads within riparian areas and ephemeral drainages (note that~~  
16 ~~such construction may require permitting under section 401 and 404 of the Clean Water~~  
17 ~~Act).~~  
18 ~~• Construct road crossings at right angles to ephemeral drainages and stream crossings.~~  
19 ~~• Work with local governments to enforce speed limits and design roads to be driven at~~  
20 ~~speeds appropriate to minimize vehicle/wildlife collisions.~~

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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- 1 • ~~Establish trip restrictions (Lyon and Anderson 2003) or minimization through use of~~
- 2 ~~remote access technology, such as telemetry and remote well control (e.g., Supervisory~~
- 3 ~~Control and Data Acquisition).~~
  
- 4 • ~~Do not issue ROWs or SUAs to counties on newly constructed energy development~~
- 5 ~~roads, unless for a temporary use consistent with all other terms and conditions~~
- 6 ~~included in this document.~~
  
- 7 • ~~Restrict vehicle traffic to authorized users on newly constructed routes by employing~~
- 8 ~~traffic control devices such as signage, gates, fencing etc.~~
  
- 9 • ~~Dust abatement on roads and pads will be based on road use, road condition, season,~~
- 10 ~~and other pertinent considerations.~~
  
- 11 • ~~Close and rehabilitate duplicate roads by restoring original landform and establishing~~
- 12 ~~desired vegetation, in cooperation with landholders and where appropriate authority~~
- 13 ~~exists to do so.~~

### 14 *Operations*

- 15 • Cluster disturbances associated with operations and facilities as close as possible,
- 16 unless site specific conditions indicate that disturbances to sagebrush habitat would be
- 17 reduced if operations and facilities locations would best fit a unique special
- 18 arrangement.
  
- 19 • [Minimize site disturbance through site analysis and facility planning.](#)
  
- 20 • Use directional and horizontal drilling to reduce surface disturbance.
  
- 21 • Place infrastructure in already disturbed locations [where the habitat has not been](#)
- 22 [restored.](#)

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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- 1 • Apply a phased development approach with concurrent reclamation through a  
2 coordination process among relevant parties.
- 3 • Place liquid gathering facilities outside of ~~priority areas~~ [Core Management Areas](#). Have  
4 no tanks at well locations within [Core Management Areas](#) ~~priority habitat areas~~ to  
5 minimize truck traffic, and perching and nesting sites for ravens and raptors.
- 6 • Pipelines should be under or immediately adjacent to the road.
- 7 • Reduce motor vehicle travel during field operations through development and  
8 implementation of remote monitoring and control systems plans.
- 9 To reduce predator perching, limit the construction of vertical facilities and fences to  
10 the minimum number and amount needed.
- 11 • Site and/or minimize linear ROWs or SUAs to reduce disturbance to [GRSG sage-grouse](#)  
12 habitats.
- 13 • Co-locate new utility developments (power lines, pipelines, etc.) and transportation  
14 routes with existing utility or transportation corridors where adequate spacing  
15 separation can be achieved in order to preserve grid reliability and ongoing  
16 maintenance capability.
- 17 • Bury distribution power lines of up to 35kV where ground disturbance can be  
18 minimized. Where technology and economic factors allow, bury higher kV power lines.
- 19 • Power lines, flow lines, and small pipelines should be co-located under or immediately  
20 adjacent to existing roads.
- 21 • Permanent structures, which create movement (e.g., pump jack) should be designed  
22 or sited to minimize impacts to [GRSG sage-grouse](#).

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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- 1 • Preclude [GRSGsage-grouse](#) access to pits and tanks through use of practical  
2 techniques (e.g. covers, netting, birdballs, location, etc.).
- 3 • Equip tanks and other above-ground facilities with structures or devices that  
4 discourage nesting and/ or perching of raptors, corvids, and other predators.
- 5 • Control the spread and effects of non-native, invasive plant species [Nevada](#)  
6 [Department of Agriculture listed noxious weeds \(NAC 555.010, classes A through C,](#)  
7 [inclusive\) and undesirable non-native plant species \(Gelbard and Belnap 2003, Bergquist](#)  
8 [et al. 2007\)](#)~~(Evangelista et al. 2011)~~ (e.g., by washing vehicles and equipment, minimize  
9 unnecessary surface disturbance). All projects within SGMA~~s~~ should have a noxious  
10 weed management plan in place prior to construction and operations.
- 11 • Use only closed-loop systems for drilling operations and no reserve pits.
- 12 • Reduce the potential for creating excessive or unintended mosquito habitat and  
13 associated risk of West Nile Virus impacts to [GRSGsage-grouse](#). This can be  
14 implemented through minimizing pit and pond construction and, where necessary, size  
15 of pits and ponds (Doherty 2007).
- 16 • Remove or re-inject produced water to reduce habitat for mosquitoes that vector  
17 West Nile virus. If surface disposal of produced water continues and West Nile virus has  
18 been identified as a concern in the project area, use the following steps for reservoir  
19 design to limit favorable mosquito habitat (Dohery 2007):
  - 20 – Overbuild size of ponds for muddy and non-vegetated shorelines.
  - 21 – Build steep shorelines to decrease vegetation and increase wave actions.  
22 Ponds with steep shorelines will be equipped with NDOW approved wildlife  
23 escape ramps.
  - 24 – Avoid flooding terrestrial vegetation in flat terrain or low lying areas.

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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1           – Construct dams or impoundments that restrict down slope seepage or  
2 overflow.

3           – Line the channel where discharge water flows into the pond with crushed  
4 rock.

5           – Construct spillway with steep sides and line it with crushed rock.

6           – Treat waters with larvicides to reduce mosquito production where water  
7 occurs on the surface if necessary.

8       • Limit noise to less than 10 decibels above ambient measures at sunrise at the  
9 perimeter of a lek during active lek season (Patricelli et al. 2010, Blickley et al. 2012).

10       • Require noise shields when drilling during the lek, nesting, brood-rearing, or wintering  
11 season.

12       • Fit new transmission towers with anti-perch devices (Lammers and Collopy 2007).

13       • Design and construct fences consistent with NRCS fence standards and specifications  
14 Code 382 and, where appropriate, use fence markers (Sage Grouse Initiative 2013).

15       • Locate new compressor stations outside priority habitats. Otherwise design them to  
16 reduce noise that may be directed towards priority habitat.

17       • Implement site keeping practices to preclude the accumulation of debris, solid waste,  
18 putrescible wastes, and other potential anthropogenic subsidies for predators of  
19 [GRSGsage-grouse](#) (Bui et al 2010).

20       • Locate man camps outside of priority habitats.

21           *Reclamation*

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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- 1 • Include objectives for ensuring habitat rehabilitation to meet [GRSGsage-grouse](#)  
2 habitat needs in reclamation practices/sites (Pyke 2011). Address post reclamation  
3 management in reclamation plans such that goals and objectives are to protect and  
4 improve [GRSGsage-grouse](#) habitat needs.
- 5 •Reseed all areas requiring reclamation with a seed mixture appropriate for the soils,  
6 climate, and landform of the area to ensure recovery of the ecological processes and  
7 habitat features of the potential natural vegetation, and to prevent the invasion of  
8 noxious weeds or other exotic invasive species. Long-term monitoring is required to  
9 determine success.
- 10 • Maximize the area of interim and concurrent reclamation on long-term access roads  
11 and well pads, including reshaping, topsoiling and revegetating cut-and-fill slopes. [In](#)  
12 [coordination with appropriate agencies, consider development of fuel breaks in](#)  
13 [reclamation design.](#)
- 14 •Restore disturbed areas at final reclamation to the near pre-disturbance landforms and  
15 the desired plant community.
- 16 • Irrigate interim reclamation if necessary for establishing seedlings more quickly and if  
17 water rights are available.
- 18 • Utilize mulching techniques to expedite reclamation and to protect soils.
- 19 • Ensure that all authorized ground disturbing projects have vegetation reclamation  
20 standards suitable for the site type prior to construction and ensure that reclamation to  
21 appropriate [GRSGsage-grouse](#) standards are budgeted for in the reclamation bond.

22 *Locatable Minerals*

23

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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1 For consistency, ~~GRSG~~[sage-grouse](#) ~~Site-Specific Consultation-Based~~ Design Features for  
2 locatable minerals shall be considered in association with state and federal permitting  
3 requirements including bonding, if applicable.

4

### 5 *Roads*

6 ~~• Design roads to an appropriate standard no higher than necessary to accommodate~~  
7 ~~their intended purpose and level of use.~~

8 ~~• Locate roads outside of key GRSG seasonal habitat, such as leks and late brood rearing~~  
9 ~~habitat areas.~~

10 ~~• Coordinate road construction and use among ROW or SUA holders when the option is~~  
11 ~~available.~~

12 ~~• Avoid constructing roads within riparian areas and ephemeral drainages~~

13 ~~• Construct road crossing at right angles to ephemeral drainages and stream crossings.~~

14 ~~• Work with local governments to enforce speed limits and design roads to be driven at~~  
15 ~~speeds appropriate to minimize vehicle/wildlife collisions.~~

16 ~~• Do not issue ROWs or SUAs to counties on newly constructed mining development~~  
17 ~~roads, unless for a temporary use consistent with all other terms and conditions~~  
18 ~~included in this document.~~

19 ~~• Restrict vehicle traffic to authorized users on newly constructed routes by employing~~  
20 ~~traffic control devices such as signage, gates, fencing etc.~~

21 ~~• Dust abatement on roads will be based on road use, road condition, season, and other~~  
22 ~~pertinent considerations~~

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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1 ~~• Close and rehabilitate duplicate roads, by restoring original landform and establishing~~  
2 ~~desired vegetation, in cooperation with landholders and where appropriate authority~~  
3 ~~exists to do so. • Do not construct new roads when there are existing roads that could be~~  
4 ~~used or upgraded to meet the needs of the project or operations.~~

5 ~~• Avoid constructing roads within riparian areas and ephemeral drainages~~

### 6 *Operations*

7 • Cluster disturbances associated with operations and facilities as close as possible  
8 unless site specific conditions indicate that disturbances to sagebrush habitat would be  
9 reduced if operations and facilities locations would best fit a unique special  
10 arrangement.

11 • Minimize site disturbance through site analysis and facility planning.

12 • Place infrastructure in already disturbed locations where the habitat has not been  
13 restored.

14 • Apply a phased development approach with concurrent reclamation through a  
15 coordination process among relevant parties.

16 • Reduce motor vehicle travel during field operations through development and  
17 implementation of remote monitoring and control systems plans.

18 • To reduce predator perching, limit the construction of vertical facilities and fences to  
19 the minimum number and amount needed.

20 • Site and/or minimize linear ROWs or SUAs to reduce disturbance to ~~GRSG~~sage-grouse  
21 habitats.



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## 2014 Nevada Greater Sage-grouse Conservation Plan

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- 1 • Co-locate new utility developments (power lines, pipelines, etc.) and transportation  
2 routes with existing utility or transportation corridors where adequate separation can  
3 be achieved in order to preserve grid reliability and ongoing maintenance.
- 4 • Bury distributive power lines of up to 35 kV where ground disturbance can be  
5 minimized. Where technology and economic factors allow, bury higher kV power lines.
- 6 • Preclude ~~GRSG~~[sage-grouse](#) access to pits and tanks through use of practical  
7 techniques (e.g. covers, netting, birdballs, location, etc.).
- 8 • Equip tanks and other above ground facilities with structures or devices that  
9 discourage nesting and/or perching of raptors, corvids, and other predators.
- 10 • Control the spread and effects of Nevada Department of Agriculture listed noxious  
11 weeds (NAC 555.010, classes A through C, inclusive) and undesirable non-native plant  
12 species (Gelbard and Belnap 2003, Bergquist et al. 2007). All projects within SGMA  
13 should have a noxious weed management plan in place prior to construction and  
14 operations.
- 15 • Reduce the potential for creating excessive or unintended mosquito habitat and  
16 associated risk of West Nile Virus impacts to sage-grouse. This can be implemented  
17 through minimizing pit and pond construction and, where necessary, size of pits and  
18 ponds ~~Where West Nile virus has been identified as a concern, restrict pond and~~  
19 ~~impoundment construction to reduce or eliminate threats from West Nile virus~~ (Doherty  
20 2007).
- 21 • Remove or re-inject produced water to reduce habitat for mosquitoes that vector  
22 West Nile virus. If surface disposal of produced water continues and West Nile virus has  
23 been identified as a concern in the project area, use the steps described under “Fluid  
24 Minerals” for reservoir design to limit favorable mosquito habitat (Dohery 2007).

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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- 1 • [Limit noise to less than 10 decibels above ambient measures at sunrise at the](#)
- 2 [perimeter of a lek during active lek season \(Patricelli et al. 2010, Blickley et al. 2012\).](#)
- 3 • [Require noise shields when drilling during the lek, nesting, brood-rearing, or wintering](#)
- 4 [season.](#)
- 5 • [Fit new transmission towers with anti-perch devices \(Lammers and Collopy 2007\).](#)
- 6 • Design and construct fences consistent with NRCS fence standards and specifications
- 7 Code 382 and, where appropriate, use fence markers (Sage Grouse Initiative
- 8 2013)~~around sumps.~~
- 9 • Implement site keeping practices to preclude the accumulation of debris, solid waste,
- 10 putrescible wastes, and other potential anthropogenic subsidies for predators of
- 11 ~~GRSG~~[sage-grouse](#) (Bui et al 2010).
- 12 • Locate man camps outside of priority ~~GRSG~~[sage-grouse](#) habitats.

### 13 *Reclamation*

- 14 • Include objectives for ensuring habitat rehabilitation to meet ~~GRSG~~[sage-grouse](#)
- 15 habitat needs in reclamation practices/sites (Pyke 2011). Address post reclamation
- 16 management in reclamation plans such that goals and objective are to protect and
- 17 improve ~~GRSG~~[sage-grouse](#) habitat needs.
- 18 • Reseed all areas requiring reclamation with a seed mixture appropriate for the soils,
- 19 climate, and landform of the area to ensure recovery of the ecological processes and
- 20 habitat features of the potential natural vegetation, and to prevent the invasion of
- 21 noxious weeds or other exotic invasive species. Long-term monitoring is required to
- 22 determine success.
- 23 ~~• Reclamation In coordination with appropriate agencies, consider development of fuel~~
- 24 ~~breaks in reclamation design.~~

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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- 1 • Maximize the area of interim and concurrent reclamation on infrastructure related  
2 disturbances through reshaping/regrading, topsoiling and revegetating cut and fill  
3 slopes. In coordination with appropriate agencies, consider development of fuel breaks  
4 in reclamation design.
- 5 • Ensure that all authorized ground disturbing projects have vegetation reclamation  
6 standards suitable for the site type prior to construction and ensure that reclamation to  
7 appropriate ~~GRSG~~[sage-grouse](#) standards are budgeted for in the reclamation bond.
- 8 ~~• Reseed all areas requiring reclamation with a seed mixture appropriate for the soils,  
9 climate, and landform of the area to ensure recovery of the ecological processes and  
10 habitat features of the potential natural vegetation, and to prevent the invasion of  
11 noxious weeds or other exotic invasive species. Long-term monitoring is required to  
12 determine success.~~
- 13 • Restore disturbed areas at final reclamation to near pre-disturbance landform and the  
14 desired plant community.
- 15 • Irrigate interim reclamation as necessary during dry periods when valid water rights  
16 exist.
- 17 • Utilize mulching techniques to expedite reclamation.

18 [Salable and Non-Energy Minerals](#)

19 [Operations](#)

- 20 [• Cluster disturbances associated with operations and facilities as close as possible](#)  
21 [unless site specific conditions indicate that disturbances to sagebrush habitat would be](#)  
22 [reduced if operations and facilities locations would best fit a unique special](#)  
23 [arrangement.](#)
- 24 [• Minimize site disturbance though site analysis and facility planning.](#)

---

## 2014 Nevada Greater Sage-grouse Conservation Plan

---

- 1 • Place infrastructure in already disturbed locations where the habitat has not been  
2 restored.
- 3 • Apply a phased development approach with concurrent reclamation through a  
4 coordination process among relevant parties.
- 5 • Reduce motor vehicle travel during field operations through development and  
6 implementation of remote monitoring and control systems plans.
- 7 • To reduce predator perching, limit the construction of vertical facilities and fences to  
8 the minimum number and amount needed.
- 9 • Site and/or minimize linear ROWs or SUAs to reduce disturbance to sage-grouse  
10 habitats.
- 11 • Co-locate new utility developments (power lines, pipelines, etc.) and transportation  
12 routes with existing utility or transportation corridors where adequate separation can be  
13 achieved in order to preserve grid reliability and ongoing maintenance.
- 14 • Bury distributive power lines of up to 35 kV where ground disturbance can be  
15 minimized. Where technology and economic factors allow, bury higher kV power lines.
- 16 • Preclude sage-grouse access to pits and tanks through use of practical techniques (e.g.  
17 covers, netting, birdballs, location, etc.).
- 18 • Equip tanks and other above ground facilities with structures or devices that  
19 discourage nesting and/or perching of raptors, corvids, and other predators.
- 20 • Control the spread and effects of Nevada Department of Agriculture listed noxious  
21 weeds (NAC 555.010, classes A through C, inclusive) and undesirable non-native plant  
22 species (Gelbard and Belnap 2003, Bergquist et al. 2007).. All projects within SGMA  
23 should have a noxious weed management plan in place prior to construction and  
24 operations.

---

## 2014 Nevada Greater Sage-grouse Conservation Plan

---

- 1 • Reduce the potential for creating excessive or unintended mosquito habitat and  
2 associated risk of West Nile Virus impacts to sage-grouse. This can be implemented  
3 through minimizing pit and pond construction and, where necessary, size of pits and  
4 ponds. Where West Nile virus has been identified as a concern, restrict pond and  
5 impoundment construction to reduce or eliminate threats from West Nile virus (Doherty  
6 2007).
- 7 • Remove or re-inject produced water to reduce habitat for mosquitoes that vector West  
8 Nile virus. If surface disposal of produced water continues and West Nile virus has been  
9 identified as a concern in the project area, use the steps described under “Fluid Minerals”  
10 for reservoir design to limit favorable mosquito habitat (Doherty 2007).
- 11 • Limit noise to less than 10 decibels above ambient measures at sunrise at the  
12 perimeter of a lek during active lek season (Patricelli et al. 2010, Blickley et al. 2012).
- 13 • Require noise shields when drilling during the lek, nesting, brood-rearing, or wintering  
14 season.
- 15 • Fit new transmission towers with anti-perch devices (Lammers and Collopy 2007).
- 16 • Design and construct fences consistent with NRCS fence standards and specifications  
17 Code 382 and, where appropriate, use fence markers (Sage Grouse Initiative  
18 2013) around sumps.
- 19 • Implement site keeping practices to preclude the accumulation of debris, solid waste,  
20 putrescible wastes, and other potential anthropogenic subsidies for predators of sage-  
21 grouse (Bui et al 2010).
- 22 • Locate man camps outside of priority sage-grouse habitats.

23 Reclamation

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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- 1 • Include objectives for ensuring habitat rehabilitation to meet sage-grouse habitat  
2 needs in reclamation practices/sites (Pyke 2011). Address post reclamation  
3 management in reclamation plans such that goals and objective are to protect and  
4 improve sage-grouse habitat needs.
- 5 •Reseed all areas requiring reclamation with a seed mixture appropriate for the soils,  
6 climate, and landform of the area to ensure recovery of the ecological processes and  
7 habitat features of the potential natural vegetation, and to prevent the invasion of  
8 noxious weeds or other exotic invasive species. Long-term monitoring is required to  
9 determine success.
- 10 • Reclamation In coordination with appropriate agencies, consider development of fuel  
11 breaks in reclamation design.
- 12 • Maximize the area of interim and concurrent reclamation on infrastructure related  
13 disturbances through reshaping/regrading, topsoiling and revegetating cut and fill  
14 slopes. In coordination with appropriate agencies, consider development of fuel breaks  
15 in reclamation design.
- 16 • Ensure that all authorized ground disturbing projects have vegetation reclamation  
17 standards suitable for the site type prior to construction and ensure that reclamation to  
18 appropriate sage-grouse standards are budgeted for in the reclamation bond.
- 19 • Reseed all areas requiring reclamation with a seed mixture appropriate for the soils,  
20 climate, and landform of the area to ensure recovery of the ecological processes and  
21 habitat features of the potential natural vegetation, and to prevent the invasion of  
22 noxious weeds or other exotic invasive species. Long-term monitoring is required to  
23 determine success.
- 24 • Restore disturbed areas at final reclamation to near pre-disturbance landform and the  
25 desired plant community.

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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1 • [Irrigate interim reclamation as necessary during dry periods when valid water rights](#)  
2 [exist.](#)

3 • [Utilize mulching techniques to expedite reclamation.](#)

### *Fuels and Fire Management and Post-Fire Rehabilitation*

4

5 • Fire and fuels operations should focus on protecting and enhancing occupied  
6 [GRSGsage-grouse](#) habitats. This includes taking into account the feasibility and cost of  
7 future rehabilitation efforts during Wildland Fire Decision Support Tree planning and  
8 general fire operations in all occupied [GRSGsage-grouse](#) habitats

#### Fuels Management

10 • Design fuels treatment objective to protect existing sagebrush ecosystems, modify fire  
11 behavior, restore ecological function, and create landscape patterns which most benefit  
12 [GRSGsage-grouse](#) habitat.

13 • [Incorporate resilience and resistance and other best available science concepts into](#)  
14 [fuels treatment planning activities](#)

15 • Provide training to fuels treatment personnel on [GRSGsage-grouse](#) biology, habitat  
16 requirements, and identification of areas used locally.

17 • [Fuels treatment project design in sagebrush and pinyon-juniper encroached sagebrush](#)  
18 [habitats must be based on the best available science. At a minimum, project proponents](#)  
19 [will consider best available science including: use of site appropriate state and transition](#)  
20 [models; ecological site characteristics; and, the evaluation of resilience to disturbance](#)  
21 [and resistance to invasive annual grasses.](#)

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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- 1 • [Ensure the proposed prescription burning plans meet the need of the resource via a](#)  
2 [comprehensive review by proponents, fire managers, wildlife biologists and resource](#)  
3 [managers, at a minimum.](#)
  
- 4 • Use prescriptive fire use ~~only in areason~~ [project sites](#) where state and transition  
5 models, ecological site descriptions and [existing](#) high [site](#) resilience/resistance [are used](#)  
6 [as principle components of the prescription planning process. The desired outcome of](#)  
7 [all prescription fire use in appropriate sagebrush habitat is to](#)~~can~~ minimize undesirable  
8 effects on vegetation or soils (e.g., minimize mortality of desirable perennial plant  
9 species and reduce risk of annual grass invasion).
  
- 10 • Ensure proposed sagebrush treatments are planned with full interdisciplinary input  
11 pursuant to NEPA and coordination with NDOW and SETT, and that treatment acreage is  
12 conservative in the context of surrounding ~~GRSG~~[sage-grouse](#) seasonal habitats and  
13 landscape.
  
- 14 • [Limit the use of intentional fires in sagebrush habitats, including prescribed burning or](#)  
15 [breeding and winter habitats.](#)
  
- 16 • Ensure that treatments are configured in a manner that promotes use by ~~GRSG~~[sage-](#)  
17 [grouse.](#)
  
- 18 • Incorporate roads and natural fuel breaks into fuel break design
  
- 19 • Utilize supervised livestock grazing as a tool to reduce fuels and control non-native  
20 species.
  
- 21 • Power-wash all vehicles and equipment involved in fuels management activities prior  
22 to entering the area to minimize the introduction of undesirable and/or invasive plant  
23 species.



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## 2014 Nevada Greater Sage-grouse Conservation Plan

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- 1 • Design vegetation treatments in areas of high fire frequency, which facilitate  
2 firefighter safety, reduce the potential acres burned, and reduce the fire risk to  
3 [GRSGsage-grouse](#) habitat. Additionally, develop maps for [GRSGsage-grouse](#) habitat,  
4 which spatially display existing fuels treatments that can be used to assist suppression  
5 activities.
- 6 • For implementing specific [GRSGsage-grouse](#) habitat rehabilitation projects in annual  
7 grasslands, first give priority to sites which are adjacent to or surrounded by PPMA or  
8 that reestablish continuity between priority habitats. Annual grasslands are a second  
9 priority for rehabilitation when the sites are not adjacent to PPMA, but within two miles  
10 of PPMA. The third priority for annual grassland habitat restoration projects are sites  
11 beyond two miles of PPMA. The intent is to focus restoration outward from existing,  
12 intact habitat. Within these criteria, projects should be prioritized based on probability  
13 of success based on current condition, ecological site and state-and-transition modeling  
14 if available.
- 15 • As funding and logistics permit, rehabilitate annual grasslands to a species  
16 composition characterized by perennial grasses, forbs, and shrubs with the goal of  
17 establishing a functional ecological site based on state-and-transition modeling and  
18 ecological site descriptions.
- 19 • Emphasize the use of native plant species, recognizing that non-native species may be  
20 necessary depending on the availability of native seed and prevailing site conditions
- 21 • Based on ecological site descriptions, remove encroaching pinyon and juniper trees  
22 from areas within at least 3 kilometers (1.86 miles) of occupied [GRSGsage-grouse](#) leks  
23 (Connelly et al. 2000) and from other limiting habitats at least 850 meters (e.g., nesting,  
24 wintering and brood rearing) to reduce the availability of perch sites for avian predators,  
25 as resources permit (Connelly et al 2000, Casazza et al. 2011).

- 1 • Protect wildland areas from wildfire originating on private lands, infrastructure  
2 corridors, and recreational areas.
- 3 • Reduce the risk of vehicle- or human-caused wildfires and the spread of invasive  
4 species by installing and maintaining fuel breaks and/or planting perennial vegetation  
5 (e.g., green-strips) paralleling road rights-of-way. Strategically place and maintain pre-  
6 treated strips/areas (e.g., mowing, herbicide application, targeted grazing, etc.) to aid in  
7 controlling wildfire, should wildfire occur near SGMA or important restoration areas  
8 (such as where investments in restoration have already been made).
- 9 • All fuels management projects should include short and long term monitoring to  
10 ensure success and provide for adaptive management. Multiple revegetation entries  
11 may be required to ensure success.

12 Fire Management

- 13 • Compile state and local government/District/Forest level information into state-wide  
14 [GRSGsage-grouse](#) tool boxes. Tool boxes will contain maps, listing of state and local  
15 resource advisors, contact information, local guidance, and other relevant information  
16 for each state and local government/District/Forest, which will be aggregated into a  
17 state-wide document.
- 18 • Provide localized maps to dispatch offices and extended attack incident commanders  
19 for use in prioritizing wildfire suppression resources and designing suppression tactics.
- 20 • Assign a state and/or local resource advisor with [GRSGsage-grouse](#) expertise, or who  
21 has access to [GRSGsage-grouse](#) expertise, to all extended attack fires in or near  
22 [GRSGsage-grouse](#) habitat. Prior to the fire season, provide training to [GRSGsage-grouse](#)  
23 resource advisors on wildfire suppression organization, objectives, tactics, and  
24 procedures to develop a cadre of qualified individuals. Involve state wildlife agency  
25 expertise in fire operations through:

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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- 1           – instructing resource advisors during preseason trainings;
- 2           – qualification as resource advisors;
- 3           – coordination with resource advisors during fire incidents;
- 4           – contributing to incident planning with information such as habitat features or
- 5           other key data useful in fire decision making.
- 6       • On critical fire weather days, pre-position additional local, state, and federal fire
- 7       suppression resources to optimize a quick and efficient response in [GRSGsage-grouse](#)
- 8       habitat areas.
- 9       • Encourage local resources (volunteer fire departments and county equipment) to
- 10       respond to initial attack efforts and further encourage these agencies to obtain required
- 11       ICS training to be able to run incidents for longer periods when needed during critical
- 12       fire periods.
- 13       • During periods of multiple fires, ensure line officers, in consultation with state and
- 14       local resource advisors are involved in setting priorities.
- 15       • To the extent possible, locate wildfire suppression facilities (i.e., base camps, spike
- 16       camps, drop points, staging areas, heli-bases, etc.) in areas where physical disturbance
- 17       to [GRSGsage-grouse](#) habitat can be minimized. These include disturbed areas,
- 18       grasslands, near roads/trails or in other areas where there is existing disturbance or
- 19       minimal sagebrush cover.
- 20       • Power-wash all firefighting vehicles, to the extent possible, including engines, water
- 21       tenders, personnel vehicles, and all-terrain vehicles (ATV) prior to deploying in or near
- 22       [GRSGsage-grouse](#) habitat areas to minimize noxious weed spread. Minimize
- 23       unnecessary cross-country vehicle travel during fire operations in [GRSGsage-grouse](#)
- 24       habitat.

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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- 1 • Minimize burnout operations in key [GRSGsage-grouse](#) habitat areas by constructing  
2 direct fire line whenever safe and practical to do so.
- 3 • Utilize retardant, mechanized equipment, and other available resources to minimize  
4 burned acreage during initial attack.
- 5 • As safety allows, conduct mop-up where the black adjoins unburned islands, dog legs,  
6 or other habitat features to minimize sagebrush loss.
- 7 • Adequately document fire operation activities in [GRSGsage-grouse](#) habitat for  
8 potential follow-up coordination activities.
- 9 • Coordinate and utilize local fire suppression resources to the maximum extent  
10 possible.
- 11 • Eliminate “burning out” islands and fingers of unburned [GRSGsage-grouse](#) habitat,  
12 unless lives and property are at risk.

### 13 Post-Fire Rehabilitation

- 14 • Emphasis should be on fall revegetation to ensure greatest likelihood of success.
- 15 • All post-fire rehabilitation projects should include short- and long-term monitoring to  
16 ensure success and provide for adaptive management. Multiple revegetation entries  
17 may be required to ensure success. Emphasize the use of native plant species in post-  
18 fire rehabilitation, recognizing that non-native species may be necessary depending on  
19 the availability of native seed and prevailing site conditions. Selected species maintain  
20 site ecological function based on pre-burn conditions and anticipated threat of invasive  
21 and noxious weed establishment. Use ecological site descriptions and state-and-  
22 transition models if available.
- 23 • Reseed all burned areas requiring rehabilitation with a seed mixture appropriate for  
24 the soils, climate, and landform of the area to ensure recovery of the ecological

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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1 processes and habitat features of the potential natural vegetation, and to prevent the  
2 invasion of noxious weeds or other exotic invasive species. Long-term monitoring is  
3 required to determine success.

4 • Power-wash all vehicles and equipment prior to entering [GRSGsage-grouse](#) habitat  
5 rehabilitation areas to minimize noxious weed spread. Minimize unnecessary cross-  
6 country vehicle travel during rehabilitation operations in [GRSGsage-grouse](#) habitat.

7 • Consider Integrated Pest Management (IPM) practices to ensure greater initial control  
8 of invasive and noxious plant species.

9 • [GRSGsage-grouse](#) seasonal habitat requirements must be considered when selecting  
10 revegetation materials in all burned potential and current [GRSGsage-grouse](#) habitat.

11 • [Prioritize shrub island plantings in large burn areas which may lack sufficient shrub](#)  
12 [seed sources, in order to ensure the reestablishment of the shrub component.](#)

### *Vegetation Management*

13

14 • [Avoid sagebrush removal or manipulation in sage-grouse breeding or wintering](#)  
15 [habitats.](#)

16 • [Retain all remaining large intact sagebrush patches, particularly at low elevations.](#)

17 • [Limit habitat treatments in winter ranges to actions that maintain or expand current](#)  
18 [levels of sagebrush available in winter.](#)

### *Lands and Realty*

19

20 [Leases and Permits](#)

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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- 1 • Permits and leases must include stipulations to minimize impacts to [GRSGsage-grouse](#)  
2 and [GRSGsage-grouse](#) habitat based upon the specific activity and ensure no net loss of  
3 [GRSGsage-grouse](#) habitat.

4 Right-of-Ways (ROWs)

- 5 • Work with existing rights-of-way holders to encourage installation of perch guards on  
6 all poles where existing utility poles are located within 5 km (3.2 miles) of known leks  
7 (Coates et al. 2013).
- 8 • Use existing utility corridors and consolidate rights-of-way to reduce habitat loss,  
9 degradation, and fragmentation. Install new power lines within existing utility corridors.
- 10 • Where [GRSGsage-grouse](#) conservation opportunities exist, BLM field offices and  
11 Forests should work in cooperation with rights-of-way holders to conduct maintenance  
12 and operation activities, authorized under an approved ROW grant, to avoid and  
13 minimize effect on [GRSGsage-grouse](#) habitat.
- 14 • When renewing or amending ROWs, assess the impacts of ongoing use of the ROW to  
15 [GRSGsage-grouse](#) habitat and incorporate stipulations, which minimize such impacts to  
16 the extent allowed by law.
- 17 • Conduct pre-application meetings with the BLM or Forest Service and SETT for all new  
18 ROW proposals consistent with the ROW regulations (43 CFR 2804.10) and consistent  
19 with current renewable energy ROW policy guidance (WO-IM-2011-061, issued  
20 February, 2011). Assess the impact of the proposed ROW on [GRSGsage-grouse](#) and its  
21 habitat, and implement the following: Ensure that reasonable alternatives for siting the  
22 ROW outside of [GRSGsage-grouse](#) habitat or within a BLM designated utility corridor are  
23 considered and analyzed in the NEPA document; and identify technically feasible best  
24 management practices, conditions, (e.g., siting, burying power lines) that may be  
25 implemented in order to eliminate or minimize impacts.

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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- 1 • Maximize the area of interim reclamation on long-term access roads and well pads  
2 including reshaping, topsoiling and revegetating cut and fill slopes.
- 3 • Authorize ROWs for wind energy development projects by applying appropriate  
4 Design Features [as specified in the BLM Wind Energy Development EIS](#) (BLM ~~Wind~~  
5 ~~Energy Development EIS, June~~ 2005), land use restrictions, stipulations, and mitigation  
6 measures.
- 7 • Bury distribution power lines of up to 35kV where ground disturbance can be  
8 minimized. Where technology and economic factors allow, bury higher kV power lines.
- 9 • Where existing leases or rights-of-way (ROWs) have had some level of development  
10 (road, fence, well, etc.) and are no longer in use, reclaim the site by removing these  
11 features, without interfering with valid pre-existing rights, and restoring the habitat.
- 12 • Within designated ROW corridors encumbered by existing ROW authorizations: new  
13 ROWs should be co-located to the extent practical and feasible with the entire footprint  
14 of the proposed project adjacent to or within the existing disturbance associated with  
15 the authorized ROWs taking into account operational requirements and safety.
- 16 • Subject to valid, existing rights, where new ROWs associated with valid existing rights  
17 are required, co-locate new ROWs within existing ROWs or where it best minimizes  
18 sage-grouse impacts. Use existing roads, or realignments as described above, to access  
19 valid existing rights that are not yet developed. If valid existing rights cannot be  
20 accessed via existing roads, then build any new road constructed to the minimum  
21 standard necessary.
- 22 • Upon project completion, roads used for commercial access on public lands would be  
23 reclaimed, unless, based on site-specific analysis, the route provides specific benefits for  
24 public access and does not contribute to resource conflicts.

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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- 1 • Construct new power lines outside of sage-grouse habitat wherever possible. If power  
2 lines cannot be sited outside of sage-grouse habitat, site power lines in the least suitable  
3 habitat possible or bury power lines,
- 4 • Remove power lines that traverse important sage-grouse habitats when facilities being  
5 serviced are no longer in use or when projects are completed.
- 6 • Install anti-perching and anti-nesting measures on new tall structures, such as power  
7 lines, commensurate with the design of the structures.

### *Travel and Transportation*

- 8
- 9 • Work with local government to enforce speed limits and design roads to be driven at  
10 speeds appropriate to minimize vehicle/wildlife collisions.
- 11 • Conduct rehabilitation of roads, primitive roads, and trails not designated in travel  
12 management plans where such plans exist and have been approved for implementation.  
13 This also includes primitive route/roads that were not designated in wilderness study  
14 areas and within lands managed for wilderness characteristics that have been selected  
15 for protection, with due consideration given to any historical significance of existing  
16 trails.
- 17 • When reseeding roads, primitive roads, and trails, use appropriate seed mixes and  
18 consider the use of transplanted sagebrush in order to meet sage-grouse habitat  
19 restoration objectives ([Table 4-1](#)). Where invasive annual grasses are present, herbicides  
20 may be used to enhance the effectiveness of any seeding and to also establish islands of  
21 desirable species for dispersion.
- 22 • Use existing roads, or realignments to access valid existing rights that are not yet  
23 developed. If valid existing rights cannot be accessed via existing roads, then any new



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## 2014 Nevada Greater Sage-grouse Conservation Plan

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1 roads would be constructed to the minimum standard necessary to support the  
2 intended use.

3 • Work with local governments to minimize upgrading of existing routes that would  
4 change route category (road, primitive road, or trail) or capacity unless the upgrading  
5 would have minimal impact on sage-grouse habitat, is necessary for motorist safety, or  
6 eliminates the need to construct a new road, while providing for the intended use.

7 • Manage on-road travel and OHV use in key grouse areas to avoid disturbance during  
8 critical times such as winter and nesting periods.

9 • Consider road removal, realignment, or seasonal closures where appropriate to avoid  
10 degradation of habitat and /or to avoid disturbance during critical periods of the sage-  
11 grouse life cycle

### Recreation

12

13 • Special recreation permits must have stipulations to minimize impacts to [GRSGsage-](#)  
14 [grouse](#) and [GRSGsage-grouse](#) habitat based upon the specific activity and ensures no  
15 net unmitigated loss of [GRSGsage-grouse](#) habitat.

16 • Issue special recreation permits with appropriate distance and timing restrictions to  
17 minimize impacts to seasonal sage-grouse habitat.

18 • Develop trail mapping, and educational campaigns to reduce recreational impacts on  
19 [GRSGsage-grouse](#), including effects of cross country travel.

20 • [Where feasible, locate recreation trails strategically to create or augment fuel breaks](#)  
21 [in the margins of sage-grouse habitats and landscapes and not create roads or trails](#)  
22 [where they cause net negative direct and indirect impacts.](#)

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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- 1 [• Take measures to minimize or reduce activities and to avoid an ambient noise level](#)  
2 [increase >10 dB at the edge of leks during the lekking season generally, March 1 through](#)  
3 [May 15 from one hour before sunrise until 9:00 AM.](#)

### Energy Development and Infrastructure

- 4  
5 • Adopt standards outlined in *Nevada Energy and Infrastructure Development Standards*  
6 *to Conserve Greater Sage-grouse Populations and Their Habitats*, April 2010, pgs. 25-29.

### Wild Horses and Burros

- 7  
8 ~~• Prioritize gathers in sage-grouse habitat, unless removals are necessary in other areas~~  
9 ~~to prevent catastrophic environmental issues.~~  
10 ~~• As soon as the population is estimated to exceed high AML, gather to low AML and~~  
11 ~~implement fertility control.~~  
12 ~~• Within sage-grouse habitat, develop or amend herd management area (HMAs) plans~~  
13 ~~to incorporate sage-grouse habitat objectives and management considerations for all~~  
14 ~~HMAs. For all HMAs within sage-grouse habitat, prioritize the evaluation of all~~  
15 ~~appropriate management levels based on indicators that address~~  
16 ~~structure/condition/composition of vegetation and measurements specific to achieving~~  
17 ~~sage-grouse habitat objectives.~~  
18 • When conducting NEPA analysis for wild horse and burro management activities,  
19 water developments or other rangeland improvements for wild horses in sage-grouse  
20 habitat, address the direct and indirect effects to sage-grouse populations and habitat.  
21 Implement any water developments or rangeland improvements using the criteria for  
22 wild horses and burros year around use and consistent with necessary rights and right of

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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1 ways in sage-grouse habitats. [Incorporate the NRCS water development standards and](#)  
2 [additional criteria listed below, including Codes 614, 574, 533, 642, and 516.](#)

### *Livestock Grazing and Range Management*

3

4 • Where applicable and as part of a ranch management plan, use the Natural Resource  
5 Conservation Service (NRCS) Conservation Practice Standards and Specification listed  
6 below. In addition, use the recommendations additions to the standards developed by  
7 NRCS and NDOW as part of NRCS' Sage-grouse Initiative and further expanded by the  
8 state of Nevada in this document:

- 9 - Code 645: Upland Wildlife Habitat Management
- 10 - Code 528: Prescribed Grazing
- 11     ▪ Emphasize rest periods and/ or seasonal deferment when appropriate  
12     as part of the grazing management plan and restoration.
- 13 - Code 614: Water Facilities
- 14     ▪ Avoid placement where existing sagebrush cover will be reduced near a  
15     lek, in nesting habitat, or winter habitat whenever possible. NDOW  
16     recommends structures be at least 1 mile from a lek.
- 17 - Code 574: Spring Development
- 18     ▪ Springs may be developed as long as valid water claims or rights exist  
19     and development shows a net benefit to overall habitat management  
20     within a SGMA.
- 21 - Code 533: Pumping Plant
- 22     ▪ NDOW recommends the structure should not be placed within 3 miles  
23     of a lek to avoid disturbance to nesting sage-grouse.
- 24 - Code 642: Water Well
- 25     ▪ Well placement should encourage dispersion of livestock and provide  
26     for a neutral or no net negative impact to habitat within a SGMA.

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## 2014 Nevada Greater Sage-grouse Conservation Plan

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1 Further water developments will decrease concentrated livestock and  
2 wildlife use and further protect sagebrush habitats.

3 - Code 516: Livestock Pipeline

4     ▪ Pipelines shall be replaced as needed to provide for better dispersion of  
5 livestock.

6     ▪ Pipelines shall be replaced along existing pipelines, roadways, or fences.

7     ▪ Replacement and maintenance of pipelines shall use the least invasive  
8 techniques and extensive work requiring heavy equipment shall be  
9 done in a manner consistent with season of use by the [GRSGsage-](#)  
10 [grouse](#) (i.e. replacing improvements in [GRSGsage-grouse](#) winter habitat  
11 during the summer and replacing improvements in breeding and nesting  
12 habitat during the fall)

13     ▪ Replacement of improvements shall be allowed in order to not  
14 jeopardize existing and valid claims and rights.

15 - Code 410: Grade Stabilization Structure

16     ▪ If possible, avoid the installation of these structures during the late  
17 summer brood rearing period. NDOW recommends structure placement  
18 in mid-September through late November.

19 - Code 382: Fence

20     ▪ If possible, fencing should not be constructed near a lek and should be  
21 avoided in winter habitats near ridges. To make a fence more visible,  
22 use white tipped metal fence posts, securing flagging or reflectors to the  
23 top fence wires, or slide sections of PVC pipe over the top wire  
24 (Stevenson and Reece 2012).

25 • Relocate or modify existing water developments (including locating troughs to further  
26 disperse livestock) that are having a net negative impact on [GRSGsage-grouse](#) habitats.

27 Any changes to existing water developments must be conducted in accordance with

## 2014 Nevada Greater Sage-grouse Conservation Plan

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1 State Water Law and in close consultation with the water right owner in order to avoid a  
2 “taking” of private property water rights.

3 • All troughs should be outfitted with the appropriate type and number of wildlife  
4 escape ramps.

5 • All field and district offices should apply BLM IM 2013-094 or similar methodology  
6 until superseded related to drought management planning.

7 • During the annual grazing application, work with permittees to avoid consistent  
8 concentrated turn-out locations for livestock within approximately 3 miles of known lek  
9 areas during the March 1 to May 15 period. During the March 1 to May 15 period, avoid  
10 domestic sheep use, bedding areas, and herder camps within at least 1.24 miles (2  
11 kilometers) of known lek locations. Utilize land features and roads on maps provided to  
12 the permittee to help demarcate livestock use avoidance areas.

13 • Salting and supplemental feeding locations, temporary and/or mobile watering and  
14 new handling facilities (corrals, chutes, etc.) should be located at least 1/2-mile from  
15 riparian zones, springs, meadows, or 1 mile from active leks in sage-grouse habitat,  
16 unless the pasture is too small or another location offers equal or better habitat  
17 benefits. The distance should be based on local conditions.

### *Surface Disturbing Activities – General*

18  
19 • During the period specified, manage discretionary surface disturbing activities and  
20 uses to prevent disturbance to [GRSGsage-grouse](#) during life cycle periods. Seasonal  
21 protection is identified for the following:

22 -Seasonal protection within three (3) miles of active [GRSGsage-grouse](#) leks from  
23 March 1 through June 15 during lekking hours of 1-hour before sunrise until  
24 10:00 am

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- 1           -Seasonal protection of [GRSGsage-grouse](#) suitable wintering areas from  
2           November 1 through March 31;  
3           -Seasonal protection of [GRSGsage-grouse](#) suitable brood-rearing habitat from  
4           May 15 to August 15.

5           • Implement appropriate time-of-day and/or time-of year restrictions for future  
6           construction and/or maintenance activities in known [GRSGsage-grouse](#) habitat

7           • Reseed all areas requiring reclamation with a seed mixture appropriate for the soils,  
8           climate, and landform of the area to ensure recovery of the ecological processes and  
9           habitat features of the potential natural vegetation, and to prevent the invasion of  
10          noxious weeds or other exotic invasive species. Long-term monitoring is required to  
11          determine success.

12          • [Minimize the footprint of disturbances to avoid or minimize the potential for invasive  
13          plant infestations. When possible, do not remove native vegetation. Monitor, report,  
14          and treat all disturbance sites that become occupied by invasive plants, primarily  
15          cheatgrass, and all state listed noxious weeds. This should be done until the site is free  
16          of invasive and noxious weeds for a period of two growing or germination seasons.  
17          Reporting should be sent to the Nevada Department of Agriculture via the EDDMapS  
18          link on their website.](#)

19          • Maximize the area of interim reclamation on long-term surface disturbing activities to  
20          including reshaping, topsoiling and revegetating areas no longer being disturbed within  
21          the overall project foot print.

### Miscellaneous

22

23          • On BLM and Forest Service-administered Wilderness and Wilderness Study Areas  
24          (WSAs), mechanized equipment may be used to protect or rehabilitate areas of high

- 1 resource concerns or values; however, the use of mechanized equipment will be
- 2 evaluated against potential long-term resource damage.
- 3 • Work with federal, state, and local governments and project proponents to minimize
- 4 anthropogenic subsidies for predators, including ravens.

DRAFT





1 Greater Sage-Grouse Proposed Habitat Objectives

2 Questions and Answers

- 3 1. How were the Proposed Habitat Objectives for GRSG developed?

4 The proposed habitat objectives are a synthesis of existing data across the state of  
5 Nevada and portions of the Bi-State in California. The U.S. Geological Survey was  
6 primarily responsible for much of the synthesis and in translating often complex  
7 habitat relationships and GRSG responses into the proposed habitat objectives which  
8 could be summarized and applied on the ground. A team consisting of  
9 representatives from the U.S. Fish and Wildlife Service, BLM, Nevada Department of  
10 Wildlife, and U.S. Forest Service reviewed the Connelly et al. 2000 guidelines and also  
11 reviewed a bibliography of Nevada-based research made available by the U.S.  
12 Geological Survey. The team then went through each Connelly et al. 2000 guideline  
13 and reviewed it with respect to localized data. The Connelly et al. 2000 guidelines  
14 remained as a default unless refined by new information.

- 15 2. Why are the Proposed Habitat Objectives for GRSG different from Connelly et al.  
16 2000 guidelines?

17 The Connelly et al. 2000 guidelines were a strong synthesis of research until that  
18 time. The guidelines themselves suggest that studies which define GRSG habitat on a  
19 more region-specific basis should be used where supported by research. These  
20 proposed habitat objectives respond to more localized data than the Connelly et al.  
21 2000 guidelines, which relied heavily on data from the eastern half of the range of  
22 GRSG where a perennial grass component is more dominant, and where large-scale  
23 ecological changes such as invasive grasses and conifer encroachment are largely  
24 absent. The proposed habitat objectives reflect those differences.

- 25 3. What are the differences between the Proposed Habitat Objectives for GRSG and  
26 Connelly et al. 2000 guidelines?

1 While numerous differences exist, they are driven primarily by three elements: 1) the  
2 reduced role of perennial grasses for nest concealment as revealed by many nesting  
3 habitat studies throughout Nevada; 2) the increased habitat fragmentation and  
4 degradation as a result of invasive grasses and conifer encroachment; and 3) the  
5 elevated importance of late-summer brood-rearing habitats in the lower  
6 precipitation zones of Nevada. The proposed habitat objectives also reflect recent  
7 research into more complex aspects of habitat juxtaposition, such as the  
8 interspersions of meadow habitat with adjacent sagebrush cover, and the attempt to  
9 quantify other scale-dependent relationships such as the degree of conifer  
10 encroachment.

11 4. Are the Proposed Habitat Objectives for GRSG supported by science?

12 The proposed habitat objectives are supported by numerous studies throughout  
13 Nevada from the Bi-State area in southwestern Nevada and California through the  
14 Elko District into northeastern Nevada. Much of the synthesis of research which  
15 resulted in these proposed habitat objectives for GRSG was conducted by the U.S.  
16 Geological Survey.

17 5. Are the Proposed Habitat Objectives for GRSG consistent with the BLM National  
18 Technical Team report (NTT)?

19 The NTT report suggests the use of local and state seasonal GRSG habitat objectives  
20 when they are available and references the habitat recommendations from Connelly  
21 et al. 2000 if they are not.

22 6. What is the rationale for eliminating the residual cover standard (7 in/18cm) from  
23 GRSG nesting habitat?

24 Localized data indicate that sagebrush canopy cover was the primary indicator of  
25 nesting success within Nevada. Research indicates that the primary deterrent to  
26 successful nesting was predation, specifically by common ravens, an aerial predator.

27 Thus, the research demonstrated that overhead concealment was the primary

1 indicator of nesting success and that the lateral concealment component of  
2 perennial grasses drove nesting success only when sagebrush canopy was deficient.

3 7. What is the difference between tall trees and powerlines?

4 These differ in degree of impact. Generally, powerlines are larger and have much  
5 greater visibility. They contribute to fragmentation and provide potential predators with  
6 larger scale, more pervasive access to habitats.

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**Appendix C:**  
**Inter-Tribal Council of Nevada Resolution**

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# INTER-TRIBAL COUNCIL OF NEVADA, INC.

660 GREENBRAE DR., SUITE 265 • SPARKS, NV 89431  
P.O. BOX 7440 • RENO, NV 89510  
PHONE (775) 355-0600 • FAX (775) 355-0648

**RESOLUTION NO. 12-ITCN-06**

## RESOLUTION OF INTER-TRIBAL COUNCIL OF NEVADA, INC.

### SAGE GROUSE MANAGEMENT AREA ON TRIBAL LANDS

- BATTLE MOUNTAIN BAND COUNCIL
- CARSON COLONY COMMUNITY COUNCIL
- DRESSERVILLE COMMUNITY COUNCIL
- DUCK VALLEY SHOSHONE-PAIUTE BUSINESS COUNCIL
- DUCKWATER SHOSHONE TRIBAL COUNCIL
- ELKO BAND COUNCIL
- ELY SHOSHONE COUNCIL
- FALLON BUSINESS COUNCIL
- FT. McDERMITT PAIUTE-SHOSHONE TRIBES
- GOSHUTE BAND COUNCIL
- LAS VEGAS PAIUTE TRIBAL COUNCIL
- LOVELOCK TRIBAL COUNCIL
- MOAPA BUSINESS COUNCIL
- PYRAMID LAKE TRIBAL COUNCIL
- RENO/SPARKS TRIBAL COUNCIL
- SOUTH FORK BAND COUNCIL
- STEWART COMMUNITY COUNCIL
- SUMMIT LAKE PAIUTE COUNCIL
- TE-MOAK TRIBAL COUNCIL
- TIMBISHA SHOSHONE TRIBE
- WALKER RIVER PAIUTE TRIBAL COUNCIL
- WASHOE TRIBAL COUNCIL
- WELLS BAND COUNCIL
- WINNEMUCCA COLONY COUNCIL
- WOODFORDS COMMUNITY COUNCIL
- YERINGTON PAIUTE TRIBAL COUNCIL
- YOMBA TRIBAL COUNCIL

**WHEREAS,** The Inter-Tribal Council of Nevada, Inc., is organized and operates in accordance with its Constitution and By-Laws, amended in November 1974; and

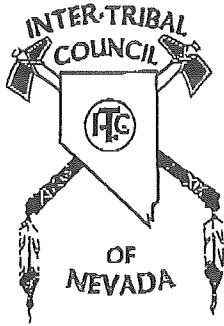
**WHEREAS,** the purposes of Inter-Tribal Council of Nevada, Inc. (ITCN), are stated in its Constitution, Preamble; and

**WHEREAS,** the Executive Board, a body comprised of the twenty-seven (27) representatives of the federally recognized member tribes in the State of Nevada and whose Charter is ratified by these same tribes; and

**WHEREAS,** the Inter-Tribal Council of Nevada has a continuing interest in the health, education and well-being of their Indian people; and

**WHEREAS,** the Inter-Tribal Council of Nevada respects the sovereign to sovereign relationship between the Tribes and the State of Nevada and the federal government; and

**WHEREAS,** a Memorandum of Agreement may be sought on behalf of each individual Tribe to further develop the efforts needed for the management, monitoring, and surveying for sage grouse.



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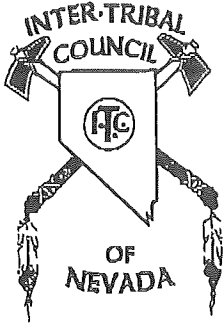
**WHEREAS,** the sage grouse (*Centrocercus urophasianus*) is a valued native avian species with declining populations that have been severely impacted by habitat degradation, by declining big sage populations, by invasive plants, by increased predation, by mining interest, by recreational use, and by livestock grazing; and

**WHEREAS,** the ITCN recognizes the need for tribes to protect and conserve, to the greatest extent possible, the existing wildlife habitat of sage grouse within and/or adjacent to the boundaries of all tribal lands within Nevada; and

**WHEREAS,** the cooperative efforts will involve survey and monitoring activities, conservation planning, and protecting key habitat areas to assist with all sage grouse life stages which include brooding, migration and lek habitat; and

**WHEREAS,** the sage grouse is recognized by Nevada tribes traditional song and dance, language, and stories/legends and there is presence of Traditional Ecological Knowledge (TEK) regarding sage grouse and their habitat be protected for tribes' value and conservation efforts; and

**WHEREAS,** the ITCN acknowledges the valiant effort to protect existing sage grouse populations through the development of a Sage Grouse Conservation Plan for the State of Nevada; and



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- WOODFORDS COMMUNITY COUNCIL
- YERINGTON PAIUTE TRIBAL COUNCIL
- YOMBA TRIBAL COUNCIL

**WHEREAS,** the ITCN Executive Board endorses the attachment 1 of approved language that would be updated into the final State of Nevada Sage Grouse Conservation Plan.

**NOW THEREFORE BE IT RESOLVED** that the Executive Board, on behalf of their membership, hereby supports the statewide Sage Grouse Conservation Plan effort by including any applicable Nevada tribal lands within Sage Grouse Management Areas through a Memorandum of Agreement for direct involvement for the purposes of monitoring, surveying, developing recommended conservation measures, funding, and protecting the sage grouse and its sagebrush habitat.

### CERTIFICATION

The foregoing resolution was adopted by poll vote of the Inter-Tribal Council of Nevada's Executive Board, completed on the 25th day of July, 2012, by a

Vote of   12   FOR,   0   AGAINST, and   0   ABSTENTIONS.

Daryl Crawford, ITCN Executive Director  
for  
Bryan Cassadore, Secretary  
ITCN Executive Board





1                   **Cooperation of State and Federal Agencies for Depredation Permits**  
2                   **for Common Raven**

3   The USFWS can authorize depredation permits for the ‘take’ of common ravens, which  
4   are protected under the Migratory Bird Treaty Act. Currently in the State of Nevada,  
5   there are permits that authorize the ‘take’ of approximately 5,000 ravens annually,  
6   which constitutes five percent of the estimated 100,000 resident ravens (2003 estimate,  
7   Wildlife Services) in Nevada. NDOW is authorized to take 2,500 ravens; USDA-APHIS-  
8   Wildlife Services (WS) is authorized to take 1,500, and other private sources around  
9   1,000. NDOW’s permit is specifically authorized for the protection of sage-grouse and  
10  other game species. WS’ permit is authorized for the protection of livestock. Other  
11  permits are authorized for the protection of property, public health and welfare (power  
12  companies, landfills, etc.). The most recent population estimate for Nevada is 190,000  
13  ravens (2013 estimate, WS). This may potentially lead to an increase in permit  
14  allocations in the future if they can be justified

15  WS is a federal agency that works cooperatively with the Nevada Department of  
16  Agriculture’s Division of Animal Industry. Its primary objective is to protect livestock  
17  and farming interests from damage caused by predators or other nuisance species. WS  
18  is authorized to perform their duties on federal land and may enter into agreements  
19  with state, tribal, county, or private landowners to conduct their business. Predator  
20  control is a major component of their duties.

21  Specific to ravens, WS certified applicators are the only ones authorized by the EPA to  
22  either apply or directly supervise those applying the avicide DRC-1339 to execute the  
23  federal depredation permit authorized by the USFWS for the taking of migratory birds.

24  Currently, WS and NDOW are working jointly to reduce raven densities with the aim to  
25  enhance sage-grouse recruitment rates, which can be affected by raven predation of  
26  sage-grouse eggs and chicks. NDOW designates priority areas for treatment and WS  
27  treats hard-boiled chicken eggs with DRC-1339 and places them within the priority

- 1 areas. Monitoring and data collection is done by both agencies as well as other partners
- 2 to inform future implementation of the program and determine the efficacy of the
- 3 protocols used.

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- 1 **Appendix E:**
- 2 **Process to Prioritize Integrated Predator Management Projects**

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1                   **Process to Prioritize Integrated Predator Management Projects**

2   The following frame work will be used to prioritize where Objective 1.1, 1.2, and 1.3 are  
3   implemented across the state.

4   Step 1: State level mapping for ravens and sage-grouse. This should be an ongoing  
5   process updated every few years.

- 6       a. Contract with USGS to conduct landscape level modeling to estimate location of  
7       high raven occupancy (following methods for Raven Selection Probability  
8       Function (RSPF) as described in Coates et al., In Review).

9       If funding is not available to conduct modeling, regional biologists would submit  
10      areas of concern for evaluation.

11      Conduct modeling of sage-grouse nesting habitat ~~[[Methods still to be determined]]~~

- 12      b. Intersect areas of raven concern with areas of sage-grouse nesting habitat.  
13         Select 5-15 sites to be evaluated at the site level. [Until map of nesting habitat  
14         for sage-grouse in Nevada is available, the Core Management Area should be  
15         used.](#)

16   Step 2: Site level analysis. This step should be conducted annually.

- 17      a. Conduct raven surveys at 5-15 sites identified during Step 1 following a selected  
18      raven survey protocol to determine raven densities.
- 19      b. Evaluate sage-grouse demographic data, as available, to determine if nest  
20      success is a limiting factor. Areas identified for potential raven removal should  
21      be prioritized for sage-grouse demographic data collection as feasible.
- 22      c. Use information from the above two steps to identify 2-5 project sites for  
23      Integrated Predator Management around the State. Sites that have identified  
24      nest success as limiting to the populations due to raven predation should be  
25      prioritized for treatment. Sites that have greater than 0.46 ravens per km<sup>2</sup>  
26      should be prioritized for treatment (Coates et al., In Review). Exact number of

1 project locations should be determined by number of raven take permits  
2 available, funding for projects, and personnel to carry out work.

3 Once Prioritized Integrated Predator Management Project locations are identified, the  
4 following steps should be completed.

5 1. Develop Integrated Predator Management Program for each project location.

6 a. Develop anthropogenic subsidies control plan for project location  
7 following recommendations in Objective 1.

8 b. Develop habitat integrity improvement plan for project location  
9 recommendations in Objective 2.

10 c. Develop predator control plan for project location following  
11 recommendations in Objective 3.

12 i. Develop treatment regime for project area

13 1. Determine/set parameters of predator control area  
14 (where damage is occurring)

15 2. Determine/set parameters of predator control project  
16 timing (when resource is vulnerable)

17 3. Establish species to be targeted and  
18 methods/techniques which are acceptable

19 4. Determine what constitutes a “corrected” situation  
20 (when does project end, e.g. stop lethal control once  
21 raven density is below density thresholds or a lack of  
22 population response to actions is determined)

23 ii. Establish predator monitoring regimes

24 1. Pre-treatment monitoring of predator numbers  
25 (frequency, number & type).

26 2. Treatment monitoring of predator numbers (frequency,  
27 number & type).



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**Appendix F:**  
**Template Cooperative Monitoring Agreement**

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**COOPERATIVE MONITORING AGREEMENT**

**1. Introduction**

The Joint Cooperative Monitoring Agreement is instituted under the authority of the Memorandum of Understanding between the U.S. Department of the Interior, Bureau of Land Management (BLM) and the Public Lands Council dated January 30, 2004.

The BLM and \_\_\_\_\_[cooperator] enter into this agreement with the intent to strengthen their partnership in monitoring of the \_\_\_\_\_ Allotment. Resource objectives will be a central feature of this agreement because they will become the target and guide regarding what and how to monitor, and for what reasons. Resource objectives will be measurable and attainable statements of the desired resource attributes.

The BLM and \_\_\_\_\_[cooperator] expect the monitoring plan to evolve over time. New data will provide input on how to better interpret and apply the monitoring results. This will enable the parties to optimize the application of cooperative techniques throughout the monitoring partnership. The parties will work together to determine how the monitoring results will be used to refine and redirect the strategies and tactics for both the monitoring and management plans.

**2. Existing Management Objectives**

The \_\_\_\_\_ Allotment was evaluated through a Rangeland Health Evaluation and Assessment document in \_\_\_\_\_[year]. Allotment-specific



1 objectives were brought forward through the Final Multiple Use Decision  
2 (FMUD) for each key management area for upland areas, riparian zones,  
3 wildlife habitat, and wild horse and burro management. These objectives  
4 were established to be in conformance with the current Land Use Plan (LUP)  
5 and the Standards for Rangeland Health. Objectives under the LUP,  
6 Rangeland Program Summary, and Allotment Evaluation are attached. Also  
7 attached are the \_\_\_\_\_ Resource Advisory Council Standards and  
8 Guidelines (RAC S&Gs).

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16 **3. Existing Monitoring Data/Information and Additional Data Needs to Address**  
17 **Established Resource Objectives**

18  
19 a. Established Monitoring Methodologies  
20

Short-term	Long-term
Actual Use Information	Trend (Frequency study)
Use Pattern Mapping	Production/Composition/Ecological Status
Key Species Utilization at long-term upland monitoring sites	Cover
Riparian Utilization	Weed Inventory
	Water Quality
	Climate data

**2014 Nevada Greater Sage-grouse Conservation Plan**

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	Wild Horse & Burro Census
	Riparian Proper Functioning Condition (PFC) Assessment

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b. Additional Studies Needed

Short-term	Long-term
None	Upland Soil Site Stability
	Photo Trend Monitoring
	Riparian Multiple Indicator Monitoring (MIM)

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**4. Future Monitoring Attributes and Protocols**

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- a. Key Management Areas, Critical Area, or Designated Management Areas have been selected for the \_\_\_\_\_ Allotment utilizing BLM protocols. The site(s) will be reconfirmed jointly. If a site is not reconfirmed as an appropriate monitoring site, consideration must be given to the historical data associated with the site and a determination should be made whether or not to continue monitoring this site to retain trend information.
- b. Monitoring by the BLM and the cooperator will be consistent with BLM protocol and technical references. Short and long-term monitoring studies will allow for measurement(s) towards specific objective(s).
- c. Any updates to technical references/BLM protocol will be incorporated for use under this cooperative monitoring agreement in the future. If additional monitoring studies become available that will supplement studies already occurring for measuring an objective, this cooperative monitoring agreement will be updated.

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**5. Frequency and Timing of Monitoring (cooperator/agency specific for each cooperative monitoring agreement and cooperator interest)**

- a. Short-term monitoring will be collected on an annual or semi-annual basis, unless otherwise stipulated. Long-term monitoring will be measured at 3-10 year intervals unless otherwise stipulated or if observations indicate a more rapid than expected rate of change. Observers will be consistent in the plant phenology and/or time of year in which data are collected. If new sites are established, data collection will follow BLM protocol, BLM technical references, and this Cooperative Agreement.
- b. The following monitoring studies will be conducted as appropriate in order to measure progress towards meeting the objectives and for determining if the RAC S&Gs are being met.

Short-term monitoring (Upland triggers and/or indicators):

<b>Study</b>	<b>Responsible Party</b>	<b>Collection Period</b>
Actual Use	Cooperator	Annually
Trigger Monitoring	Cooperator	Annually
Key Area Utilization	BLM	Semi-annually
Landscape Appearance (Ranchers' Monitoring Guide)	Cooperator	Annually
Use Pattern Mapping	BLM	As grazing management changes, funding, and

**2014 Nevada Greater Sage-grouse Conservation Plan**

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		priorities dictate
Climate	BLM and Cooperator	Annually

1

2

Long-term monitoring (Upland objectives):

<b>Study</b>	<b>Responsible Party</b>	<b>Collection Period</b>
Frequency	BLM	Every 5-10 years
Photo Trend	Cooperator	Annually
Production/Composition	BLM	Every 5-10 years
Line Intercept	BLM	Every 5-10 years
Line-Point Intercept	BLM	Every 5-10 years

3

4

Short-term monitoring (Riparian triggers and/or indicators):

<b>Study</b>	<b>Responsible Party</b>	<b>Collection Period</b>
Utilization/Stubble Height	BLM	Every 3-5 years
Stream Bank Alteration	BLM	Every 3-5 years

5

6

Long-term monitoring (Riparian objectives):

<b>Study</b>	<b>Responsible Party</b>	<b>Collection Period</b>
PFC (assessment)	BLM	Every 5-10 years
Multiple Indicator Monitoring	BLM	Every 5-10 years

7

8

- c. Each party will contact the other party prior to collecting monitoring data on the \_\_\_\_\_ Allotment in order to further promote a cooperative and collaborative working environment.

9

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1 d. If a cooperator is interested, they may request to collect additional  
2 monitoring studies from those assigned above after adequate training and  
3 verification by the BLM.

4

5 e. Parties are encouraged to conduct monitoring efforts together, where  
6 possible.

7

8 **6. Data Analysis**

9

10 a. The BLM and the Permittee will meet to discuss the monitoring data  
11 collected. Each party will be provided copies of the monitoring data  
12 collected each given year for the associated monitoring file.

13

14 b. The BLM and the Cooperator will meet periodically to discuss the  
15 monitoring data collected.

16

17 c. The BLM and the Cooperator will review data analysis jointly and discuss  
18 any future changes that may be needed in order to address resource  
19 concerns.

20

21 **7. Agreement Implementation**

22

23 a. Collection of monitoring data specified in this cooperative agreement will  
24 occur at appropriate times immediately upon signature of this agreement. Data  
25 share between the parties will occur by the end of each calendar year.

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**2014 Nevada Greater Sage-grouse Conservation Plan**

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1 Cooperator \_\_\_\_\_ Date \_\_\_\_\_  
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4 BLM Authorized Officer \_\_\_\_\_ Date \_\_\_\_\_  
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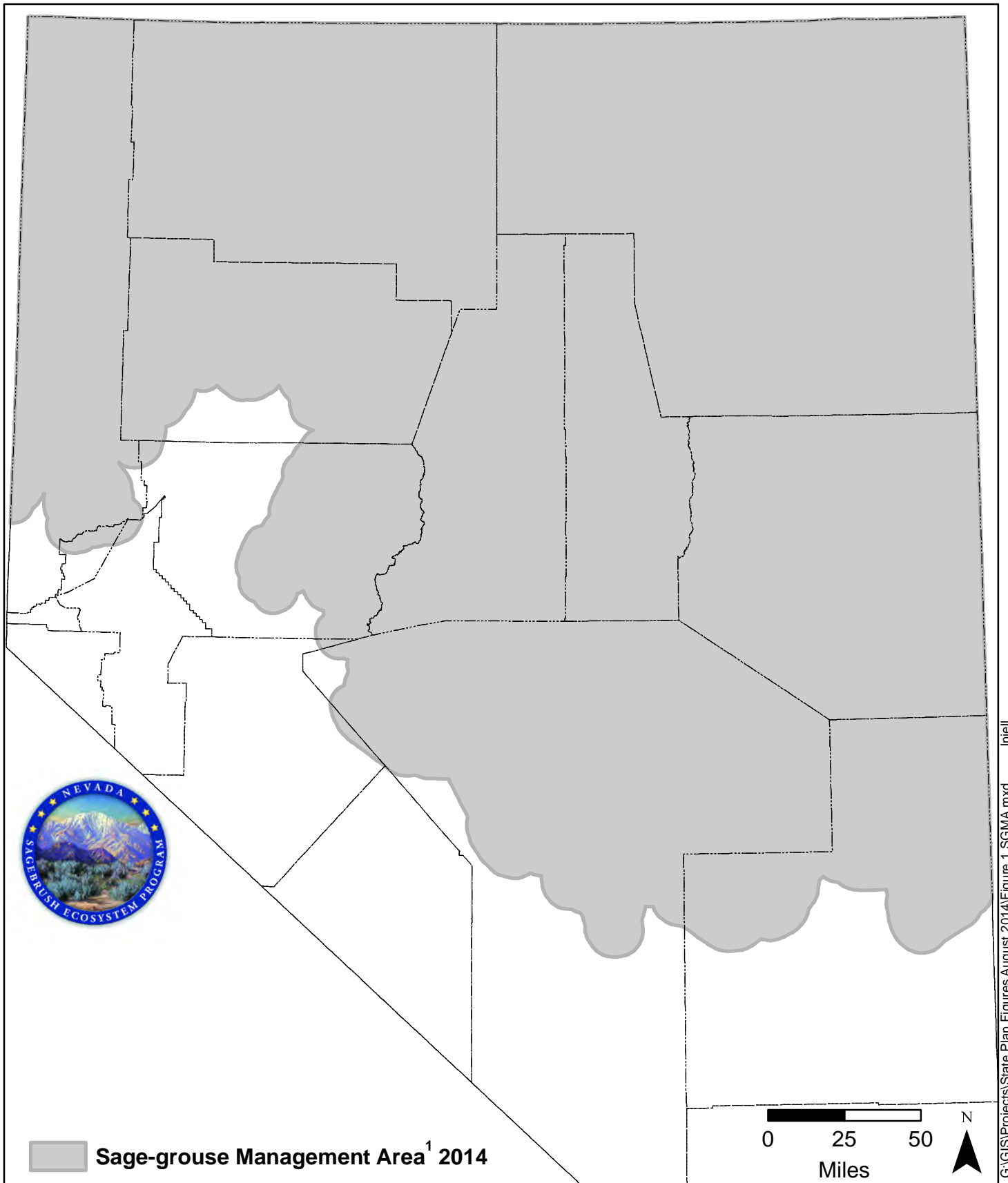
1 **FIGURES**

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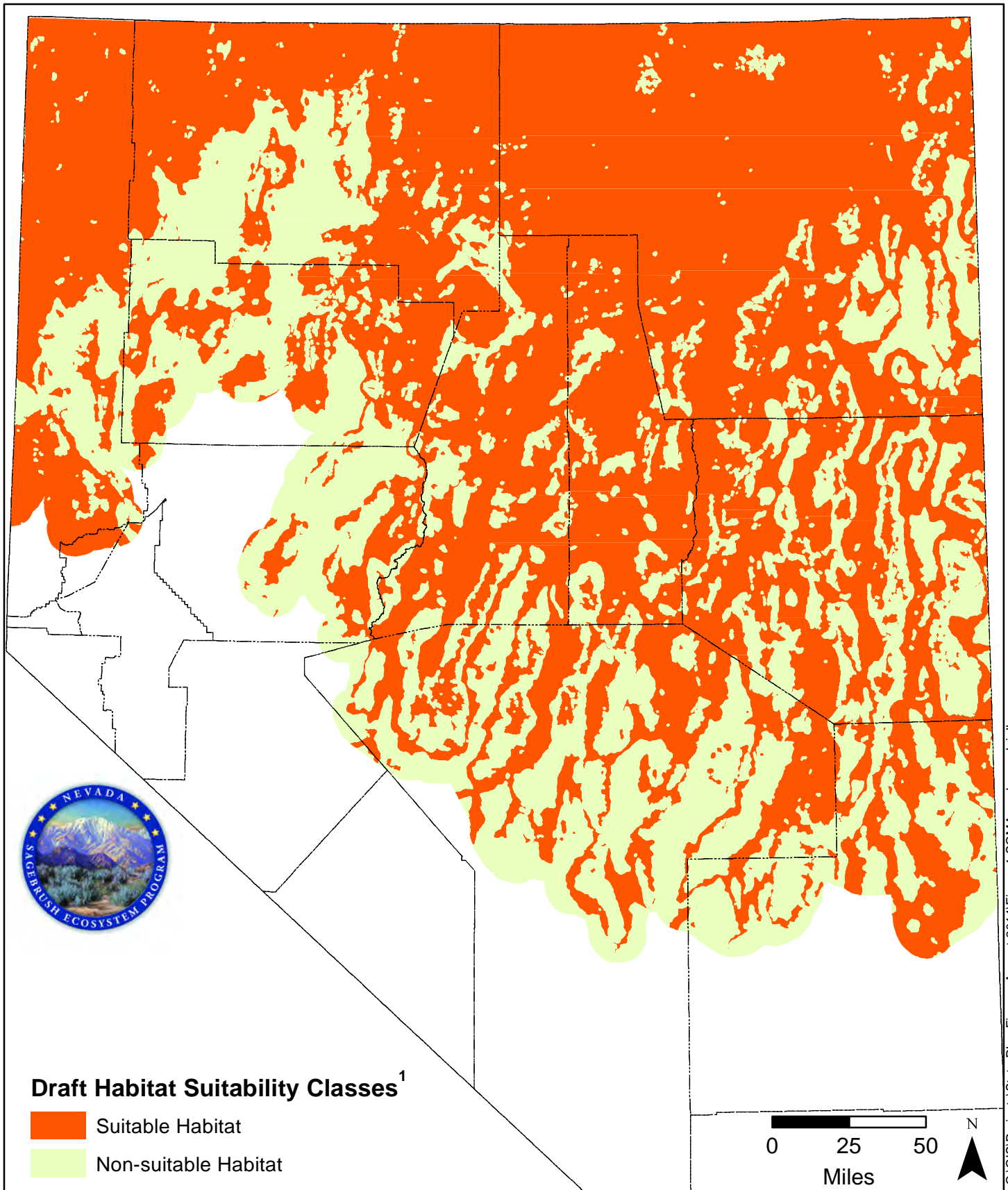
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**Figure 1. Sage-grouse Management Area**

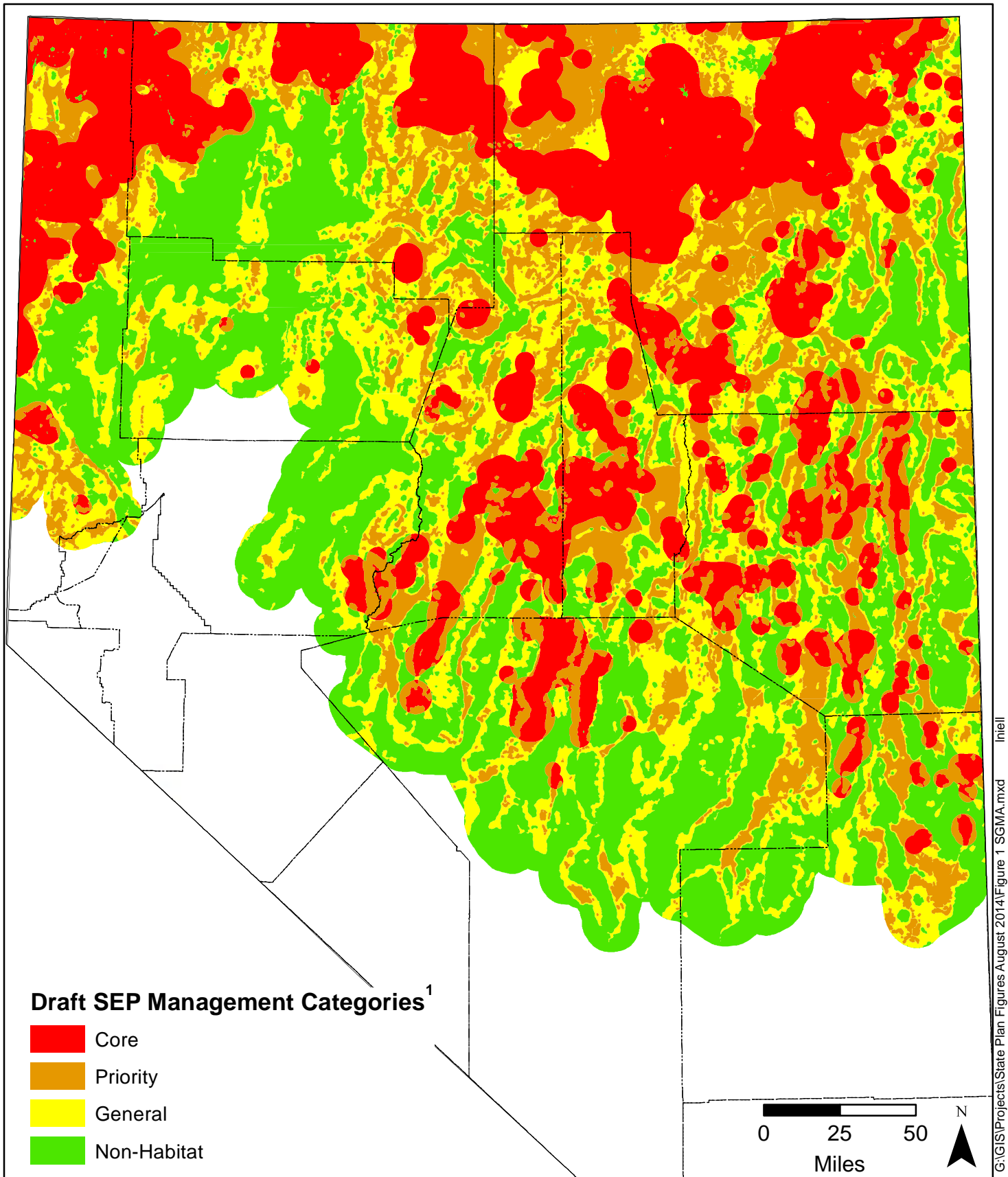
1. The express purpose of the SGMA is to trigger consultation with the SETT; specific area or project habitat determinations must be conducted in accordance with established scientific protocol. This should not be used for any other purpose.





**Figure 2. Draft Habitat Suitability Classes**

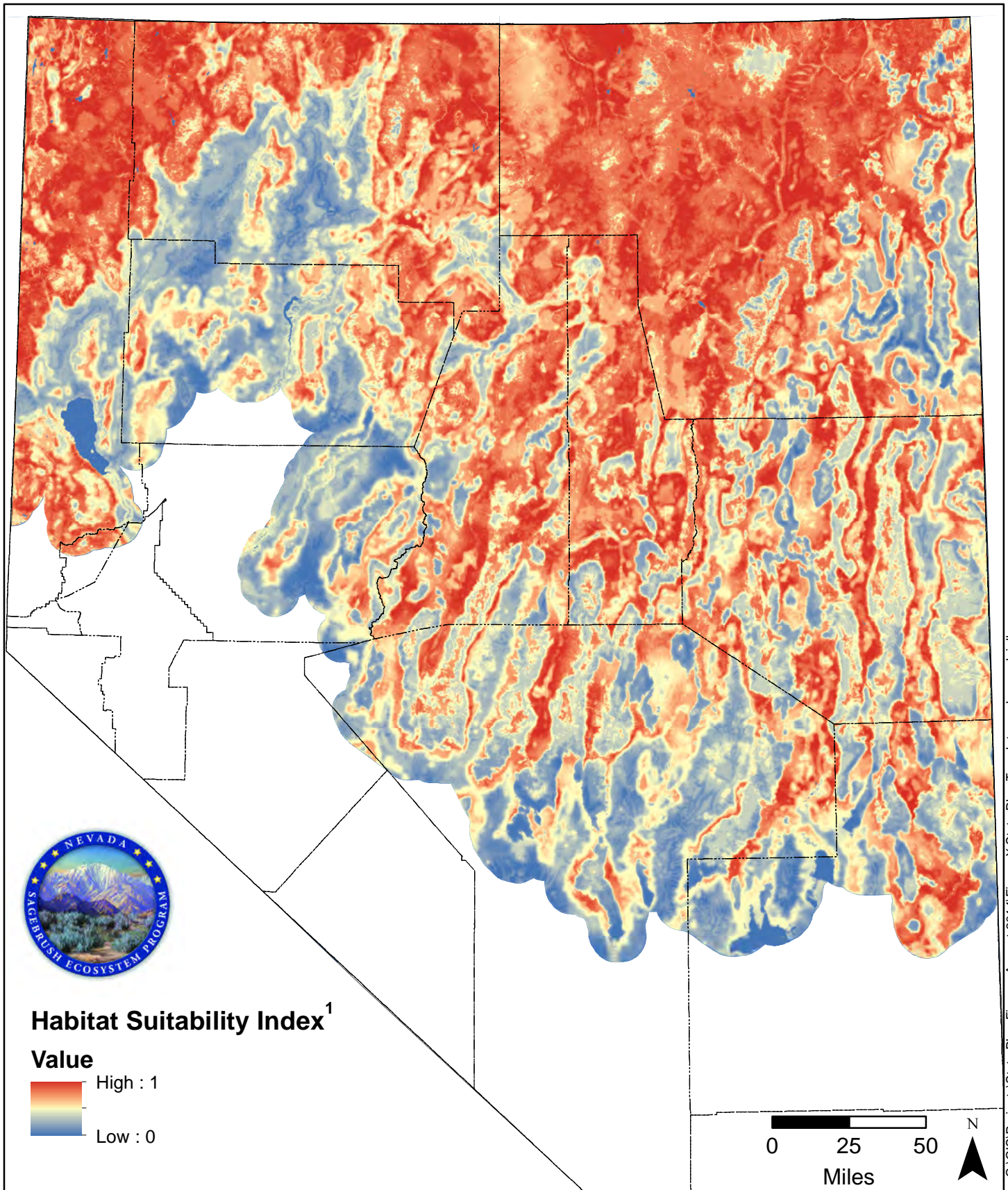
1. These draft classes are available for review purposes only and should not be used for decisions, recommendations, prioritizations, etc. The final version of these classes are anticipated in January 2015.



**Figure 3. Draft Management Categories**

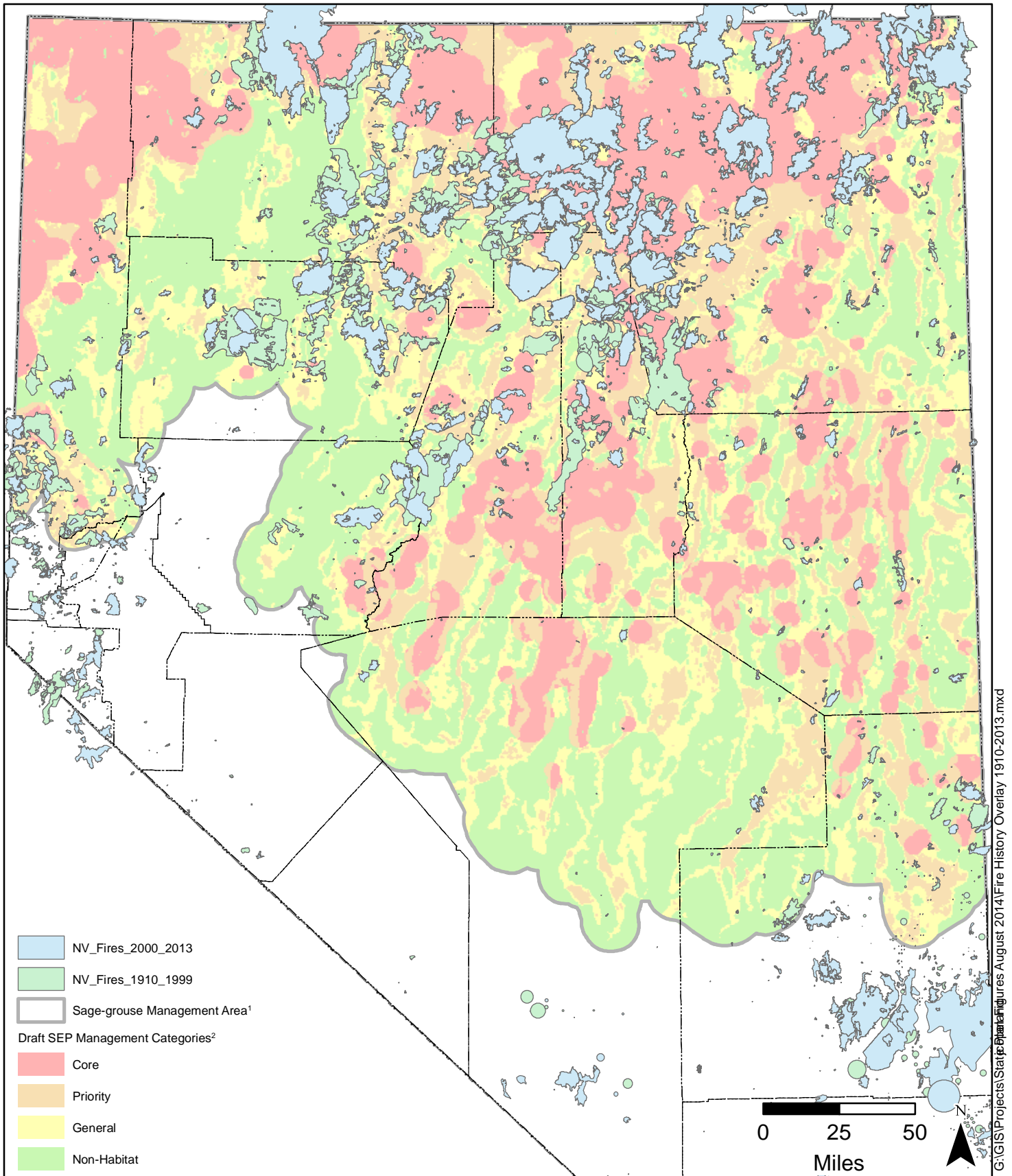
1. These draft categories are available for review purposes only and should not be used for decisions, recommendations, prioritizations, etc. The final version of these categories are anticipated in January 2015.





**Figure 4. Draft Habitat Suitability Index**

1. This is a draft index available for review purposes only and should not be used for decisions, recommendations, prioritizations, etc. The final version of this index is anticipated in January 2015.



## Sage-grouse Management Area 2014

1. The express purpose of the SGMA is to trigger consultation with the SETT; specific area or project habitat determinations must be conducted in accordance with established scientific protocol. This should not be used for any other purpose.

2. These draft categories are available for review purposes only and should not be used for decisions, recommendations, prioritizations, etc. The final version of these categories are anticipated in January 2015.



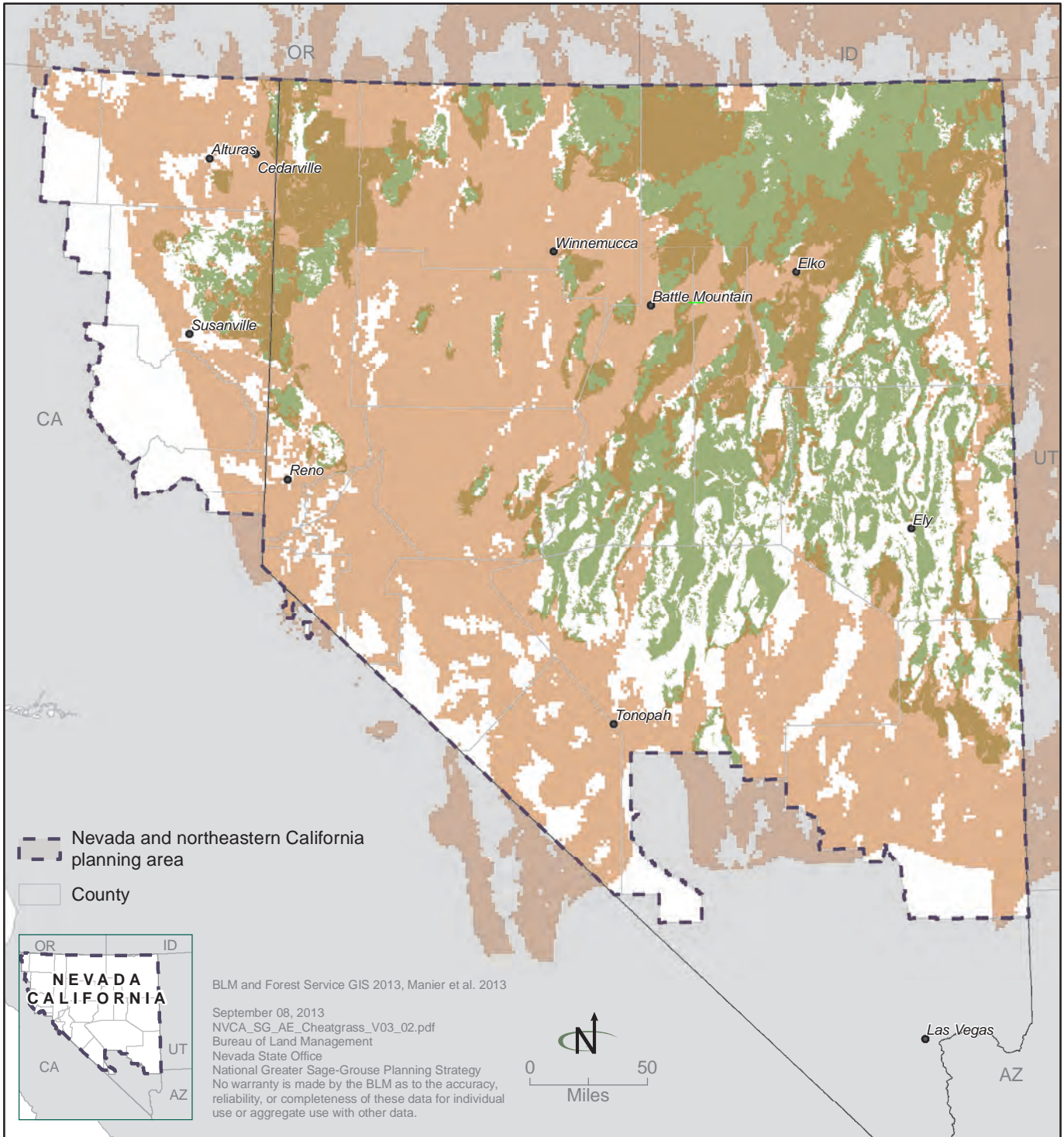


# Areas with a High Probability of Cheatgrass Occurrence



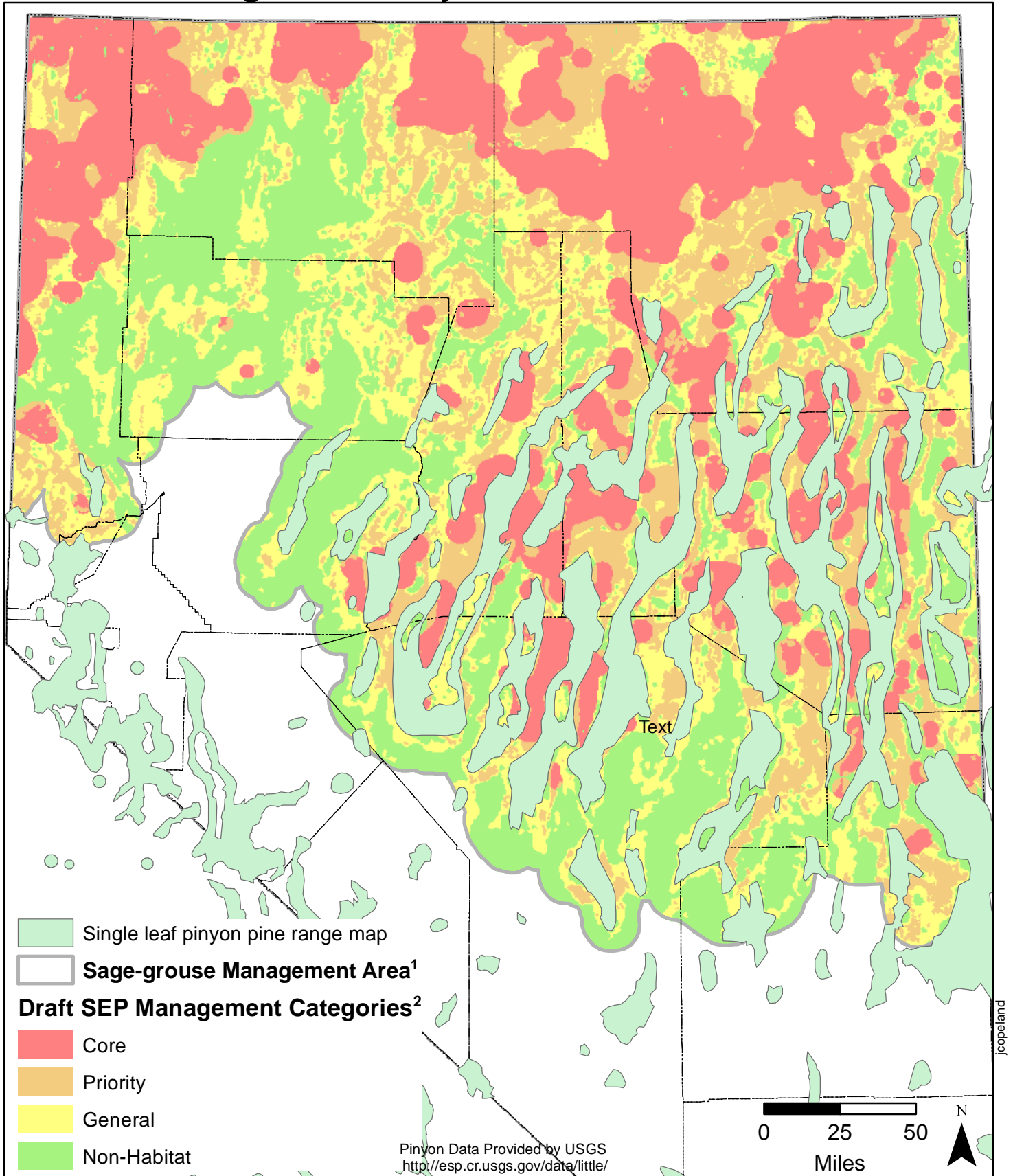
## FIGURE 6. Extent of Cheatgrass in Nevada

THIS FIGURE IS A PLACE HOLDER AND WILL BE REPLACED WITH MAP ON THE STATE TEMPLATE FOR THE FINAL STATE PLAN. (FROM BLM DEIS 2014)



- High cheatgrass probability
- Preliminary priority and general habitat
- Preliminary priority and general habitat with high cheatgrass probability

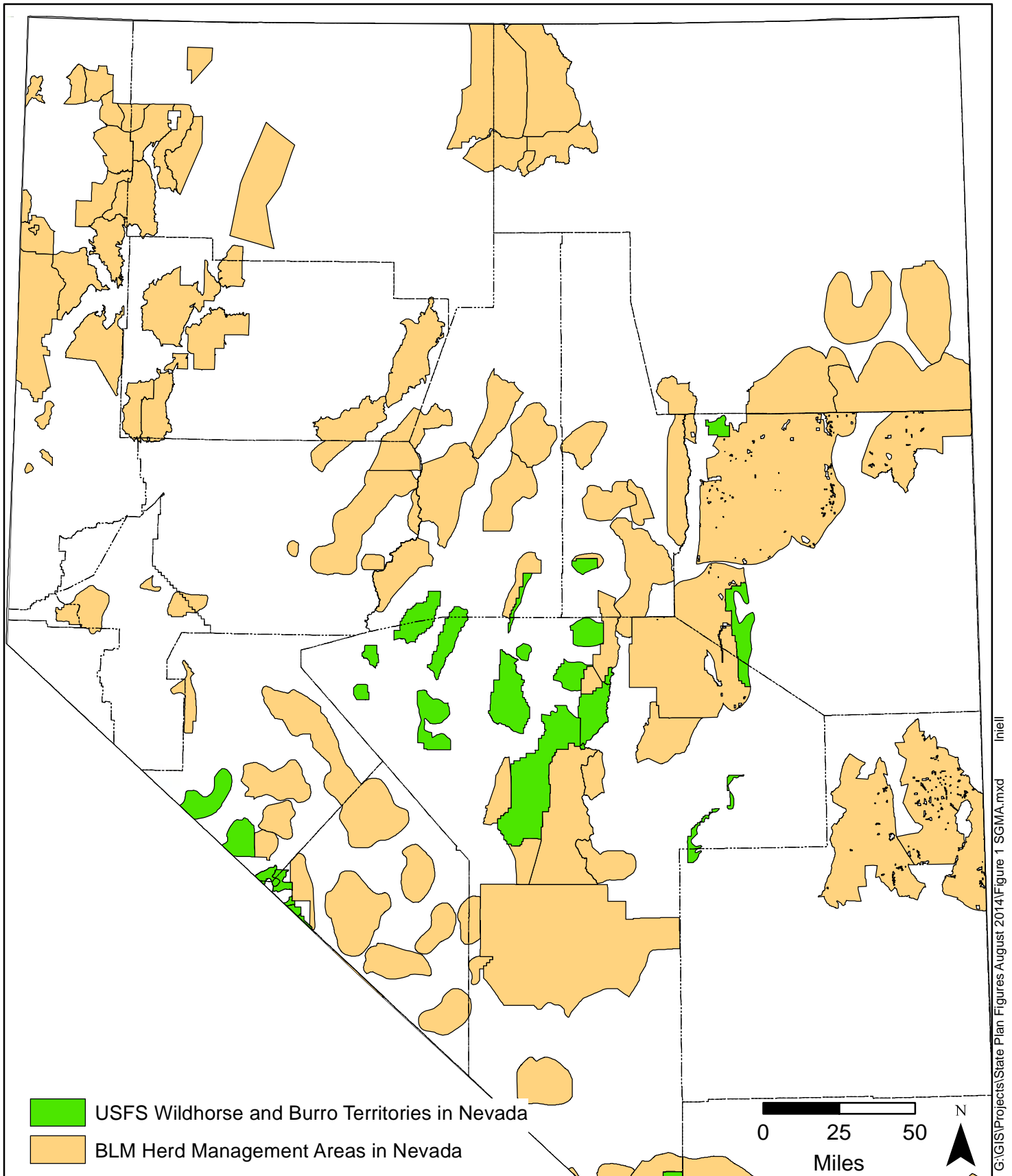
# Figure 8 - Pinyon extent in Nevada



## Sage-grouse Management Area 2014

1. The express purpose of the SGMA is to trigger consultation with the SETT; specific area or project habitat determinations must be conducted in accordance with established scientific protocol. This should not be used for any other purpose.

2. These draft categories are available for review purposes only and should not be used for decisions, recommendations, prioritizations, etc. The final version of these categories are anticipated in January 2015.

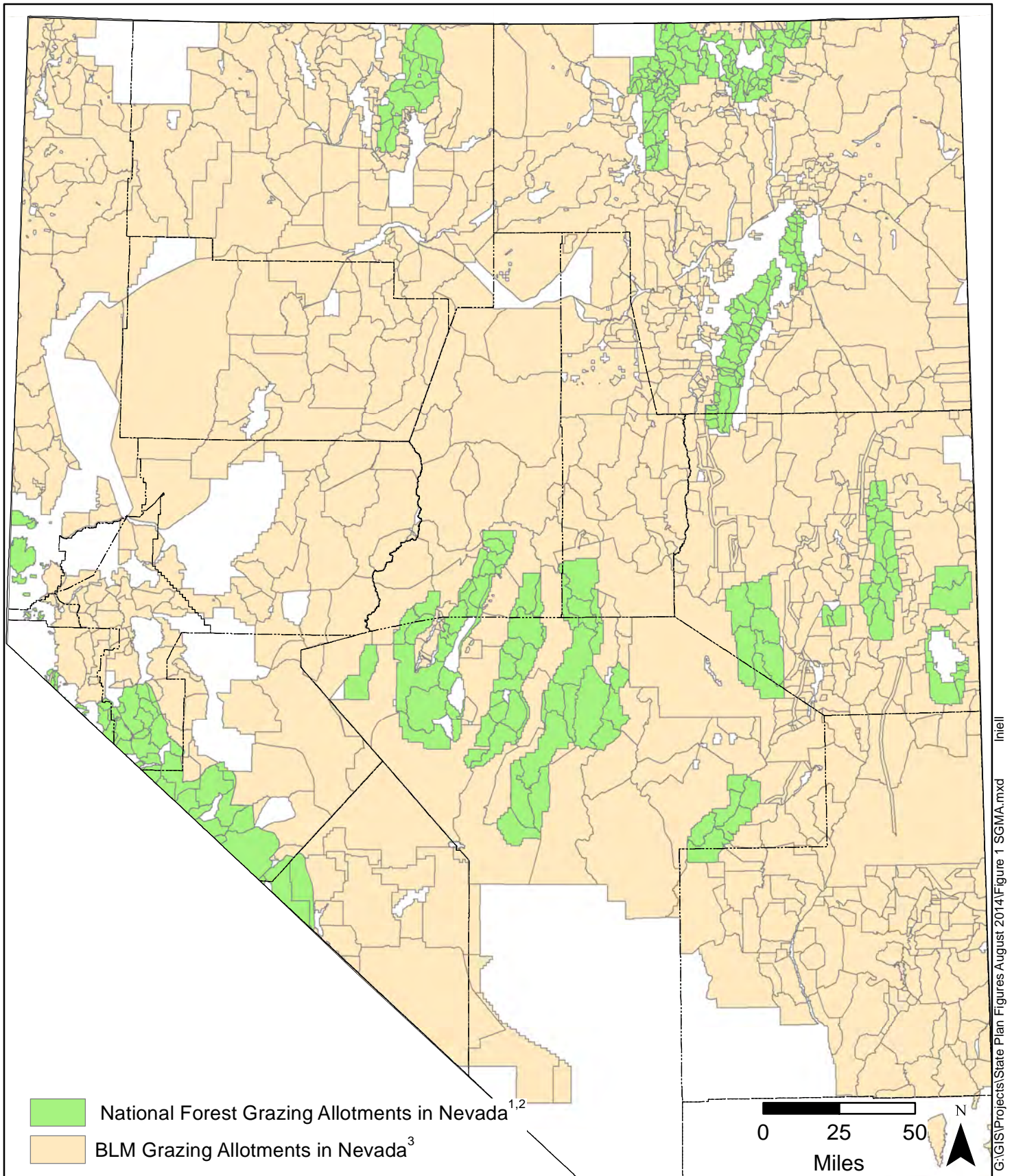


C:\GIS\Projects\State Plan Figures August 2014\Figure 1 SGMA.mxd Intell

**Figure 8. BLM Horse Management Areas and USFS Wild Horse and Burro Territories in Nevada**

1. <http://www.fs.usda.gov/detail/r5/landmanagement/gis/?cid=STELPRDB5327833> Accessed August 13, 2014
2. <http://www.fs.usda.gov/main/htnf/landmanagement/gis> Accessed February 18, 2014
3. <http://www.blm.gov/ca/gis/index.html> Accessed August 13, 2014
4. [http://www.blm.gov/nv/st/en/prog/more\\_programs/geographic\\_sciences/gis/geospatial\\_data.html](http://www.blm.gov/nv/st/en/prog/more_programs/geographic_sciences/gis/geospatial_data.html) Accessed February 18, 2014

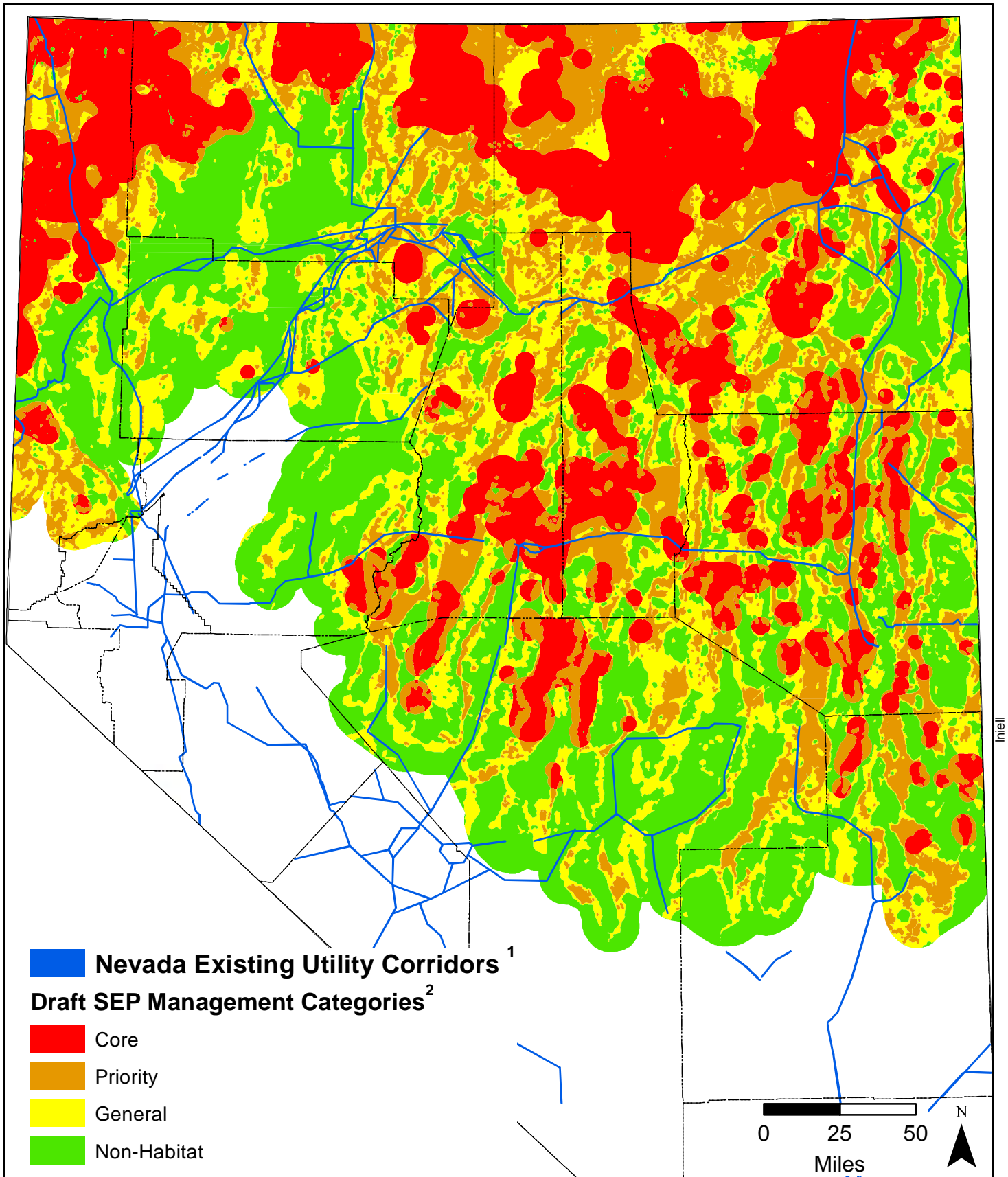




**Figure 9. USFS and BLM Grazing Allotments in Nevada**

1. <http://www.fs.usda.gov/main/htnf/landmanagement/gis> Accessed August 12, 2014
2. <http://www.fs.usda.gov/detail/r5/landmanagement/gis/?cid=STELPRDB5327833> Accessed August 13, 2014
3. [http://www.geocommunicator.gov/shapefilesall/GA/BLM\\_Grazing\\_allotments.zip](http://www.geocommunicator.gov/shapefilesall/GA/BLM_Grazing_allotments.zip) Accessed August 12, 2014





**Figure 10. Existing Utility Corridors in Nevada**

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