Conference Report

For the

Natural Resources Conservation Service

Sage-grouse Initiative (SGI)

Table of Contents

Topic	Page
Introduction	3
Description of the Proposed Action	4
Environmental Baseline	12
Effects of the Action	15
Conclusion	43
Conservation Recommendations	43
Literature Cited	45
Appendices	46

List of Appendices

Appendix 1. March 2010 Partnership Agreement

Appendix 2. Description of the SGI ESA Policies with List of ESA-listed and candidate species found within greater and Gunnison sage-grouse ranges

Appendix 3. Upland Wildlife Habitat Management Conservation Practice Standard 645

Appendix 4 SGI Science Support Element

Appendix 5. SGI Conservation Assessment Evaluation Project

Appendix 6. Comprehensive Analysis of Conservation Practice Standards covered in this Conference Report

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 20240

Dave White
Chief, USDA – NRCS
Post Office Box 2890
Washington, D.C. 20013

Dear Chief White:

This document transmits the Fish and Wildlife Service's (Service) Conference Report (Report) for the Natural Resources Conservation Service's (NRCS) Sage-grouse Initiative (SGI) and associated procedures and conservation measures. Our review is based on information provided by NRCS and is conducted in accordance with section 7 of the Endangered Species Act of 1973, as amended (ESA).

INTRODUCTION

The focus of the Conference Report (Report) is on two species, one that is a candidate species under the ESA – the greater sage-grouse (*Centrocercus urophasianus*), and the Gunnison sage-grouse (*Centrocercus minimus*), for which the Service is currently conducting a 12-month status review to determine whether the species warrants protection under the ESA. The Report refers to both species as "sage-grouse". The Conference Report was selected as the appropriate administrative vehicle to meet the objectives of the conservation partnership agreement signed on March 12, 2010, between NRCS and the Service to facilitate conservation of both of these species rangewide while ensuring the sustainability of working farms and ranches in the Western United States (see Appendix 1).

Use of the conference procedures is only required when a federal agency proposes an activity that is likely to jeopardize the continued existence of a species that has been proposed for listing under the ESA or the proposed activity is likely to destroy or adversely modify proposed critical habitat (see 50 CFR 402.10). However, as in this situation, the conference procedures may also be used to assist a federal agency in planning a proposed action to be as consistent as possible with the conservation needs of a species that has not yet been listed under the ESA (see Handbook, section 6.2). The conference process is designed to assist the Federal agency in identifying and resolving potential conflicts at an early stage in the planning process. During the conference, the Service may provide advisory recommendations on ways to minimize or avoid

adverse effects. The conclusions reached during a conference, and any recommendations are to be documented by the Service and provided to the action agency in a document whose style and magnitude is expected to vary based on the complexity of the conference (50 CFR 402.10(e)).

Chapter 6 of the Service's Consultation Handbook recommends the preparation of a "Conference Report" when a proposed federal action may affect a proposed or candidate species but the action is not likely to jeopardize the continued existence of a proposed or candidate species. This Report contains pertinent information to provide a holistic understanding of the Service's analysis of the varying facets of NRCS' SGI and related planning practices and the expected adverse, benign, and beneficial effects likely to result from its implementation across the eleven western states encompassing the range of both species.

This report evaluates the collective, landscape-level effects of implementing all aspects of NRCS' SGI and related planning process on the two species and their habitats. The report focuses on how the SGI is applied to core areas through the conservation planning process, Conservation Practice Standards, and monitoring and adaptive management which will enhance, restore, and maintain sage-grouse habitat. Effective implementation of NRCS practices and the associated conservation measures described in this Report are anticipated to result in a positive population response by the species by reducing or eliminating potential adverse effects. Table 1 identifies the potential adverse effect and describes how the corresponding conservation measures work and how they reduce the adverse effects. However, implementing the conservation practice standards and associated conservation measures may also have short-term adverse affects to individuals to secure long term benefits. A secondary outcome will be a better understanding of major factors influencing sage-grouse populations including effects of grazing management, conifer removal, alleviating threats of agricultural tillage and subdivision, fencing, livestock watering facilities, and other related management activities on the species and their habitats.

This Conference Report provides certainty to cooperators who voluntarily implement the NRCS sponsored conservation practices analyzed and the conservation measures developed in this report that they will be in compliance with the ESA should either or both sage-grouse species are listed as a threatened or endangered species under the ESA. This Conference Report does not provide permits for incidental take of these species, should they be listed, or provide regulatory assurances such as those associated with Candidate Conservation Agreements with Assurances.

NRCS and the Service will use this report as a foundation for continuing collaborative conservation efforts to address the declining status and habitat needs of both the greater and Gunnison sage-grouse. If either species is proposed to be listed under the ESA, the agencies will consider development of a conference opinion.

DESCRIPTION OF THE PROPOSED ACTION

Action Defined

The action for the purposes of the Report includes:

Application of NRCS conservation practices incorporated into NRCS conservation plans and implemented by NRCS clients in sage-grouse habitat that follow the planning process and conservation measures developed for the SGI as described in the Report. Practices are implemented in accordance with NRCS practice standards and consist of:

1) Primary land management practices intended to benefit the sage-grouse and its habitat;
2) Practices that facilitate the application of the primary management practices that, in themselves, may or may not be beneficial to sage-grouse and its habitat; and
3) Practice-specific conservation measures that can minimize or eliminate detrimental effects of conservation practices to sage-grouse and its habitat.

Sage-grouse Initiative

Overview

The SGI is a collaborative, targeted effort to implement conservation practices which alleviate threats to sage-grouse while improving the sustainability of working ranches. The SGI encompasses all States that have sage-grouse populations: California, Colorado, Idaho, Montana, Nevada, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming. The primary goal of SGI is to implement appropriate conservation actions at scales sufficient to influence a positive population response in areas that contain large concentrations of sage-grouse and where threats to sage-grouse can be effectively addressed through NRCS administered conservation programs. As part of implementation, the SGI includes a monitoring and evaluation component that measures the response of sage-grouse populations and associated vital rates in order to gauge effectiveness and provide an adaptive management framework to SGI delivery.

Background

Approximately 30 percent of sage-grouse habitat occurs on privately-owned lands. Since NRCS' primary function is to assist private landowners in implementing conservation practices to ensure resources are managed sustainably, a unique opportunity exists to focus NRCS resources to benefit sage-grouse, improve ranch sustainability, and maintain livestock grazing as the prevailing land use to ensure the persistence of large and intact range lands.

There is a significant link between conditions required to support sustainable ranching operations and habitat characteristics that support healthy sage-grouse populations. Several large-scale threats facing sage-grouse are identical to factors that decrease the sustainability and productivity of grazing lands throughout the West. Exotic species invasion (e.g. cheat grass, medusa head, noxious weeds), expansion of conifers into rangelands that outcompete sage brush, habitat fragmentation (e.g., subdivision and sod-busting), hydrologic manipulation that results in lowered water tables, and unsustainable grazing systems are examples of mutual threats negatively affecting both.

Historically, NRCS has worked successfully with landowners in each of the 11 States to implement practices that address many of the factors affecting sustainability of grazing land and sage-grouse populations. Funding preference has been regularly provided to Farm Bill program

applicants that address sage-grouse concerns. In general, these projects have largely been "opportunity based" and scattered throughout the range of both sage-grouse species. Although the implemented practices result in improved habitat conditions on the scale of individual ranches, resources were not always targeted strategically to ameliorate threats to entire sage-grouse populations. The SGI will address threats to sage-grouse in a more strategic way.

Implementing the SGI in Sage-grouse Core Areas

Strategic conservation targeting is a primary and overarching principle in delivery of the SGI. The SGI focuses program delivery in sage-grouse 'core areas' to help maintain large and intact landscapes rather than try to maintain small declining populations at the cost of further loss in the best remaining areas. This approach conforms itself to the distribution patterns of the species as well. Although sage-grouse populations occupy extremely large landscapes, their distribution tends to aggregate them in comparably smaller identifiable core areas.

A recent study shows that in Wyoming, Montana, Colorado, Utah and North and South Dakota sage-grouse 'core areas' represent locations of high abundance population centers containing 25, 50, 75, and 100% of known breeding populations (Doherty et al. 2010). Wyoming sage-grouse core areas represent just 25 percent of the occupied range within the entire State, but support >80 percent of all known breeding birds. Similarly, Montana core areas represent 32 percent of occupied range and contain >75 percent of Montana populations.

Core areas are an effective approach to targeting conservation actions to maximize biological benefits. They are a strategic way of partnering with stakeholders to fund conservation in priority landscapes (Kiesecker et al. 2009) and are a basis for forecasting impact scenarios to aid in sage-grouse conservation design (Copeland et al. 2009). By prioritizing and strategically focusing NRCS resources to range-wide core areas, benefits of conservation efforts for sage-grouse can be maximized.

NRCS relies on a coalition of partner agencies, universities and non-governmental organizations (NGOs) to delineate sage-grouse core areas. Two States, Wyoming and Montana, have already developed core areas, vetted through state wildlife agencies, that NRCS is actively using to prioritize conservation outreach and implementation. Use of this tool has proven invaluable in focusing NRCS resources on those areas. Recognizing the applicability and desire to establish sage-grouse core areas rangewide, the Bureau of Land Management (BLM) and Western Association of Fish and Wildlife Agencies (WAFWA) are currently developing sage-grouse core areas for each State. The resultant core areas will be utilized by NRCS to prioritize all aspects of the SGI and will enable NRCS to target resources to the areas that have the greatest abundance of sage-grouse and can benefit from application of conservation practices.

SGI Structure

The SGI is structured to facilitate landscape-level improvements across the species' range while recognizing that threats and opportunities differ among States and within each core area. Close collaboration of many stakeholders, including local, State, and Federal agencies, tribes, and NGOs, will ensure that NRCS activities complement efforts already underway. The SGI

provides a multi-tiered framework that allows coordination and implementation on a range-wide scale while ensuring local input and control over actions in specific States and core areas.

National level

NRCS utilizes a team approach at the National level to deliver the SGI and incorporates all relevant discipline leads into the decision making process. Additionally, a dedicated SGI coordinator and independent science advisor will facilitate delivery across the species' range, ensure the latest and best science is used to implement the SGI, and that monitoring is implemented to inform future decisions.

SGI is coordinated at the National level to ensure that issues pertaining to the entire range of sage-grouse are addressed and to make certain regional partners, such as WAFWA, are consulted and engaged. Several issues transcend State lines and will be assessed and addressed in a larger context. Delineating range wide core areas and calculating the effects of SGI on sage-grouse populations range wide are examples of issues requiring national level coordination.

State level

In full recognition of the differing threats and opportunities available in each State, NRCS will utilize strategies developed at the State level to focus SGI implementation. In close consultation with stakeholders, including local, State, and Federal agencies, tribes, and NGOs, NRCS in each State will develop a State-specific strategy to facilitate their efforts. These strategies will identify core areas, specific sage-grouse threats by core area, and treatment options available to address identified threats. Although each NRCS State plan will be unique, they will all strategically focus NRCS resources to core areas. Strategies will be completed by December 31, 2010.

Training

Training the NRCS workforce on sage-grouse life history needs, threats, and treatment options is considered by NRCS to be necessary for program delivery. To address this issue, NRCS established and delivered a 2 ½ day classroom and in-field training to help NRCS staff in California, Colorado, Idaho, Montana, Nevada, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming take steps to enhance and preserve sage-grouse habitat as well as sustain working ranches and farms in the western United States. Almost 500 NRCS conservationists and partners concurrently received the same 2 ½ days of training. This training was a requirement for all technical staff located in counties where sage-grouse occur. Additionally, NRCS hosts many other training sessions designed to increase technical capacity and adequately address sage-grouse conservation. Training will be a future and integrated part of SGI.

Funding

NRCS utilizes incentive-based conservation programs authorized under the conservation title of the Food, Conservation, and Energy Act of 2008 (hereafter, Farm Bill) to help landowners plan and implement conservation practices and Resource Management Systems to maintain and

enhance sage-grouse habitat. Farm Bill programs provide both technical and financial assistance to landowners in the form of conservation planning assistance, payments to offset a portion of the cost associated with applying conservation practices, and easement or rental payments for long-term conservation. Although participation in Farm Bill programs is voluntary, participants that receive financial assistance enter into binding contracts or easements to ensure that conservation practices are applied according to schedule and in compliance with NRCS standards and specifications.

Programs, such as the Wildlife Habitat Incentive Program (WHIP) and Environmental Quality Incentives Program (EQIP), are used to plan and implement habitat improvement practices. NRCS also works closely with the Farm Service Agency to further sage-grouse conservation through the Conservation Reserve Program (CRP). Grassland Reserve Program (GRP) and Farm and Ranch Lands Protection Program (FRPP) are critical to ensure more long-term habitat protection through rental agreements and conservation easements.

SGI funding is currently provided through the EQIP and WHIP programs. Although announced as a $16 million initiative in March 2010, more than 525 ranches signed up for the SGI requesting over $24 million in cost-share assistance. NRCS has now dedicated over $21 million for FY 2010. By providing a focused effort across multiple States, NRCS can ensure that EQIP and WHIP dollars are prioritized consistently and provide the highest potential of improving sage-grouse habitat quality.

Initial funding for the monitoring portion of SGI is being provided by the NRCS National Office and the Conservation Effects Assessment Project (CEAP). Collectively, these programs have contributed $350,000 in FY 2010.

General Discussion of NRCS Conservation Planning Process

NRCS, in accordance with agency regulation and policy, implements a 9-step conservation planning process, as outlined in the NRCS National Planning Procedures Handbook (NPPH). NRCS conservationists prepare conservation plans in consultation with private landowners in order to address environmental resource concerns primarily on private, non-Federal, and tribal lands. NRCS conservationists help individuals and communities take a comprehensive approach to planning the proper use and protection of natural resources on these lands.

NRCS balances natural resource issues with economic and social needs through the development of resource management systems (RMS). The expected physical effects of conservation systems and practices are assessed in the context of ecological, economic, and social considerations as documented locally in the Field Office Technical Guide (FOTG). The expected impacts of those effects are then used to help develop and evaluate management alternatives.

The conservation planning process is a three-phase, nine-step process. Although the nine steps are shown in sequence, the process is dynamic and can start with any of the first three steps and some activities may not necessarily occur in a particular planning step each time.

Phase I - Collection and Analysis (Understanding the Problems and Opportunities)

1. Identify Problems and Opportunities
2. Determine Objectives
3. Inventory Resources
4. Analyze Resource Data

Phase II - Decision Support (Understanding the Solutions)

5. Formulate Alternatives
6. Evaluate Alternatives
7. Make Decisions

Phase III - Application and Evaluation (Implement Practices and Understanding Results)

8. Implement the Plan
9. Evaluate the Plan

NRCS also integrates its compliance with other environmental laws within this planning framework, including the ESA. Appendix 2 provides a summary of the policies and procedures NRCS uses to comply with its ESA responsibilities and a table of listed and candidate species within greater and Gunnison sage-grouse ranges is also included.

Conservation Practices

NRCS provides technical and financial assistance through the Farm Bill and initiatives such as SGI to implement conservation plans that include NRCS' conservation practice standards and specifications. These conservation practices are developed through a multi-disciplinary science-based process in order to maximize the success and minimize the risk of failure of the conservation practice. NRCS conservation practice standards are established at the national level and identify a minimum level of planning, designing, installation, operation, and maintenance required. Each conservation practice standard includes a definition and purpose of the practice, identifies conditions in which the conservation practice applies, and includes criteria to support each purpose.

Standards in the National Handbook of Conservation Practices are used and implemented by States, as needed, and may be modified to include additional requirements to meet State or local needs because of wide variations in soils, climate, and topography. Conservation practice standards are routinely reviewed and approved by State Technical Committees to ensure that

appropriate criteria are included to cover State-specific interests. State laws and local ordinances or regulations may also dictate more stringent criteria; in no case, however, are the requirements of the national conservation practice standard to be reduced.

Type of Conservation Practice Standards used in the SGI

NRCS conservation plans contain groups of conservation practices, called conservation systems, which together achieve the clients' objectives and treat the soil, water, air, plant and animal resource concerns identified during the resource inventory. When all identified resource concerns are scheduled to be treated to a sustainable level, the conservation system is called a Resource Management System (RMS). NRCS develops at least one RMS level alternative during the planning process, as well as one or more conservation systems. The landowner working with NRCS ultimately chooses which alternative to implement on his/her private land.

There are three main types of conservation practice standards typically used in an NRCS conservation plan: 1) Management; 2) Vegetative; and 3) Structural. Management practices, such as Upland Wildlife Habitat Management, Wetland Wildlife Habitat Management, and Prescribed Grazing typically take a systems approach and incorporate overarching planning concepts such as habitat and vegetative assessments and use of facilitating practices to achieve the practice purpose.

The SGI will utilize all three main types of conservation practice standards. All conservation plans developed under the SGI have Upland Wildlife Habitat Management (645) as the umbrella practice (Appendix 3). Implementing SGI under 645 is essential because this umbrella practice means that all other SGI practices are implemented specifically to benefit sage-grouse populations and their habitats. Implementing SGI under 645 eliminates the possibility of using practices that benefit producers but not sage-grouse. The Upland Wildlife Habitat Management practice standard requires a habitat evaluation be conducted and limiting factors be removed or reduced in their order of significance. The purpose of the practice is to treat upland wildlife habitat concerns identified during the conservation planning process to (1) enable movement, or (2) provide shelter, cover, and food in proper amounts, locations and times to sustain sage-grouse during a portion of its life cycle. Specific practice standards will be used by NRCS to address the limiting factors to the species and will be implemented to achieve that objective. The identification of the species' limiting factors at the individual property owner level is essential to ensure that the goals of the use of the Upland Wildlife Habitat Management practice are being met under the SGI.

Monitoring the Effectiveness of the NRCS Sage-Grouse Initiative

The SGI addresses relevant threats to sage-grouse populations in the West by assisting producers to improve range condition in core sage-grouse population areas that benefit sage-grouse habitat quality while ensuring the sustainability of working ranches. SGI employs three levels of monitoring to implement and subsequently evaluate success of conservation practices. The first level of monitoring is at the ranch-scale which allows the individual producer to see first-hand the benefits of conservation practices implemented on his/her property. Ranch-level monitoring

also provides the mechanism for long-term conservation by instilling in the producer the benefits of sustainable grazing systems in his operations and to sage-grouse conservation.

A second level of monitoring under the SGI is long-term research designed and carried out by reputable, independent scientists following strict scientific protocols that track short- and long-term changes in vegetation and the biological response of sage-grouse populations. Outcomes of SGI science will identify factors that limit populations at scales relevant to management and, if necessary, to help guide changes in actions to achieve desired outcomes. The documented results will inform management of ways to improve effectiveness of NRCS programs. Measuring sage-grouse response to NRCS practices is a priority in conserving sage-grouse populations on working ranches in the West.

The scale of SGI-level monitoring reflects the scales at which sage-grouse populations use habitat resources year-round and transcends that of an individual ranch to encompass multiple and nearby ranches enrolled in the Initiative. The SGI monitoring level matches the spatial scale at which sage-grouse populations use their habitats. Appendix 4 provides additional information on this aspect of the SGI.

The third monitoring scale employs the NRCS National Resource Inventory (NRI), which detects status and trends in agriculture and land use across the United States. Together with the SGI, NRI can apply its measures to quantify 10-30-year improvements in sage-grouse habitats throughout the species range.

SGI-level Monitoring within Select Core Areas

The SGI-level monitoring (Appendix 4; number 2) is the primary vehicle for assessing effectiveness of the Initiative. The SGI-level monitoring quantifies sage-grouse response to conservation practices through a coordinated framework and informs adaptive management of program delivery. Rather than a focus on acres treated, the planned approach is biologically-based and uses sage-grouse habitat and population responses at multiple scales to evaluate program benefits (Naugle et al. 2010).

The NRCS monitoring design envisions 15-20 assessment projects each lasting 7-10 years with many located in core areas throughout the species range and where the SGI is focused. The sage-grouse is a long-lived species that may respond slowly but positively to implemented conservation measures.

The Montana Example. The conservation efforts in Montana where the SGI is already underway serve as a template for partnerships in other states. Montana NRCS has secured commitments from 8 ranchers in a sage-grouse core area near Billings, involving >100,000 acres, to manage stocking rates commensurate with capacity and to rotate deferred grazing in 20-30% of pastures identified as nesting habitat as part of a rest rotation grazing system. Partners, including Montana Fish, Wildlife and Parks (FWP) monitor marked sage-grouse inside and outside of treatment areas to evaluate efficacy of grazing management to enhance vegetation, vital rates, and lek counts as an index to population size. FWP has dedicated personnel to implement long-term SGI monitoring and will contribute additional match funds. FWP and the University of

Montana will co-investigate this research. State and federal partners have applied for an NRCS Conservation Innovation Grant to augment work.

The Oregon Example. In Oregon, the SGI is reducing the fragmentation threat of juniper encroachment in high priority sage-grouse habitats. Study goal is to evaluate sage-grouse response to encroached removal. Although juniper removal is widely assumed to produce benefits for sage-grouse, studies have yet to document a relationship between juniper removal and increased sage-grouse productivity. Project area includes populations in Warner Mountain region of south-central Oregon, a landscape within this state's largest remaining core area. Project area is 120,000 acres, of which 85,000 are managed by BLM and 35,000 are private. Private landowners and BLM propose to remove post-settlement juniper on 27,000 acres over the next 1-5 years. Research to assess outcome of removal on birds will be conducted in coordination with private landowners, Oregon Department of Fish and Wildlife, University of Idaho, and BLM. The Project's design includes 1 and 2 years of pre-treatment telemetry data on control and treatment areas and 3 years of post-treatment monitoring to measure population response.

Monitoring and Assessment

NRCS and its partners initiated assessment projects in three western states in 2010 (MT, OR and WY). NRCS has initially contributed $350K to this effort through the Conservation Effects Assessment Project (Appendix 5). Future contributions will build on this initial investment. SGI monitoring will compile scientific outcomes from studies into a comprehensive assessment of range-wide SGI contributions to sage-grouse conservation and sustainability of working ranches. Range-wide documentation will inform the Service and other stakeholders about the effectiveness of SGI. Other partners including states responsible for sage-grouse conservation will lend credibility to the process and resulting conservation actions. NRCS has retained a science advisor to ensure that the SGI's science support elements are implemented in a technically sound manner and monitoring efforts are scientifically valid. This advisor will help design studies, implement field-based assessments, and shepherd rigorous science through the peer-review process for publication in leading scientific journals. Advisor will also act as a point of contact for reporting of short- and long-term Initiative results to scientific and lay audiences.

ENVIRONMENTAL BASELINE

Geographic area covered

The geographic area of the proposed action encompasses both private, Federal and State lands within the current range of both species that support sage-grouse and their habitat. This includes portions of eleven western states: Washington, Oregon, California, Nevada, Idaho, Montana, Wyoming, Colorado, Utah, South Dakota, and North Dakota. See Map 1 for the Range of the greater sage-grouse and the Gunnison sage-grouse. (See Map 1)

Status of the species within the action area

Greater sage-grouse

Following is a summary of status of the greater sage-grouse in the action area adapted from the Service's 12-month Petition Finding (Finding) for the species, published March 23, 2010 in the Federal Register (75 FR:13910-14014). Citations and supporting information from the Finding are incorporated by reference herein.

Today, greater Sage-grouse are distributed across 11 western States and 2 Canadian provinces. The greater sage-grouse is found at elevations ranging from 4,000 to over 9,000 feet. It is an omnivore, eating mainly sagebrush, some other soft plants, and insects. One of the most interesting aspects of the greater sage-grouse is its nearly complete reliance on sagebrush. Greater sage-grouse are a landscape-scale species, requiring large expanses of contiguous sagebrush with healthy native understories of grasses and forbs to meet all seasonal habitat requirements.

Long term population declines are occurring virtually range-wide but somewhat different rates due to regional differences in both habitat quality and specific kinds of threats operating on the landscape. Declines began in the late 1800s as early settlers removed sagebrush on better soils for crop cultivation and elsewhere to improve grazing for livestock. Excessive grazing up until the early 1900s by domestic livestock coupled with a period of severe drought had a significant, long term impact on sagebrush habitats that persists today. Development of irrigation projects facilitated the greater expansion of crop cultivation where soils were suitable; and agricultural conversion continues in some areas such as the Columbia basin in the northwestern part of the range and on suitable soils in Montana. Fences associated with agriculture and livestock grazing have long been a source of mortality of individual birds hat is anticipated to continue. Sagebrush habitat has been reduced by an increase frequency in wildfires within the past 30 years which usually kills sagebrush as well as facilitating expansion of invasive species particularly exotic grasses.

The western U. S. the human population is growing more rapidly than the national average leading to increases in urban, suburban, and rural development encroaching on sagebrush habitat with the result that suitable habitat for grouse is lost and where habitat remains, it is no longer connected to larger expanses of habitat essential for sustaining viable populations. Power lines, roads, communication towers, and other infrastructure associated with rural and exurban development also create threats to the species from physical disturbance, and increased potential for predation and invasive plants.

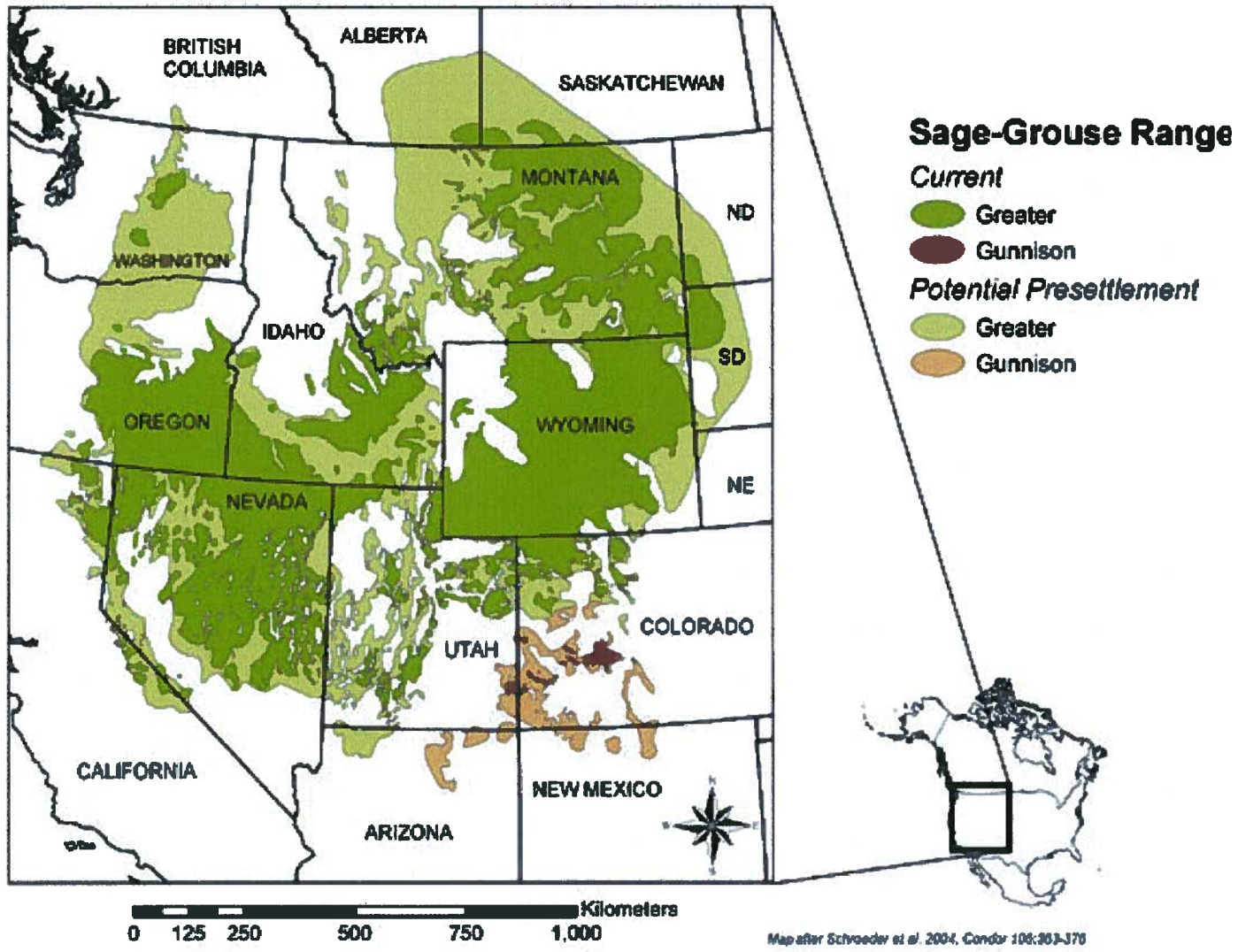
In summary, threats to the species identified by the Service as relevant to the SGI include direct conversion of habitat, urbanization, infrastructure such as roads and power lines built in support of several activities, wildfire and the change in wildfire frequency, incursion of invasive plants, and grazing. Fragmentation of sagebrush habitats through a variety of mechanisms including those listed above has been cited as a primary cause of the decline of sage-grouse populations.

Gunnison sage-grouse

Today the Gunnison sage-grouse is known from seven scattered and isolated populations in southwest Colorado and extending into adjacent southeast Utah. Sage-grouse habitat in southwest Colorado that supports the Gunnison sage-grouse has been more severely impacted than sagebrush habitat elsewhere in Colorado. Most remaining sagebrush habitat on which this

species depends is highly fragmented. Much of sagebrush habitat historically occupied by the species was lost prior to 1960, first due to overgrazing followed by several decades of range management techniques that eradicated sagebrush by herbicide spraying or burning. More recently, sagebrush habitat was lost due to the construction of reservoirs, and land use conversion to agriculture. Currently, urban and residential expansion and associated human infrastructure, as well as recreational use increasingly fragment much of the remaining sagebrush habitat.

The prevalent threat identified by the Service for the remaining small, isolated populations is fragmentation of sagebrush habitat due to human infrastructure. In addition to direct and indirect habitat loss, the presence of roads, fences, and power lines within sagebrush habitat act synergistically to facilitate the increased Gunnison sage-grouse predators, and exacerbate the spread of invasive plant species such as cheatgrass which can increase fire frequency.



Map 1. Distribution and Range of the Gunnison and Greater Sage-Grouse

EFFECTS OF THE ACTION

Effects of the Action

The Service has evaluated the NRCS's SGI in the context of how individual conservation practice standards have the potential to produce beneficial and adverse effects – at the individual, population, and landscape scales. The Service worked in collaboration with the NRCS to develop specific conservation measures for the 40 conservation practice standards reviewed. The Service believes that as implemented, the conservation measures will result in ameliorating, minimizing or eliminating potential adverse effects.

Further, because of the unique nature of the SGI, each conservation practice standard will be designed to work synergistically with other conservation practice standard to achieve the purposes outlined in the Upland Wildlife Habitat Management practice (645), which serves as the umbrella management practice for SGI. Each conservation practice standard has a specific purpose and intent under SGI (Appendix 6). This linkage between conservation practice standards produces interrelated and interdependent sources of risk and benefit to the species and these effects were also analyzed by the Service. In some cases, application of several conservation practice standards at the local or landscape scale will produce benefits while simultaneously creating a potential temporary source of risk to individual birds. For example, removal of encroached conifer may substantially increase populations despite temporary disturbance from noise during cutting.

Lastly, the effects analysis evaluates the benefits and risks of the entire operational framework of the SGI, including the value of the monitoring elements, and use of the Umbrella and Facilitating Management Practices. These parts work in concert with the overall effort of the SGI and cannot be analyzed in the same manner of each individual conservation practice standard.

Appendix 6 provides a comprehensive narrative of each conservation practice standard covered in the Report, its purpose within the SGI, the identification of any potential adverse effects and description of expected beneficial effects, and the identification of the appropriate conservation measure(s).

The following section first describes each conservation practice standard including their specific definition, purpose, and resource concerns. Resource concerns do not describe adverse or beneficial effects of implementing the practice; instead they describe the environmental limiting factor(s) which the conservation practice standards are designed to address as it is relevant to its implementation within the SGI.

An effects analysis follows the standard descriptions with an explanation of the analysis, the potential adverse effects and associated conservation measures, the analysis itself delineated by each of ten adverse effects, and then a summary of effects. Table 1 is a summary of each expected adverse effect and its corresponding conservation measure. The section ends with a brief conclusion and the Service's conservation recommendations.

Conservation Practice Standards - Management Practices

Conservation Practice Standard: Upland Wildlife Habitat Management (645) (UMBRELLA MANAGEMENT PRACTICE FOR SAGE-GROUSE)

Definition: Provide and manage upland habitats and connectivity within the landscape for wildlife, including sage-grouse.

Purpose: This practice will be applied to treat and manage upland sage-grouse habitat concerns identified during the conservation planning process, to provide shelter, cover, and food in proper amounts, locations and times to sustain sage-grouse that inhabit riparian areas and uplands during a portion of their life cycle. Application of this practice shall remove or reduce limiting factor(s) in their order of significance, as indicated by results of the habitat evaluation.

Resource concerns: Factors that reduce habitat quality or otherwise limit population growth.

Conservation Practice Standard: Prescribed Grazing (528) (FACILITATING MANAGEMENT PRACTICE)

Definition: Managing the harvest of vegetation with grazing and/or browsing animals.

Purpose: This practice may be applied to improve or maintain desired species composition and vigor of plant communities, improve or maintain quantity and quality of forage for grazing and browsing animals' health and productivity, improve or maintain surface and/or subsurface water quality and quantity, improve or maintain riparian and watershed function, reduce accelerated soil erosion, and maintain or improve soil condition, improve or maintain the quantity and quality of food and/or cover available for wildlife, and manage fine fuel loads to achieve desired conditions. In sage-grouse habitat, this practice is critical to ensure rangelands are managed sustainably to provide habitat requirements for all life stages of sage-grouse.

Resource concerns: Unrestricted livestock grazing can remove desired vegetation and change plant communities from desired ecological states to undesirable states where invasive and other undesirable plant species predominate. Additionally, unrestricted grazing may lead to overharvest of plant resources, decrease residual cover, decrease plant litter on the soil surface, increase bare ground, accelerate soil erosion rates, decrease water quality, and reduce the overall habitat quality for wildlife, including sage-grouse.

Conservation Practice Standard: Wetland Wildlife Habitat Management (644) (FACILITATING MANAGEMENT PRACTICE)

Definition: Retaining, developing or managing wetland habitat for sage-grouse.

Purpose: This practice may be applied to maintain, develop, or improve wetland habitat for sage-grouse and associated flora and fauna.

Resource concerns: Factors that reduce habitat quality or otherwise limit population growth.

Conservation Practice Standard: Restoration and Management of Rare and Declining Habitats (643) (FACILITATING MANAGEMENT PRACTICE)

Definition: Restoring and managing rare and declining habitats and their associated wildlife species to conserve biodiversity.

Purpose: This practice can be applied to provide and manage habitat for rare and declining species, including sage-grouse.

Resource concerns: Cropland fragments sage-grouse habitat, current rangeland condition does not have desired benefits to the species invasive or undesirable plants do not provide needed sage-grouse habitat according to ecological site potential, or planted species do not reach their potential to provide sage-grouse habitat.

Conservation Practice Standard: Access Control (472) (FACILITATING MANAGEMENT PRACTICE)

Definition: The temporary or permanent exclusion of animals, people, vehicles, and/or equipment from an area.

Purpose: This practice may be applied to prevent, restrict, or control access to an area, maintain or improve the quantity and quality of natural resources, or minimize liability and human health concerns. This practice can be used to manage disturbance to sage- grouse and associated habitats.

Resource concerns: Excessive vehicle, domestic animal, or people activities can disturb certain wildlife species at critical seasons thus decreasing breeding success and/or survival. Unmanaged vehicle, domestic animal, or people activities can physically damage important habitat areas thus decreasing breeding success and/or survival.

Conservation Practice Standard: Forage Harvest Management (511) (FACILITATING MANAGEMENT PRACTICE)

Definition: The timely cutting and removal of forages from the field as hay, green-chop or ensilage.

Purpose: This practice may be applied to optimize yield and quality of forage at the desired levels, promote vigorous plant re-growth, manage for the desired species composition, use forage plant biomass as a soil nutrient uptake tool, control insects, diseases and weed, to maintain and/or improve wildlife habitat, and to maintain a vigorous plant community that provides cover and insect populations in sage-grouse brood rearing habitat.

Resource concerns: Performing unplanned haying operation in fields used by sage-grouse can result in sage-grouse mortality.

Conservation Practice Standards – Vegetative Practices

Conservation Practice Standard: Brush Management (Conifer tree Removal) (314) (FACILITATING VEGETATIVE PRACTICE)

Definition: Conifer removal (individual tree removal) - Targeted conifers are removed by manual or mechanical means, such as, chainsaws, feller bunchers, hydraulic sheers, or masticators. Cut trees can be left in place, lopped-and-scattered, piled-and-burned, chipped, or hauled off-site.

Conifer removal (chaining) - Conifer stands are removed by dragging an anchor chain across the site. Practice is typically done in stands in later successional stages of encroachment where sagebrush and other shrubs, grasses, and forbs are greatly reduced or absent (e.g., in Phases II and III, where trees are co-dominant or dominant with shrubs and herbs, and either the trees or all three layers influence ecological processes of the site.)

Purpose: This practice can be applied to create the desired plant community consistent with the ecological site, to improve forage accessibility, quality and quantity for livestock and wildlife, or to remove post-settlement aged conifers, such as juniper, that have encroached into shrub and grasslands to restore or improve sage-grouse habitats.

Resource concerns: Trees have expanded into shrub/grassland areas, increasing vertical structure on the landscape, affecting sage-grouse use and eventually resulting in loss of grasses, forbs, and shrubs (sagebrush) which reduces habitat suitability. Increased conifers on the landscape also increase the risk of predation by raptors and ravens.

Conservation Practice Standard: Forest Slash Treatment (384) (FACILITATING VEGETATIVE PRACTICE)

Definition: Woody plant slash or debris generated as a by-product of a management activity, such as conifer removal, is removed, reduced, or otherwise treated to limit fuel loads on site and to promote regeneration of remaining plant community. Slash treatment methods typically include pile-and-burn, chipping, lop-and-scatter, removal, crushing, or mulching.

Purpose: This practice can be applied to reduce risk of wildfire and prevent sage-grouse habitat loss, remove or reduce predator perches and cover, and to release and promote understory grasses, forbs, and sagebrush.

Resource concerns: Cut trees left in shrub/grasslands can provide increased vertical structure increasing the risk of predation by raptors and ravens. Slash on the landscape can also result in loss of grasses, forbs, and sagebrush, reducing habitat suitability for sage-grouse.

Conservation Practice Standard: Firebreak (394) (FACILITATING, VEGETATIVE PRACTICE)

Definition: A permanent or temporary strip of bare or vegetated land established to retard fire. Existing vegetation is removed or manipulated by mechanical means, such as mowers or disks, to reduce fuel loads and promote fire-resistant plants or bare ground. Practice may require seeding of fire-resistant plants.

Purpose: This practice may be applied to reduce the spread of wildfire to prevent sage-grouse habitat loss, contain prescribed burns, and interrupt the feedback cycle of wildfire to invasive plants.

Resource concerns: Wildfires can result in small-scale or large-scale catastrophic sage-grouse habitat degradation or loss.

Conservation Practice Standard: Conservation Cover (327) (FACULTATIVE VEGETATIVE PRACTICE)

Definition: Establishing and maintaining permanent vegetative cover.

Purpose: This practice may be applied to reduce soil erosion and sedimentation, improve water quality, improve air quality, enhance wildlife habitat, improve soil quality, or manage plant pests. Practice is applied to agricultural lands in sage- grouse habitat to restore sage-grouse habitat and reduce fragmentation.

Resource concerns: Cropland fragments sage-grouse habitat, or current rangeland condition does not have desired beneficial species. Existing invasive or undesirable plants, which do not provide quality habitat, compete with desired plant species and necessitate active planting to restore habitat conditions.

Conservation Practice Standard: Cover Crop (340) (FACILITATING VEGETATIVE PRACTICE)

Definition: Crops including grasses, legumes and forbs established for seasonal cover and other conservation purposes.

Purpose: This practice may be applied to reduce soil erosion from wind and water, increase soil organic matter content, capture and recycle or redistribute nutrients in the soil profile, promote biological nitrogen fixation, increase biodiversity, weed suppression, provide supplemental forage, soil moisture management, reduce particulate emissions into the atmosphere, minimize and reduce soil compaction, and to provide multi-species cover crops on cropland adjacent to sage-grouse nesting habitat for a full growing season or planted after small grain harvest to create and improve sage-grouse brood rearing habitat.

Resource concerns: Limited sage-grouse brood rearing habitat can reduce brood survival.

Conservation Practice Standard: Riparian Herbaceous Cover (390) (FACILITATING VEGETATIVE PRACTICE)

Definition: Grasses, sedges, rushes, ferns, legumes, and forbs tolerant of intermittent flooding or saturated soils, established or managed as the dominant vegetation in the transitional zone between upland and aquatic habitats.

Purpose: This practice may be applied as to provide or improve food and cover for fish, wildlife and livestock, improve and maintain water quality, establish and maintain habitat corridors, increase water storage on floodplains, reduce erosion and improve stability to stream banks and shorelines, increase net carbon storage in the biomass and soil, enhance pollen, nectar, and nesting habitat for pollinators, restore, improve or maintain the desired plant communities, dissipate stream energy and trap sediment, enhance stream bank protection as part of stream bank soil bio-engineering practices. Restoring the desired native wetland and aquatic vegetation will provide quality sage-grouse habitat.

Resource concerns: Riparian habitats that lack important functional groups and contain limited plant diversity often provide reduced food and cover for wildlife and sage-grouse.

Conservation Practice Standard: Conservation Crop Rotation (328) (FACILITATING VEGETATIVE PRACTICE)

Definition: Growing crops in a planned sequence on the same field.

Purpose: This practice may be applied to reduce sheet-and-rill or wind erosion, improve soil quality, manage the balance of plant nutrients, increase cropping system diversity, manage crop consumptive use of water, manage saline seeps, manage plant pests (weeds, insects, and diseases), provide food for domestic livestock, provide food and cover for wildlife, including pollinator forage, cover, and nesting. Where sage-grouse are using cropland, this practice is used to promote crops that meet breeding and brood-rearing requirements, especially when cropland is adjacent to quality native habitat or other cropland planted to native vegetation. In specific regions and in certain situations, establishment of selected crops can provide suitable vegetation for sage-grouse leks.

Resource concerns: Selected crops and crop management activities may not provide the appropriate cover required for use by sage-grouse.

Conservation Practice Standard: Critical Area Planting (342) (FACILITATING VEGETATIVE PRACTICE)

Definition: Establishing permanent vegetation on sites that have or are expected to have high erosion rates, and on sites that have physical, chemical or biological conditions that prevent the establishment of vegetation with normal practices.

Purpose: This practice may be applied to stabilize areas with existing or expected high rates of soil erosion by water, stabilize areas with existing or expected high rates of soil erosion by wind,

rehabilitate and re-vegetate degraded sites that cannot be stabilized through normal farming practices, stabilize coastal areas, such as sand dunes and riparian areas. Practice will improve sage-grouse habitat by establishing native and/or non-invasive vegetation in areas with disturbed soil from installation of other practices, such as grade stabilization structure.

Resource concerns: Un-vegetated, disturbed soil creates sites for invasive species to colonize, promotes increased soil erosion, and reduces wildlife and sage-grouse habitat quality.

Conservation Practice Standard: Pasture and Hayland Planting (512) (FACILITATING VEGETATIVE PRACTICE)

Definition: Establishing native or introduced forage plant species.

Purpose: This practice may be applied to establish adapted and compatible species, varieties, or cultivars for forage production to improve or maintain livestock nutrition and/or health, balance forage supply and demand during periods of low forage production, reduce soil erosion and improve water quality, and increase carbon sequestration. In sage-grouse habitats, this practice is typically used to seed former croplands with perennial, productive, introduced grass/legume mixes to meet seasonal needs of livestock and lessen grazing demands on native rangeland habitats.

Resource concerns: Forage demand for livestock often exceeds sustainable forage production on native rangelands. Additionally, spring and fall forage is often limited in supply on native rangelands and overuse of native rangelands during these critical times of year lead to decreased residual cover, decreased range health, and may limit residual cover important for successful sage-grouse nesting. Scatted cropland units in sage-grouse habitats also increase fragmentation.

Conservation Practice Standard: Herbaceous Weed Control (315) (FACILITATING VEGETATIVE PRACTICE

Definition: The chemical, biological, or mechanical removal or control of herbaceous weeds including invasive, noxious and prohibited plants.

Purpose: This practice may be applied to control or remove invasive and noxious weeds in order to restore native or desired plant communities and habitat for sage-grouse consistent with the ecological site. It secondarily protects soils, controls erosion, reduces fine-fuels fire hazards, and improves air quality.

Resource concerns: Invasive and noxious weeds degrade ecological sites by increasing competition with native and desirable plant species, increasing soil erosion, reducing water quality, increasing fire frequency, etc. This results in decreased sustainability and resiliency of the ecological sites and leads to reduced habitat quality and quantity for wildlife, including sage-grouse.

Conservation Practice Standard: Rangeland Planting (550) (FACULTATIVE VEGETATION PRACTICE)

Definition: Establishment of adapted perennial or self-sustaining vegetation such as grasses, forbs, legumes, shrubs and trees.

Purpose: This practice may be applied to restore a plant community similar to the Ecological Site Description reference state for the site or the desired plant community. This planting may also provide or improve forages for livestock, provide or improve forage, browse or cover for wildlife, reduce erosion by wind and/or water, improve water quality and quantity, and increase carbon sequestration. In sage-grouse habitats, this practice can be used to restore important native habitats to meet all habitat requirements for sage-grouse.

Resource concerns: Cropland fragments sage-grouse habitat or current rangeland condition does not have desired species beneficial to sage-grouse. Invasive or undesirable plants do not provide needed sage-grouse habitat according to ecological site potential.

Conservation Practice Standards – Structural Practices

Conservation Practice Standard: Watering Facility (614) (FACILITATING STRUCTURAL PRACTICE)

Definition: A permanent or portable device to provide an adequate amount and quality of drinking water for livestock and or wildlife.

Purpose: This practice will be applied to facilitate livestock grazing management and provide access to drinking water for livestock and/or wildlife in order to meet daily water requirements and improve animal distribution to conserve or enhance important sage-grouse habitat. Watering facilities are commonly designed/ implemented to provide adequate livestock water. Commonly used watering facilities are constructed from concrete, fiberglass, metal, or rubber tires. Each tank is typically fed by a pipeline and also contains an overflow for excess water. Winter tanks are routinely buried or covered to prevent freezing and have small drinking areas exposed. Wooden cross-fence is often implemented to prevent livestock entry into tanks and to protect the plumbing associated with the facility.

Resource concerns: Insufficient infrastructure (livestock water) limits grazing rotation options resulting in limited livestock distribution and over/under utilization of forage and decreased range health. Additionally, current water sources may concentrate livestock on important wildlife habitats, reducing habitat quality. Limited stock water greatly restricts the ability of land managers to manage livestock in a way that promotes rangeland sustainability and improved wildlife and sage-grouse habitat.

Conservation Practice Standard: Spring Development (574) (FACILITATING STRUCTURAL PRACTICE)

Definition: Collection of water from springs or seeps to provide water for a conservation need.

Purpose: This practice will be applied to improve the quantity and/or quality of water for livestock, wildlife or other agricultural uses, which can improve mesic habitat quality for sage-grouse and broods. Natural springs are commonly developed to provide a clean source of water for livestock. In addition to providing water for livestock, the development of springs protects the spring source from degradation caused by unrestricted livestock use. The actual development of the spring includes installation of a "spring box" to filter and collect water to be delivered via pipeline to livestock. Pipeline flow is achieved by gravity or pumping conditions.

Resource concerns: Insufficient infrastructure (livestock water) limits grazing rotation options resulting in limited livestock distribution and over/under utilization of forage and decreased range health. Additionally, current water sources may concentrate livestock on important wildlife habitats, reducing the quality. Limited stock water greatly restricts the ability of land managers to manage livestock in a way that promotes rangeland sustainability and improved wildlife and sage-grouse habitat.

Conservation Practice Standard: Pumping Plant (533) (FACILITATING STRUCTURAL PRACTICE)

Definition: A facility that delivers water at a designed pressure and flow rate that includes the required pump(s), associated power unit(s), plumbing, appurtenances, and sometimes on-site fuel or energy source(s) and protective structures.

Purpose: This practice, applied as a part of a resource management system, can achieve one or more of the following: 1) Delivery of water to livestock watering facilities to facilitate livestock management in a way that promotes rangeland sustainability and improved wildlife and sage-grouse habitat; 2) Provide water in areas of limited brood-rearing habitat.

Resource concerns: Insufficient infrastructure (livestock water) limits grazing rotation options resulting in limited livestock distribution and over/under utilization of forage and decreased range health. Additionally, current water sources may concentrate livestock on important wildlife habitats, reducing the quality. Limited stock water greatly restricts the ability of land managers to manage livestock in a way that promotes rangeland sustainability and improved wildlife and sage-grouse habitat.

Conservation Practice Standard: Water Well (642) (FACILITATING STRUCTURAL PRACTICE)

Definition: A hole drilled, dug, driven, bored, jetted or otherwise constructed to an aquifer.

Purpose: Provide water for livestock, wildlife, irrigation, human, and other uses. Provide for general water needs of farming/ranching operations. Facilitate proper use of vegetation on rangeland, pastures and wildlife areas, which can provide water in areas of limited brood-rearing habitat.

Resource concerns: Insufficient infrastructure (livestock water) limits grazing rotation options resulting in limited livestock distribution and over/under utilization of forage and decreased range health. Additionally, current water sources may concentrate livestock on important wildlife habitats, reducing the quality. Limited stock water greatly restricts the ability of land managers to manage livestock in a way that promotes rangeland sustainability and improved wildlife and sage-grouse habitat.

Conservation Practice Standard: Pipeline (516) (FACILITATING STRUCTURAL PRACTICE)

Definition: Small pipeline having an inside diameter of 8 inches or less.

Purpose: This practice, applied as a part of a resource management system, can convey water from a source of supply to points of use for livestock, wildlife, or recreation. Typically this involves conveyance from a spring development or well to a livestock watering facility. Pipelines are commonly implemented underground at depths ranging from 18" to 6' depending on use (winter vs. non-winter).The primary purpose is to facilitate a livestock grazing management plan developed to improve rangeland sustainability and sage-grouse habitat.

Resource concerns: Insufficient infrastructure (livestock water) limits grazing rotation options resulting in limited livestock distribution and over/under utilization of forage and decreased range health. Additionally, current water sources may concentrate livestock on important wildlife habitats, reducing the quality. Limited stock water greatly restricts the ability of land managers to manage livestock in a way that promotes rangeland sustainability and improved wildlife and sage-grouse habitat.

Conservation Practice Standard: Grade stabilization structure (410) (FACILITATING STRUCTURAL PRACTICE)

Definition: A structure used to control the grade and head cutting in natural or artificial channels. The water table in incised channels and ditches will be elevated using a variety of approaches to reestablish the natural hydrology of these wet meadows. The practice may include one or more of the following: (1) depositing and compacting appropriate fill material (soil) into these incised channels; (2) installation of hard structure (plastic sheet pile, rock or gabion structures) that extend out 30' perpendicular to the channel, at intervals every one foot drop in grade to maintain the integrity of the filled channel; (3) planting of native or natural vegetation at structure placement to reinforce hard structure with above ground and root structure of these sedges, rushes and grasses.

Purpose: This practice may be applied to stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advance of gullies, and to enhance environmental quality and reduce pollution hazards. Maintaining or restoring hydrology to these sites are important for sage-grouse brood rearing habitat.

Resource concerns: Altered hydrology in mesic sites often results in reduced water tables, reduced vegetative production, reduced forb and legume abundance, and subsequent reduction in insect production. These factors contribute to decreased brood rearing habitat for sage-grouse.

Conservation Practice Standard: Fence (382) (FACILITATING STRUCTURAL PRACTICE)

Definition: A constructed barrier to animals or people.

Purpose: This practice may be applied to facilitate the accomplishment of conservation objectives by providing a means to control movement of animals and people, including vehicles. Practice can benefit sage-grouse habitat by facilitating the implementation of the prescribed grazing practice to improve rangeland health, increase residual cover, and ensure sustainability of rangeland resource. Additionally, the practice can be used for the relocation of existing fences located in areas of known or suspected sage-grouse collisions.

Resource concerns: Insufficient infrastructure (fences and livestock water) limits grazing rotation options resulting in limited livestock distribution and over/under utilization of forage and decreased range health. Limited infrastructure greatly restricts the ability of land managers to manage livestock in a way that promotes rangeland sustainability and improved wildlife and sage-grouse habitat. Additionally, practice can be an effective tool for managing wild and domestic animal disturbance to sage-grouse habitat or reseeded or reclaimed sites.

Conservation Practice Standard: Obstruction Removal (500) (FACILITATING STRUCTURAL PRACTICE)

Definition: Removal and disposal of buildings, structures, other works of improvement, vegetation, debris or other materials.

Purpose: This practice may be applied to remove and dispose of unwanted obstructions in order to apply conservation practices or facilitate the planned land use and decrease availability of predator nests, dens, and perches. Removal of structures and other obstructions can benefit sage-grouse by decreasing opportunities for predation and accidental mortality due to collisions.

Resource concerns: Structures, including buildings and fences can provide predator perches and nesting sites and can increase predation rates for wildlife including sage-grouse and may cause wildlife to decrease use of otherwise suitable habitats. Additionally, these structures can cause accidental mortality for sage-grouse from collisions.

Conservation Practice Standard: Fish and Wildlife Structure (734) (FACILITATING STRUCTURAL PRACTICE)

Definition: A structure designed and implemented specifically for fish or wildlife.

Purpose: This practice can be a part of a fish or wildlife habitat management plan to serve one or more of the following functions: (a) Provide structure for loafing, escape, nesting, rearing,

roosting, perching, or basking; (b) Provide an escape, avoidance, or exclusionary feature from otherwise life-threatening conditions; (c) Provide alternative cover when natural cover is not readily available. (d) Isolate native species populations from non-natives; (e) Improve or restore habitat connectivity; (f) Reduce the spread of wildfire; and (g) Contain prescribed burns. This practice can be applied to minimize accidental mortality to sage-grouse resulting from livestock watering facilities and fences, to improve overall habitat conditions.

Resource concerns: Certain wildlife species, including sage-grouse, may enter and utilize water structures and be unable to exit or can be seriously injured by collisions with fences and other structures.

Conservation Practice Standard: Road/Trail/Landing Closure and Treatment (654) (FACILITATING STRUCTURAL PRACTICE)

Definition: The closure, decommissioning, or abandonment of roads, trails, and/or landings and associated treatment to achieve conservation objectives.

Purpose: To minimize various resource concerns associated with existing roads, trails, and/or landings by closing them and treating to a level where one or more the following objectives are achieved: (a) Controlling erosion, chemical residues, sediment deposition and damage, accentuated storm runoff, and particulate matter generation; (b) Restoring land to a productive state by reestablishing adapted plants and habitat (wildlife food, cover, and shelter), reconnecting wildlife habitat and migration corridors including streams and riparian areas, and controlling noxious and invasive species; (c) Reestablishing drainage patterns that existed prior to construction of the road, trail, or landing to restore the form and integrity of associated hill slopes, channels and floodplains and (d) minimizing human impacts to the closure area to meet safety, aesthetic, or wildlife habitat requirements. This practice can be used to decommission roads and restore areas to historic conditions when in important sage-grouse habitats, or to remove temporary roads needed for habitat restoration purposes.

Resource concerns: Sage-grouse habitat can be fragmented by roads and trail ways, furthering invasive plant spread, habitat degradation and loss.

Conservation Practice Standards – Limited Use Practices

Limited Use Conservation Practice Standard: Windbreak/Shelterbelt Establishment (380) (FACILITATING VEGETATIVE PRACTICE)

Definition: Windbreaks or shelterbelts are single or multiple rows of trees or shrubs in linear configurations.

Purpose: This practice may be applied to reduce soil erosion from wind, protect plants from wind related damage, alter the microenvironment for enhancing plant growth, manage snow deposition, provide shelter for structures, animals, and people, provide noise screens, provide visual screens, improve air quality by reducing and intercepting air borne particulate matter, chemicals and odors. It can delineate property and field boundaries, improve irrigation

efficiency, and increase carbon storage in biomass and soils. It will only be used to provide wintering/feeding livestock important tree and shrub vegetative cover outside of sage-brush habitat.

Resource concerns: Wintering/feeding livestock on native range can degrade or destroy sage-brush that provides sage-grouse habitat.

Limited Use Conservation Practice Standard: Access Road (560) (FACILITATING STRUCTURAL PRACTICE)

Definition: Construction of a travel-way for equipment and vehicles.

Purpose: This practice can provide a fixed route for vehicular travel for resource activities involving ranch and farm management, while protecting the soil, water, air, fish, wildlife, and other adjacent natural resources. Use of the practice in conjunction with road closure conservation practice can replace existing roads to areas outside of important sage-grouse habitats (such as leks).

Resource concerns: Sage-grouse habitat can be fragmented by roads and trail ways, furthering invasive plant spread, habitat degradation and loss.

Limited Use Conservation Practice Standard: Brush Management (non-conifer) (314) (FACILITATING VEGETATIVE PRACTICE)

Definition: The management or removal of woody (non-herbaceous) plants, including sagebrush.

Purpose: This practice may be applied to create the desired plant community phase consistent with the ecological site description and preferable to sage-grouse.

Resource concerns: Sagebrush range sites lacking diversity and if comprised of monotypic stands of brush species limit the availability of understory vegetation (forbs, legumes, and grasses) limiting both sage-grouse habitat and livestock forage. These monotypic stands are modified by creating a mosaic of small, irregular shaped openings to increase diversity. Typical means to create the mosaic include tebuthiron application and mowing.

Limited Use Conservation Practice Standard: Grazing Land Mechanical Treatment (548) (FACILITATING VEGETATIVE PRACTICE)

Definition: Modifying physical soil and/or plant conditions with mechanical tools by treatments such as pitting, contour furrowing, ripping, chiseling, or sub-soiling.

Purpose: To establish conditions where the desired plant community phase, consistent with the ecological site description and preferable to sage-grouse, can re-establish on a degraded ecological site by a) Fracturing compacted soil layers and improve soil permeability, b) Reducing water runoff and increase infiltration, c) Breaking up sod-bound conditions and thatch

to increase plant vigor, and d) Renovating and stimulating the soil and plant community for greater productivity and yield.

Resource concerns: Degraded ecological sites that have restrictive soil and vegetation layers prevent natural re-colonization of the desired plant community. This results in reduced amounts of understory vegetation (forbs, legumes, grasses) that are important for ecological processes, robust sage-grouse habitat, and livestock forage.

Limited Use Conservation Practice Standard: Prescribed Burning (338) (FACILITATING VEGETATIVE PRACTICE)

Definition: Controlled fire applied to a predetermined area.

Purpose: This practice may be applied to create the desired plant community phase consistent with the ecological site description that is preferable to sage-grouse.

Resource concerns: Sagebrush range sites lacking diversity and comprised of monotypic stands of brush species limit the availability of understory vegetation (forbs, legumes and grasses) limiting sage-grouse habitat and livestock forage.

Limited Use Conservation Practice Standard: Irrigation System, Micro Irrigation (441) (FACILITATING STRUCTURAL PRACTICE)

Definition: Drip irrigation system

Purpose: This practice, applied as a part of a resource management system, can achieve improvements in water conservation, and can facilitate woody and herbaceous plantings for sage-grouse.

Resource concerns: Insufficient infrastructure leads to unproductive and improper mix of vegetation, leading to poor sage-grouse habitat.

Limited Use Conservation Practice Standard: Irrigation System, Sprinkler (442) (FACILITATING STRUCTURAL PRACTICE)

Definition: Sprinkler - not to include center pivot or wheel lines.

Purpose: This practice, applied as a part of a resource management system, can improve production of forbs and insects for brood rearing and establishment of woody vegetation for sage-grouse.

Resource concerns: Insufficient infrastructure leads to unproductive and improper mix of vegetation, leading to poor sage-grouse habitat.

Limited Use Conservation Practice Standard: Irrigation System, Surface and Subsurface (443) (FACILITATING STRUCTURAL PRACTICE)

Definition: A system in which all necessary water-control structures have been implemented for the efficient distribution of water by surface means, such as furrows, borders, contour levees, or contour ditches, or by subsurface means.

Purpose: This practice, applied as a part of a resource management system, can improve production of forbs and insects for brood rearing and establishment of woody vegetation for sage-grouse.

Resource concerns: Insufficient infrastructure leads to unproductive and improper mix of vegetation, leading to poor sage-grouse habitat.

Limited Use Conservation Practice Standard: Irrigation Water Conveyance-Pipeline (430AA-GG) (FACILITATING STRUCTURAL PRACTICE)

Definition: Pipes water to sprinklers and used in association with other irrigation system practices such as Irrigation System - Sprinkler (442)

Purpose: This practice, applied as a part of a resource management system, can improve water conservation, facilitate sagebrush and herbaceous plantings for grouse, or reduce risk of WNV by replacing flood irrigation systems with alternate systems, and improve production of forbs and insects for brood rearing improve production.

Resource concerns: Insufficient infrastructure leads to poor brood habitat, possible disease, degraded upland habitat conditions.

Limited Use Conservation Practice Standard: Above Ground, Multi-Outlet Pipeline (431) (FACILITATING STRUCTURAL PRACTICE)

Definition: A water distribution tubing consisting of aluminum, PVC, or lay-flat polyethylene pipeline with closely spaced orifices or gates.

Purpose: This practice, applied as a part of a resource management system, can improve water conservation, facilitate woody and herbaceous plantings for grouse, reduce risk of West Nile Virus by replacing flood irrigation systems with alternate systems, improve production of forbs and insects for brood rearing improve production to allow improvements in priority sage-grouse habitat.

Resource concerns: Insufficient infrastructure leads to poor brood habitat, possible disease, and degraded upland habitat conditions.

Limited Use Conservation Practice Standard: Irrigation Field Ditch Irrigation System, Surface and Subsurface (388) (FACILITATING STRUCTURAL PRACTICE)

Definition: A permanent irrigation ditch constructed in or with earth materials, to convey water from the source of supply to a field or fields in an irrigation system.

Purpose: This practice, applied as a part of a resource management system, can improve production of forbs and insects for brood rearing and establishment of woody vegetation for sage-grouse.

Resource concerns: Insufficient infrastructure leads to poor brood and other sage-grouse habitat.

Limited Use Conservation Practice Standard: Irrigation Water Management (449) (FACILITATING STRUCTURAL PRACTICE)

Definition: The process of determining and controlling the volume, frequency and application rate of irrigation water in a planned, efficient manner.

Purpose: This practice, applied as a part of a resource management system, can improve production of forbs and insects for brood rearing and establishment of woody vegetation for sage-grouse.

Resource concerns: Insufficient infrastructure leads to poor brood and other sage-grouse habitat.

Limited Use Conservation Practice Standard: Pond (378) (FACILITATING STRUCTURAL PRACTICE)

Definition: A water impoundment made by constructing an embankment or by excavating a pit or dug out to provide water for livestock and/or wildlife.

Purpose: This practice will be applied to facilitate livestock grazing management and provide access to drinking water for livestock and/or wildlife in order to meet daily water requirements and improve animal distribution to conserve or enhance important sage-grouse habitat.

Resource concerns: Insufficient infrastructure (livestock water) limits grazing rotation options resulting in limited livestock distribution and over/under utilization of forage and decreased range health. Additionally, current water sources may concentrate livestock on important wildlife habitats, reducing the quality. Limited stock water greatly restricts the ability of land managers to manage livestock in a way that promotes rangeland sustainability and improved wildlife and sage-grouse habitat.

Framework for Assessment of Risk/Benefit

In this analysis, the Service provides a qualitative assessment of adverse effects or potential risk(s) to the species and its habitat needs from implementation of conservation practice standards. A qualitative assessment is warranted because there is substantial uncertainty in generating specific metrics of adverse effect (such as number of expected mortalities of individual birds, or numbers of habitat acres temporarily or permanently lost) due to the complexity of factors affecting the individual fate of birds. Factors include (1) a likely inability to effectively measure them, (2) inability to differentiate the source of risk, including predictable but stochastic events such as outbreaks of West Nile virus, (3) sources of risk emerge outside the lands to be enrolled/covered in the SGI, and (4) the adverse effect may not be directly attributable to application of a particular conservation practice standard. A compounding factor is that the adverse effects manifest themselves at different scales, i.e. population or landscape.

The Service has provided a qualitative assessment of benefits to the NRCS' implementation of the SGI for the same reason described above. Benefits have been identified for each conservation practice standard and within the context of the umbrella conservation practice standard as well (Appendix 6).

The Service believes that effective implementation of conservation practice standards and associated conservation measures are anticipated to result in a positive population response by the species. This positive response is expected as threats are reduced; notably in addressing habitat fragmentation and improvement of habitat conditions across the landscape. This will be measured through the installation of conservation practice standards within the core areas and resource threats addressed or removed. At this point in the implementation of the SGI and our analysis, these benefits, however, cannot be articulated in quantified metrics such as absolute increases in numbers of birds or population growth. The SGI science support component will provide information over time to better refine both the benefits and consequences of SGI. The Service and NRCS will meet at least annually to assess the overall success and progress of the effort.

A secondary benefit will be a better understanding of effects of grazing management, conifer removal, alleviating threats of agricultural tillage and subdivision, fencing, livestock watering facilities, and other related management activities on the species and their habitats.

Structure and Organization of the Effects Analysis

The effects analysis addresses the nuances of each conservation practice standard itself as well as the interplay between conservation practice standards and the cumulative implementation of all parts of the SGI. For each conservation practice standard to be used under the SGI, Appendix 6 provides, in narrative form, information about the conservation practice standards with definitions, purpose, resource concerns, adverse and beneficial effects to sage-grouse and the conservation measures designed to address the potential adverse effects.

This information provides a perspective on how NRCS is operationally expected to use each conservation practice standard to achieve the overarching goals of SGI. This understanding is

important for our analysis because practices are not implemented in isolation; rather, practices are implemented under the 645 umbrella practice to ensure that benefits to the species and objectives and purposes of the March 2010 Partnership Agreement between NRCS and the Service are achieved. For example, the Service would find no conservation value in installing a new fence which could result in localized mortality of an individual bird from a fence strike. In the case of the SGI, however, the construction of a fence is a facilitating practice that can produce conservation value by enhancing nest success because the new fence is part of a grazing system. Through the SGI, NRCS will use this particular conservation practice standard when working with landowners to facilitate a livestock grazing plan developed to improve rangeland sustainability and sage-grouse habitat and to relocate existing fences from important habitat for the species. The practice will require certain prescribed set-back distances and fence marking to improve visibility which is expected to reduce bird strike collisions.

The last aspect of the Service's analysis of the conservation practice standards review synthesizes the anticipated adverse effects resulting from both the application of individual conservation practice standards and the totality of the SGI itself using commonly occurring adverse effects. The analysis further reviews and evaluates the individual and cumulative benefits at both the individual conservation practice standard and SGI scale.

The Service and NRCS identified ten potential adverse effects that may result from implementation of the conservation practice standards. To address the adverse effects identified, the Service, in cooperation with NRCS, developed specific conservation measures which are designed to minimize, avoid, or eliminate these adverse effects. The particular adverse effect and the associated conservation measures are described below in Table 1.

Table 1. Potential Adverse Effects and Associated Conservation Measures

Potential adverse effects to the species as a result of the conservation practice standard	**Conservation Measure recommended to ameliorate, minimize or abate the potential adverse effects**
AE 1: Physical disturbance (including noise) of birds	**CM 1:** NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks.
AE 2: Temporary soil and vegetation disturbances	**CM 2:** Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs

	of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment.
AE 3: Increased potential for invasive plants	**CM 3**: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment.
AE 4: Removing sagebrush and understory vegetation during implementation of the conservation practice standard	**CM 4**: Design conservation practice standard to minimize or avoid loss of sagebrush during practice installation. For linear practices, limit removal of sagebrush to one side of disturbance and to only the width of removal vehicle. If access for operation and maintenance is required, limit access to one side of disturbance and a limit access to one vehicle width. NRCS shall coordinate with the State Wildlife Agency to determine overall practice applicability, location, extent, configuration, and timing in conservation practice standard's where removal of sagebrush and associated understory vegetation is the objective (brush management, grazing land mechanical treatment, prescribed burning).

AE 5: Increased fire hazard	**CM 5**: Woody slash shall be treated if significant build up of fuels occurs (typically in phase II and III juniper treatments). Slash piles shall be burned when wildfire risk is low (usually when soils are frozen or saturated). Follow state forestry laws, when applicable, for treating slash to minimize wildfire risk.
AE 6: Accidental mortality to individual sage-grouse	**CM 6**: Plan and design placement of new fences away from occupied and historic leks. If this is not possible, NRCS will require that fences be adequately marked to increase visibility. Identify existing fences that are nearby to an occupied or historic lek and consider removing or relocating the fence to a site further from the lek. NRCS will require, at a minimum, marking all existing fences within 1/4 mile from an occupied or historic lek, or in areas where collisions are known to occur. Use escape ramps in all new and existing water facilities that occur in sage-grouse habitat. For haying operations, employee techniques to avoid or minimize mortality, such as flush bars, slower speeds and harvesting patterns that herd wildlife out of the hayland (e.g., from center to outside of field).
AE 7: Increased potential for West Nile virus	**CM 7**: Where a conservation practice standard involves the creation of an open water source, excluding livestock watering tanks, follow recommendations from the State Wildlife Agency and design practice to minimize or eliminate the threat of West Nile virus to the species.
AE 8: Increased potential for predation	**CM 8:** Minimize to the extent possible the removal of existing vegetation when installing practice. Whenever possible when installing fence, use T-posts or cones on posts to reduce perching opportunities for avian predators. Avoid leaving trash or brush piles that could provide cover for predator species. Powerlines should be buried whenever possible or use solar systems to supply required power needs.
AE 9: Practice is considered to be of "limited use" for sage-grouse	**CM 9**: Where the particular "limited use" conservation practice standard is planned, NRCS shall coordinate with state wildlife agency to develop and implement site-specific guidelines to determine practice applicability, location, extent, configuration, and timing to reduce risk to sage-grouse and their habitats.
AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality	**CM 10**: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other Facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Effects Analysis by Adverse Effect

Synthesis of the anticipated adverse effects resulting from the application of individual conservation practice standards that follows is organized by the ten commonly anticipated effects identified in Table 1 above. The analysis reviews and evaluates the individual and cumulative benefits at both the individual conservation practice standard and SGI scale.

Adverse Effect: (I) Physical disturbance (including noise)

Normal and routine use of equipment necessary to maintain livestock operations is not considered by the Service to be an adverse effect to the species. The installation of most of the Conservation Practice Standards will produce some additional level of physical disturbance because most involve the physical presence of humans and their equipment, vehicles, or machinery. Further, future periodic disturbances have the potential to be created as maintenance actions of the implemented practices may be needed over their operational life. Although the relationship and effect are not quantitatively known, the literature suggests that some form of physical effects from presence and/or associated noise will create a disturbance response to individual birds (Service 2010). Most of this disturbance, however, will be localized to the immediate area where the work is occurring and is expected to be of limited duration and temporary in nature.

The presence of livestock may also create physical disturbance to sage-grouse. Adverse consequences of grazing include several related to livestock trampling of grouse nests. Although the effect of trampling at a population level is unknown, outright nest destruction has been documented and the presence of livestock can cause sage-grouse to abandon their nests.

Additional adverse effects may include birds temporarily or permanently leaving the immediate area. The bird's response ("flushing"/escape behavior) may place individual birds at greater risk to predation when they leave sagebrush cover. If the equipment and actions are occurring close to occupied nests, the female may abandon the nest for some indeterminate period or permanently. The net effect of the physical disturbance including sustained sources of noise may be a localized reduction of survival or productivity, avoidance of otherwise suitable habitat, and/or reduction of breeding frequency. The adverse effect of noise is amplified if it is of significant volume or duration during the mating displays of males on leks. If noise interferes with mating displays, and thereby female attendance, younger males will not be drawn to the lek and eventually leks will become inactive (Service 2010).

The Service is primarily concerned with physical disturbance during the time the species is using leks. A conservation measure was designed, in coordination with NRCS, specifically to eliminate or manage this adverse effect during the species use of leks. The adverse effects of this concern are expected to be localized and temporary, and the use of the conservation measures will further reduce the risks of adverse effects at the scale upon which populations or the species will be materially or demonstrably negatively impacted. Further reduction of the extent and magnitude of this conservation issue will occur through the expected and substantial involvement from local field level experts in implementation of this conservation measure, including State Wildlife Agency personnel and other invited experts. The long term benefits of installation and application of a particular conservation practice standard is expected to exceed the temporary adverse effects created from their installation.

Disturbance of some individual grouse may occasionally occur from feeding, calving, and herding of livestock. These effects are expected to rarely occur and are not expected to produce significant changes in species distribution and abundance.

Adverse Effect: (II) Temporary soil and vegetation disturbance, and (III) Increased potential of introduction of invasive plants

Temporary soil and vegetation disturbance is expected from the installation of most of the Conservation Practice Standards. This disturbance may increase the potential for invasive plants. For purposes of this analysis, the Service is combining these two conservation issues into a single discussion of their potential adverse effects.

Sources of the disturbance would include use of equipment (post-hole diggers, tractors, and other machinery) as well as practices that involve the planting or manipulation of vegetation (examples such as conservation cover, brush management - individual conifer removal, and riparian herbaceous cover). Common potential adverse effects identified by the Service include degradation of habitat conditions, increased fragmentation, and changes in natural fire frequencies as a result of colonization of these disturbed sites with invasive plants. Collectively, these adverse effects can produce temporary changes in population dynamics and impacts to individual birds as well as at the population level. The primary adverse effect of concern to the Service is the opportunity created for invasion of undesirable plants during practice installation and the potential for habitat degradation from unsustainable or unmanaged livestock grazing.

Invasive plant species were identified by the Service as a serious rangewide threat, and one of the highest risk factors for the species based on the plants' potential to out-compete sagebrush, the inability to effectively control them once they are established, and the synergistic interaction between these species and other risk factors on the landscape (e.g., wildfire, infrastructure construction) (Service 2010). Unsustainable or unfavorable livestock management has the potential to degrade habitat. Grazing can adversely impact nesting and brood-rearing habitat by decreasing vegetation concealment from predators. Grazing also has been shown to compact soils, decrease herbaceous abundance, increase erosion, and increase the probability of invasion of exotic plant species (Service 2010).

The conservation practice standards analyzed by the Service that could produce this potential adverse effect will be deployed by NRCS to conduct restoration and enhancement actions for sagebrush habitat. The conservation measure focuses on a site-specific evaluation of the risk from invasive plants. For restoration actions, the Service recommends that native plant species appropriate to the ecological site be used to provide a temporary buffer in the establishment of native vegetation. With the use of the conservation measures, coupled with the relatively small area of disturbances created by the SGI collectively across the landscape, the Service believes that these two conservation issues can be adequately managed and will not produce adverse effects in the form of population dynamics or habitat availability.

The additional conservation measure to address potential adverse effects from grazing is to ensure that umbrella system practice Upland Wildlife Habitat Management shall be used to design, implement, and install the other Facilitating practice standards. This will ensure that the species habitat is maintained or improved following application. The expected species response

will be positive as a result of the installation of a grazing management system specifically designed to be compatible with the needs of the species.

The long term and cumulative benefits of installation and application of the particular Conservation Practice Standards as conditioned by the conservation measures are expected to exceed the temporary expected adverse effects created from their installation.

Adverse Effect: (IV) Removal of sage brush and understory component

This adverse effect is for permanent removal of either sagebrush or the understory (forb, grasses) components. It is specific to a vegetative loss directly from the installation of the conservation practice standard or the expectation that, once implemented, permanent degradation of habitat conditions for the sage-grouse will have resulted. The Facilitating vegetative practices (forest slash treatment, firebreak), Facilitating structural practices (watering facility, spring development, pumping plant, water well, pipeline, grade stabilization structure, fence, and obstruction removal) and almost all of the Limited Use Practices covered in this Conference Report have the potential to result in the removal of sagebrush and/or understory components.

Temporary loss of sagebrush and understory components may occur with livestock management. Reduction of grass heights due to livestock grazing in sage-grouse nesting and brood-rearing areas has shown to negatively affect nesting success (Service 2010).

The primary conservation concern to the Service is loss of sagebrush and its associated understory vegetation which leads to a reduction of available habitat and subsequent decline in sage-grouse populations. The Service believes that maintaining large areas of suitable habitat with appropriate connectivity is essential to sage-grouse persistence (Service 2010).

For purposes of our analysis, NRCS is not proposing to facilitate the loss of natural sage brush habitats through direct conversion to agricultural lands. This was a primary concern raised by the Service at the time of the petition finding (Service 2010).

Consequently, loss of habitat and increases in rate/extent of habitat fragmentation under the conservation practices implemented as described in the NRCS SGI is not expected to occur at the scale necessary to adversely impact population trends.

Most of the structural practices will produce localized losses which can be minimized using the identified recommended conservation measure(s). The conservation measure(s) focus on design and planning aspects of the practice so as to avoid large expanses of habitat loss especially from linear practices (e.g., fence lines, access road, etc). Where the removal of sagebrush vegetation and associated understory is the objective of a limited use practice in support of the goals of the SGI (such as brush management, grazing lands mechanical treatment, and prescribed burning), the conservation measure recommends the coordination with the State Wildlife Agency personnel to determine overall practice applicability, location, extent, configuration, and timing. The application of local knowledge is cumulatively expected to further minimize any potential adverse effects of this conservation practice. The installation of these practices is expected to address limiting factors to sage-grouse persistence across of the landscape (both collectively and cumulatively) that are anticipated to produce benefits which exceed the localized loss of sagebrush habitat.

The conservation measure to address potential adverse effects from grazing is to ensure that umbrella system practice Upland Wildlife Habitat Management shall be used to design, implement, and install the other facilitating practice standards to ensure that the species habitat is maintain or improved following application. The expected species response will be positive as a result of the installation of a grazing management system specifically designed to be compatible with the needs of the species.

Cumulatively, the loss of habitat under the conservation practices implemented as described in the NRCS SGI and through the application of the recommended conservation measures are not expected to occur at the scale necessary to adversely impact population trends or the create habitat fragmentations.

Adverse Effect: (V) Increased Fire Hazard

Fire is one of the primary factors linked to population declines of greater sage-grouse because of long-term loss of sagebrush and conversion to monocultures of exotic grasses (Service 2010). Forest Slash Treatment has the potential to create this conservation concern.

The specific adverse effects of the installation of this practice is focused on managing the conditions after or during practice implementation that are conducive to introducing or spreading invasive plants following wild fires. The other primary issue of concern to the Service is specific to the management of woody slash created after a management treatment to control pinyon-juniper invasion in some parts of the species' range. While the evidence of the effectiveness of managing pinyon-juniper encroachment is not yet established, both NRCS and the Service believes it has conservation value to the species and is an integral component of the SGI in specific situations.

The conservation practice standards that are implemented under the purposes of the SGI are likely to minimize the risk of increased fire hazard due to their inherent design features and application, and by following the recommended conservation measure for this concern (the management of woody slash piles should significantly reduce build-up of fuels and by following state forestry laws governing management of slash). At the landscape scale for this particular conservation practice standards the identified management controls are expected to reduce the extent and magnitude of creating increased hazards for uncontrolled and/or unnatural fire regimes in sagebrush.

Adverse Effect: (VI) Increased potential of accidental mortality to individuals

Several conservation practice standards (Watering Facility, Forage Harvest Management, Cover Crop, and Conservation Crop Rotation, and Fencing) were identified as potentially causing mortality or injury to individual birds. These include accidental mortality from drowning in livestock water tanks, getting hit by farm equipment, or striking a fence.

The use of specific conservation measures focusing on design, timing, and method of operation of machinery and the placement and management of water features (such as the use of escape ramps and individual site selection for proper placement) is expected to significantly reduce the potential adverse effects of these conservation practice standards.

The remaining source of adverse effects, the construction of fences, however, remains a primary conservation issue to the Service. The effects of fencing on sage-grouse include direct mortality through collisions, creation of raptor and corvid perch sites, and the potential creation of predator corridors along fences (particularly if a road is maintained next to the fence) (Service 2010). More discussion of the effects of fencing from the factors indicated above is found in the Finding which is incorporated by reference herein. The use of setbacks, buffers, and fence marking is expected to manage or reduce the risk of collisions.

The principle technique for minimizing the adverse effects of fencing is to ensure that planning and design placement of new fences provides at least a ¼ mile buffer from occupied and historic leks, unless the state fish and wildlife agency recommends a different buffer. If this is not possible, a requirement to mark the fence to increase visibility will be implemented by NRCS. NRCS will identify existing fences that are within ¼ mile of an occupied or historic lek and consider removing or relocating the fence to a site further from the lek. NRCS will require marking all existing fences within ¼ mile from an occupied or historic lek, on in areas where collisions are known to occur.

Use of visible marking and strategic placement of fences have been shown to reduce sage-grouse mortalities by as much as 70% as compared to unmarked sections (Christiansen 2009). The science support element of the SGI (Appendix 4) will provide important information on the overall effectiveness of marking fences and the long-term response of the species.

Fence strikes are a potential source of mortality influenced by location, design, density of fences, and other site specific factors. Cumulatively, the use of the recommended conservation measures are expected to provide a net positive conservation outcome to the species, particularly in light of the positive synergism created through removal of existing fences in essential habitat features such as leks, the installation of escape ramps, and modifications of the installations of the other affected conservation practice standards.

Adverse Effect: (VII) Increased potential for introduction of disease (West Nile virus or WNv).

Outbreaks of West Nile virus have resulted in disease-related mortality of sage-grouse. Because both species have little or no resistance to this disease, the likelihood of mortality of affected individuals is extremely high. As a result, the Service concluded in its 12-month finding that disease is a threat to the greater sage-grouse now and in the foreseeable future (Service 2010); however the threat of WNv to the Gunnison sage-grouse has not been documented.

However, since the threat of WNv is considered persistent and having a permanent presence throughout the range of both species, the Service has recommended certain conservation measures designed to minimize the creation of conditions that, as a direct or indirect result of the installation of certain conservation practice standards, provide potential breeding habitat for mosquitoes that can transmit WNv.

The implementation of the conservation measure will require site-specific assessments of the risk of introducing WNv as a result of creating an open water source (for livestock watering). State wildlife agency personnel are expected to play a central role in advising NRCS on timing,

construction, and placement. Cumulatively, the Service believes that the conservation measures will effectively reduce the risk of this conservation concern at the local and landscape scale.

Adverse Effect: (VIII) Increased potential for predation

In the Services' 12-month finding for the greater sage-grouse, we found that nest predation by ravens and other human-subsidized predators may be increasing and of potential concern in areas of human development. Although we do not have specific information that predation is having or is expected to have an overall adverse effect on the species (Service 2010). Predation is a normal part of the sage-grouse life cycle, with most individual birds eventually succumbing to predation, with substantial effects on nest success, juvenile survival, and adult survival (Schroeder and Baydack 2001). Population reductions may result when increased land covers associated with human developments facilitate artificially high rates of predation, overwhelming the species ability to replace natural predation rates (Bui et al. 2010). Conserving large and intact sagebrush-dominated landscapes is a cost-effective alternative to annual investments in intensive predator management in already compromised habitats (Coates and Delehanty 2010).

Certain conservation practice standards may increase the potential for predation on individual birds through the installation of structures or modifying existing habitat conditions. The affected conservation practice standards include Grade Stabilization Structure and all of the Limited Use Practices (see below and Appendix 6) that involve the creation or maintenance of infrastructure or habitat manipulations associated with ranching operations.

The identified conservation measure suggests modifications to the design of fences, management of brush piles, and avoiding the use of tall structures in the species' habitat to the extent possible and practicable. Cumulatively, the Service believes that the conservation measures will effectively reduce the risk of this conservation concern at the local and landscape scale.

Adverse Effect: (IX) Practice is considered to be of "limited use."

As a reoccurring point in our analysis of effects, the development of site specific conservation measures is critical to manage, reduce, or eliminate the potential adverse effects that may result from the implementation of the Conservation Practice Standards and SGI. The Service and NRCS agree that there are Conservation Practice Standards that have potentially conflicting purposes, or have a very specific purpose within the framework of the SGI that can only be effectively evaluated and executed at the landowner scale. Collectively identified as "limited use" practices, they include: Windbreak/Shelterbelt Establishment; Access Road; Brush Management (non-conifer), Grazing Land Mechanical Treatment, Prescribed Burning, Pond, and all of the irrigation system practices.

"Limited use" practices are also by definition practices that NRCS has indicated to the Service will only be used in specific and special circumstances to address some limiting factor for sage-grouse conservation as identified in the umbrella Upland Wildlife Habitat Management (645) Conservation Practice Standard. For the "limited use" practices a specific additional conservation measure was generated to acknowledge the need for developing guidelines in coordination with State Wildlife Agency to determine practice applicability, location, extent, configuration, and timing to reduce the risk to sage-grouse and sage-grouse habitats.

This conservation measure coupled with the limited application of these practices throughout the landscape will reduce the adverse effects to the species and its supporting habitat.

Adverse Effect: Issue: (X) Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs can result in a reduction of sage-grouse habitat quality

As with the explanation and analysis of Adverse Effect IX, the Services' analysis recognizes the interdependence and interplay between the individual Conservation Practice Standards and how they will produce specific results within the goals and structure of the umbrella Upland Wildlife Habitat Management (645) Conservation Practice Standard. As described in the Description of the Proposed Action section of this Conference Report, application of the 645 umbrella conservation practice standard will ensure that implementation of each of the Conservation Practice Standards will maintain and improve habitat for sage-grouse and other associated sagebrush dependent species and that all facilitating management practices will be aimed at improving rangeland health, diversity, and sustainability.

Further, the primary tool NRCS will use for sage-grouse habitat management is prescribed grazing, a facilitating management practice of the SGI. In the installation of Prescribed Grazing (528) Standard and Specification, NRCS will conduct a detailed inventory of known sage-grouse lek sites, roads, and associated infrastructure (i.e., fences, watering tanks, etc.) to develop site-specific grazing systems. All prescribed grazing plans will be designed to A) improve overall rangeland health, B) be sustainable on the landscape, C) have no more than 50% forage utilization during winter grazing, and D) be monitored so informed adjustments can be made, when necessary. Site-specific management plans will be developed with each landowner; these plans will detail the stocking rates, rotations, timing, and duration of use in each field. All grazing plans will contain a drought contingency that adjusts grazing use commensurate with lower precipitation and plant growth. All required facilitating practices (i.e., fence, well, spring development, pipeline, etc.) will be planned and designed to minimize disturbance and, to enhance sage-grouse habitat through the installation of a sustainable livestock management program.

SUMMARY OF EFFECTS

Implementation of the SGI is intended to reduce threats to both the greater and the Gunnison sage-grouse identified by the Service. The specified conservation measures are expected to benefit sage-grouse by maintaining, enhancing, and restoring sage-grouse populations and their habitats as well as by reducing the threats of direct mortality. Landowners who are interested in participating in NRCS' SGI must agree to contribute to the maintenance of sagebrush on their enrolled lands, follow the recommended standards and specifications within the umbrella Upland Wildlife Habitat Management Practice and each of the conservation practice standards used. Participating owners are not likely to convert sage-grouse habitats to unsuitable habitat, or to subdivide their properties while enrolled in the cost-share contracts offered by NRCS through the SGI. The SGI will result in restoration of habitat by either seeding/planting (active restoration) or by implementing grazing practices and fire prevention measures to allow the natural reestablishment of sagebrush to occur (passive restoration) during the term of the individual contracts (between 2 and 10 years). The strategic nature of the SGI also means that the lands where the most important sage-grouse core areas occur will receive the highest priority for

financial and technical assistance. The strategic approach will enhance the landscape level benefits of the SGI.

Conservation Measures are designed to maintain and enhance habitat and decrease fragmentation which is the greatest threat to sage-grouse. Conservation Measures also include commitments to reduce direct grouse mortality from farming or ranching operations. With the strategic nature of the SGI, large expanses of connected private ranchlands will be involved in sage-grouse habitat restoration and management to provide a substantial conservation benefit for the species.

Although expected results have not yet been quantified, the SGI is expected to maintain or enhance the larger sage-grouse populations in the targeted core areas.

While incidental take of sage-grouse is expected to be minimal because habitat loss and fragmentation are primary limiting factors, we do anticipate limited take as a result of SGI and associated conservation practice standards. We expect that the majority of incidental take will be in the form of death or temporary harassment during conservation practice installation and operation. For some conservation practice standards, such as irrigation systems and fences, some level of incidental take is expected over the life of the practice. The scale of the effect will be landscape specific, but will most likely involve mortality of grouse, the destruction of nests, and loss of eggs.

The SGI is expected to limit unfavorable impacts to the species, and to maintain and enhance habitat using the core area approach. In conclusion, the small anticipated level of incidental take is more than offset by the implementation of conservation practices for the benefit of sage-grouse according to the 645 practice standards and the Conservation Measures identified for the facilitating practices.

The overwhelming conservation outcome of implementation of the SGI is that within core areas, maintenance of existing habitat and enhancement of marginal habitat will outweigh short-term negative impacts to individual grouse. This will result in more of the threats that adversely affect populations being managed, more habitat under the appropriate management prescriptions, and more information being developed and disseminated on the compatibility of sustainable ranching operations on the persistence of this species across the landscape.

Both species rely upon landscapes to persist and the SGI is an organized and strategic effort to support this level of focused conservation. That landscape objective can only be achieved by the cumulative results of individual actions occurring at the local and population level. This use of local and specialized knowledge and subsequent decision making based on upon local biological needs of the species is the central feature of the SGI. The participation of other partners, notably the state wildlife agency personnel, will add significant value in this context.

Cumulatively, the Service believes that effective implementation of conservation practice standards and associated conservation measures are anticipated to result in a positive population response by the species. This positive response is expected as threats are reduced; notably in addressing habitat fragmentation and improvement of habitat conditions across the landscape. This will be measured through the installation of conservation practice standards within the core areas and resource threats addressed or removed. At this point in the implementation of the SGI and our analysis, these benefits, however, cannot be articulated in quantified metrics such as

absolute increases in numbers of birds or population growth. The SGI science support component will provide information over time to better refine both the benefits and consequences of SGI. The Service and NRCS will meet at least annually to assess the overall success and progress of the effort.

CONCLUSION

After reviewing the current status of the greater sage-grouse and the Gunnison sage-grouse, the effects of the proposed action, and the expected cumulative effects, it is the Services' conference report determination that the NRCS SGI and associated procedures and conservation measures are not likely to jeopardize the continued existence of either species.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency actions. The Service offers the following conservation recommendations:

- Meet with the Service on at least an annual basis to evaluate the progress, successes, and challenges of the implementation of the SGI.

- Develop an implementation process to ensure local NRCS and affected Service offices have the appropriate level of training and understanding of the conservation measures, the use of the monitoring elements as proposed, and other operational components identified in the Conference Report and SGI. The Service's Partners for Fish and Wildlife Program will continue to closely coordinate with NRCS to help implement the SGI.

- As the science support and monitoring elements of the SGI begin to produce information and data, NRCS will share this information with a wide range and diverse collection of partners (State fish and wildlife agencies, Sage-grouse Local Working Groups, Association of Fish and Wildlife Agencies, Western Association of Fish and Wildlife Agencies, Western Governors Association, and others) to further enhance the conservation outcomes of the SGI.

- The Environmental Quality Incentives Program (EQIP) and the Wildlife Habitat Incentive Program (WHIP) are providing tremendous opportunities to enhance sagebrush habitats to benefit conservation of sage-grouse populations. A shortcoming of EQIP and WHIP are their short duration contracts. Incorporating working land easements such as the NRCS Farm and Ranchland Protection Program (FRPP) and the Grasslands Reserve Program (GRP) would enhance current SGI efforts by providing a mechanism for delivering long-term benefits to birds and ranches.

- Although the Conference Report provides NRCS and participating landowners with certainty that the identified conservation practice standards, as conditioned by the

conservation measures, are in full compliance with the ESA in the event that either species is listed, the Service recommends that NRCS integrate its actions and programs under the SGI within other ESA tools that offer an additional coverage of regulatory assurances to participating landowners. The Candidate Conservation Agreement with Assurances is one such tool available for this purpose.

REINITIATION-CLOSING STATEMENT

This concludes the Conference Report for the potential effects of the proposed action. If either species is proposed to be listed under the ESA, the agencies will consider development of a conference opinion. The NRCS may request that we work together to prepare a Biological Opinion if either species is listed. The request must be in writing. During review of the proposed action if the Service finds that there have been no significant changes in the expected benefits or adverse effects analyzed herein, or the information used during the conference, the Service will modify the Conference Opinion to produce a biological opinion and no further section 7 consultations will be necessary.

Richard E. Sayers — 30 July 2010

Richard E. Sayers
Acting Assistant Director
Endangered Species Program
Fish and Wildlife Service

Date

Literature Cited

Bui, T. D., J. M. Marzluff, and B. Bedrosan. 2010. Common raven activity in relation to land use in western Wyoming: Implications for greater sage-grouse reproductive success. Condor 112:65-78.

Christiansen, T. 2009. Fence marking to reduce greater sage-grouse (*Centrocercus urophasianus*) collisions and mortality near Farson, Wyoming: Summary of interim results. Unpublished report, Wyoming Game and Fish Department, Green River, Wyoming.
Coates, P. S., and D. J. Delehanty. 2010. Nest predation of greater sage-grouse in relation to microhabitat factors and predators. Journal of Wildlife Management 74:240-248.

Copeland, H. E., K. E. Doherty, D. E. Naugle, A. Pocewicz, and J. M. Kiesecker. 2009. Mapping oil and gas development potential in the US intermountain West and estimating impacts to species. PLoS One 4(10): e7400.

Doherty, K. E., D. E. Naugle, H. Copeland, A. Pocewicz, and J. Kiesecker. 2010. Energy development and conservation tradeoffs: systematic planning for sage-grouse in their eastern range. Chapter 22 in Greater sage-grouse: Ecology and conservation of a landscape species and its habitats, S. T. Knick, J. W. Connelly, C. E. Braun, editors. Studies in Avian Biology, Number 38, University of California Press, Berkeley.

Kiesecker, J. M., H. Copeland, A. Pocewicz, N. Nibbelink, B. McKenney, J. Dahlke, M. Holloran and D. Stroud. 2009. A framework for implementing biodiversity offsets: Selecting sites and determining scale. BioScience 59:77-84.

Schroeder, M. A., and R. K. Baydack. 2001. Predation and the management of prairie grouse. Wildlife Society Bulletin 29:24-32.

Service 2010. Endangered and Threatened Wildlife and Plants; 12-Month Findings for Petitions to List the Greater sage-grouse (Centrocercus urophasianus) as Threatened or Endangered. March 23, 2010 Federal Register notice. (75 FR:13910-14014)

Stevens, B. S., K. P. Reese, and J. W. Connelly. 2010. Impacts of fences on greater sage-grouse in Idaho: Collision, mitigation, and spatial ecology. Unpublished thesis research progress report, University of Idaho, Moscow.

Appendix 1 – March 2010 Partnership Agreement between NRCS and the Service

PARTNERSHIP AGREEMENT

BETWEEN THE

UNITED STATES DEPARTMENT OF AGRICULTURE

NATURAL RESOURCES CONSERVATION SERVICE

AND THE

UNITED STATES DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

I. PURPOSE

The Natural Resources Conservation Service (NRCS) and the Fish and Wildlife Service (FWS) will work together, in cooperation with other partners, to restore and enhance Gunnison sage-grouse and greater sage-grouse and their habitats and the sustainability of working ranches and farms in the Western United States.

II. OBJECTIVES

1. Ensure that NRCS programs and conservation practices will help ameliorate threats and produce significant conservation benefits to sage-grouse and its habitat at the local and landscape scale;
2. Provide certainty that cooperators who voluntarily implement NRCS-sponsored conservation practices that favor sage-grouse will be in full compliance with the Endangered Species Act (ESA) in the event that sage-grouse are ultimately listed as a threatened or endangered species under the ESA;
3. Explore innovative approaches to conservation, restoration, enhancement, and management at all applicable scales;
4. Promote voluntary, proactive, incentive-based approaches to systematically and strategically focus resources of both agencies to achieve our goal; and
5. Expedite conservation on the ground to produce goal-oriented outcomes.

III. IMPLEMENTATION

1. Create capacity to implement this agreement through the formation of a national working group/team;
2. Work collaboratively to ensure NRCS conservation practices can ameliorate threats and provide conservation benefits to sage-grouse and their habitats, and otherwise develop the information needed to initiate conferencing under section 7(a)(4) of the ESA; and

3. Conduct a national programmatic review of the effects on sage-grouse of NRCS' conservation practices using the conference procedures of section 7(a) (4) of the ESA.

IV. TERMS and CONDITIONS

1. This agreement does not affect or modify existing regulations or agency responsibilities and authorities. It specifically does not commit any agency to activities beyond the scope of its mission and authorities under its organic statutes.
2. FWS and NRCS, and their respective officers, will handle their own activities and utilize their own resources, including expenditures of their own funds in pursuing the purposes in this agreement. Each party will carry out its separate activities in a coordinated professional and mutually beneficial manner.
3. Nothing in this agreement shall obligate FWS and NRCS to expend or transfer any funds. Specific work projects or activities that involve the transfer of funds, services, or property among parties and offices of the parties, will require execution of separate agreements and be contingent upon the availability of appropriated funds. Such activities must be independently authorized by appropriate statutory authority. This agreement does not provide such authority. Negotiation, execution, and administration of each such agreement must comply with all applicable statutes and regulations.

V. PROVISIONS

1. This agreement takes effect upon the signature of the parties and should be reviewed annually to renew commitment and consider needed changes. The agreement may be modified or amended only through the written agreement of all parties. Any party may terminate this agreement by providing a 30-day notice to the other parties.
2. This agreement is not intended to, and does not create any right, benefit, or trust responsibility, substantive or procedural, enforceable by law or equity against NRCS, FWS, their officers or employees, or any other person. It does not direct or apply to any person outside of NRCS or FWS.
3. As a condition of this agreement, all signatory parties assure and certify that this agreement, and any agreements written pursuant to this agreement, will comply with the nondiscrimination provision contained in Title VI and VII of the Civil Rights Act of 1964, as amended; the Civil Rights Restoration Act of 1987 (Public Law 100-259); and other nondiscriminatory statutes. They also will be in accordance with regulations of the Secretary of Agriculture (7 C.F.R. 15, Subpart A and B), which provides that no person in the United States shall, on the grounds of race, national origin, age, sex, religion, marital status, or disability be excluded from participating in, be denied the benefits of, or be otherwise subjected to discrimination under any

program or activity receiving Federal financial assistance from USDA, or any agency thereof.

4. All activities conducted under this agreement shall be in compliance with the Drug-Free Workplace Act of 1988 (Public Law 100-690, Title V, Subtitle D).

Dave White

4-13-2010

DAVE WHITE
Chief
Natural Resources Conservation Service

Date

Rowan W Gould

4/13/2010

ROWAN GOULD
Acting Director
U.S. Fish and Wildlife Service

Date

Appendix 2 - NRCS ESA Policies and Procedures

Section 7(a)(1)

- NRCS, as required by ESA, is committed to the utilization of its authorities in furtherance of the ESA purposes by carrying out programs for the conservation of threatened and endangered species.
- As appropriate, NRCS assists in the development of species recovery plans, develops National and State policy, and uses its conservation and technical assistance programs to conserve species and habitat protected by the ESA.
- NRCS meets much of its Section 7(a)(1) responsibilities to carry out programs for the conservation of endangered and threatened species on a programmatic basis by involving FWS and NMFS in NRCS State Technical Committee meetings and in local work group meetings. Their participation with these groups augments other discussions that NRCS has with the FWS and NMFS regarding the conservation of specific protected species.
- On a site-specific basis, NRCS also uses its authorities to support Section 7(a)(1) requirements by implementing conservation recommendations the Service makes during the Section 7(a)(2) consultation process.

Section 7(a)(2)

The following summarizes NRCS' consultation protocol under 2 scenarios: 1) Technical assistance only, and 2) in situations where NRCS in some way controls the action (includes financial assistance):

(1) NRCS Technical Assistance Only

- There is no requirement to consult on a site-specific basis when NRCS provides technical assistance only. NRCS technical assistance activities provide information and advice to recipients regarding the utilization of their resources. In such cases, NRCS does not control the action that is ultimately taken, and therefore technical assistance does not fall within the parameters of an agency action subject to section 7(a)(2) consultation.
- However, NRCS policy in GM 190 Part 410 B-22(e)(5)(ii) requires consultation when NRCS technical assistance provides the basis for NRCS financial assistance, and the proposed action(s) may affect listed species and/or critical habitat.
- When providing site-specific technical assistance, NRCS personnel must still refer to Section 2 of the Field Office Technical Guide, other existing maps, habitat criteria, and other available information to determine whether protected species or designated critical habitat are present. NRCS personnel must also refer to this information to determine whether proposed or State-listed species of concern or the habitats on which they depend, are also present.
- Circumstances that may prompt discontinuation of service to a client: If NRCS determines that there may be an adverse impact on a listed species or designated critical habitat as a result of the recipient voluntarily implementing a conservation system, NRCS will recommend an alternative conservation treatment that avoids the adverse impact. If the landowner pursues a conservation system that adversely affects a protected species, NRCS field staff will inform the client about their obligation to contact the FWS or NMFS, as appropriate, to determine whether there is a need for a Habitat Conservation Plan (HCP) (see Section 610.104) to avoid violating the ESA. NRCS will not provide assistance for those conservation practices or systems that will cause an adverse effect unless the landowner obtains an HCP and an incidental take permit.

Appendix 2 - NRCS ESA Policies and Procedure (continued)

(2) NRCS-Controlled Action (includes financial assistance)

- If a proposed action funded by NRCS may affect a listed species or designated critical habitat, NRCS must initiate consultation with the FWS or NMFS, as applicable. A table of listed and candidate species that occur within greater and Gunnison sage-grouse range is found at the end of this appendix.
- Consultation may be formal or informal depending on the circumstances and shall be conducted whether the effect is beneficial or adverse. The consent of the landowner and land user shall be obtained before initiating site-specific consultation.
- Circumstances that may prompt discontinuation of service to a client: If the landowner or land user is unwilling to consent to NRCS initiating the consultation process, and decides to implement conservation practices or measures that will result in adverse effects to listed species or will modify designated critical habitat, NRCS will not provide financial or technical assistance for those conservation practices or systems that will cause the adverse effects.

NRCS personnel are responsible for determining whether or not a proposed action will have an effect on listed species or designated critical habitats.

In making a determination, field staffs should utilize existing resources such as maps identifying protected species' ranges and designated critical habitats, information from the FWS and NMFS regarding listed species and designated critical habitats, and any other appropriate, reliable information. The "best scientific and commercial data" must be considered in making this determination.

Landowner Consent Form

Before initiating site specific consultation, NRCS must obtain the written consent of the landowner and land user, or just the land user when the land user provides written indication of having complete control over the land. This signed form along with all other pertinent correspondence relevant to the consultation should be maintained in the "administrative file" that is kept with the client's conservation plan.

Addressing Candidate Species

Candidate Species are not protected under the ESA, although the FWS and NMFS encourage the formation of partnerships to conserve candidate species. NRCS policy also suggests that States set priorities for addressing candidate species. Conferencing for actions that may adversely impact a candidate species is optional. However, when considering impacts to candidate species it is important to note that:

- Some candidate species may be protected by State or Tribal law;
- NRCS policy requires that when providing technical and financial assistance NRCS will recommend only alternative conservation treatments that will avoid or minimize adverse effects, and to the extent practicable, provide long-term benefit to candidate species (General Manual 190 Part 410.22(E)(7)); and
- If a candidate species becomes federally listed, proposed for listing, or the critical habitat is federally designated or proposed prior to the completion of an action, the project will be halted while the necessary consultation or conferencing requirements are met.

Listed and Candidate Species Occurring within the Range of the Greater and Gunnison Sage- Grouse			
Common Name	Scientific Name	Listing	Critical Habitat?
CALIFORNIA			
MAMMALS			
Sierra Nevada bighorn sheep	*Ovis canadensis sierrae*	Endangered	Yes
COLORADO			
MAMMALS			
Black-footed ferret	*Mustela nigripes*	Endangered; Experimental, nonessential	
Canada lynx	*Lynx canadensis*	Threatened	
Gunnison's prarie dog	*Cynomys gunnisoni*	Candidate	
New Mexico meadow jumping mouse	*Zapus hudsonius luteus*	Candidate	
BIRDS			
Interior least tern	*Sterna antillarum*	Endangered	
Mexican spotted owl	*Strix occidentalis lucida*	Threatened	
Piping plover	*Charadrius melodus*	Threatened	
Southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered	
Whooping crane	*Grus americana*	Endangered	
Yellow-billed cuckoo	*Coccyzus americanus*	Candidate	
PLANTS			
Clay-loving wild buckwheat	*Eriogonum pelinophilum*	Endangered	Yes
Colorado Basin hookless cactus	*Sclerocactus glaucus*	Threatened	
De Beque phacelia	*Phacelia submutica*	Candidate	

Dudley Bluffs bladderpod	*Lesquerella congesta*	Threatened	
Dudley Bluffs twinpod	*Physaria obcordata*	Threatened	
North Park phacelia	*Phacelia formosula*	Endangered	
Osterhout milkvetch	*Astragalus osterhoutii*	Endangered	
Penland beardtongue	*Penstemon penlandii*	Endangered	
Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened	
White River beardtongue	*Penstemon scariosus albifluvis*	Candidate	
FISH			
Bonytail chub	*Gila elegans*	Endangered	Yes
Colorado pikeminnow	*Ptychocheilus lucius*	Endangered	Yes
Greenback cutthroat trout	*Oncorhynchus clarki stomias*	Threatened	
Humpback chub	*Gila cypha*	Endangered	Yes
Pallid sturgeon	*Scaphirhynchus albus*	Endangered	
Razorback sucker	*Xyrauchen texanus*	Endangered	Yes
Rio Grande cutthroat trout	*Oncorhynchus clarki virginalis*	Candidate	
IDAHO			
MAMMALS			
Canada lynx	*Lynx canadensis*	Threatened	
Grizzly bear	*Ursus arctos horribilis*	Threatened	
Northern Idaho ground squirrel	*Spermophilus brunneus brunneus*	Threatened	
Pygmy rabbit (Columbia Basin DPS)	*Brachylagus idahoensis*	Endangered	
Southern Idaho ground squirrel	*Spermophilus brunneus endemicus*	Candidate	
BIRDS			
Yellow-billed cuckoo	*Coccyzus americanus*	Candidate	
PLANTS			
Christ's paintbrush	*Castilleja christii*	Candidate	
Goose Creek milkvetch	*Astragalus anserinus*	Candidate	

Northern wormwood	*Artemisia campestris wormskioldii*	Candidate	
Goose Creek milkvetch	*Astragalus anserinus*	Candidate	
Slickspot peppergrass	*Lepidium papolliferum*	Threatened	
Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened	
FISH			
Bull trout	Salvelinus confluentus	Threatened	Yes; Potential
INVERTEBRATES			
Banbury Springs lanx	*Lanx* sp.	Endangered	
Bliss Rapids snail	*Taylorconcha serpenticola*	Threatened	
Bruneau hot springsnail	*Pyrgulopsis bruneauensis*	Endangered	
Snake River physa snail	*Haitia (Physa) natricina*	Endangered	
Utah valvata snail	*Valvata utahensis*	Endangered	
AMPHIBIANS			
Columbia spotted frog	*Rana luteiventris*	Candidate	
MONTANA			
MAMMALS			
Black-footed ferret	*Mustela nigripes*	Endangered; Experimental, nonessential	
Canada lynx	*Lynx canadensis*	Threatened	Yes
Grizzly bear	*Ursus arctos horribilis*	Threatened	
BIRDS			
Interior least tern	*Sterna antillarum athalassos*	Endangered	
Mountain plover	*Charadrius montanus*	Pending	
Piping plover	*Charadrius melodus*	Threatened	Yes
Whooping crane	*Grus americana*	Endangered	
PLANTS			

Ute's ladies-tresses	*Spiranthes diluvialis*	Threatened	
FISH			
Pallid sturgeon	*Scaphirhynchus albus*	Endangered	
NEVADA			
BIRDS			
Yellow-billed cuckoo	*Coccyzus americanus*	Candidate	
AMPIBIANS			
Columbia spotted frog	*Rana luteiventris*	Candidate	
PLANTS			
Goose Creek milkvetch	*Astragalus anserinus*	Candidate	
Soldier Meadows cinquefoil	*Potentilla basaltica*	Candidate	
FISH			
Bull trout	*Salvelinus confluentus*	Threatened	Proposed
Clover Valley speckled Dace	*Rhinichthys osculus oligoporus*	Endangered	
Desert dace	*Eremichthys acros*	Threatened	Yes
Independence Valley speckled dace	*Rhinichthys osculus lethoporus*	Endangered	
Lahontan cutthroat trout	*Oncorhynchus clarkii henshawi*	Threatened	
Pahrump poolfish	*Empetrichthys latos*	Endangered	
Railroad Valley springfish	*Crenichthys nevadae*	Threatened	Yes
White River spinedace	*Lepidomeda albivallis*	Endangered	Yes
INVERTEBRATES			
Elongate mud meadows springsnail	*Pyrgulopsis notidicola*	Candidate	
NORTH DAKOTA			
MAMMALS			
Black-footed ferret	*Mustela nigripes*	Endangered	
Gray wolf	*Canis lupus*	Endangered	
BIRDS			
Whooping crane	*Grus americana*	Endangered	

OREGON			
MAMMALS			
Canada lynx	*Lynx canadensis*	Threatened	
Fisher	*Martes pennanti*	Candidate	
BIRDS			
Yellow-billed cuckoo	*Coccyzus americanus*	Candidate	
PLANTS			
Applegate's milk-vetch	*Astragalus applegatei*	Endangered	
Malheur wire-lettuce	*Stephanomeria malheurensis*	Endangered	
Northern wormwood	*Artemisia campestris wormskioldii*	Candidate	
Howell's spectacular thelypody	*Thelypodium howellii spectabilis*	Threatened	
FISH			
Borax Lake chub	*Gila boraxobius*	Endangered	Yes
Bull trout	*Salvelinus confluentus*	Threatened	Yes; Potential
Foskett specked dace	*Rhinichthys osculus* ssp.	Threatened	
Hutton tui chub	*Gila bicolor* ssp.	Threatened	
Lahontan cutthroat trout	*Oncorhynchus clarki henshawi*	Threatened	
Lost River sucker	*Deltistes luxatus*	Endangered	
Modoc sucker	*Catostomus microps*	Endangered	
Short-nosed sucker	*Chasmistes breviostris*	Endangered	
Warner sucker	*Catostomus warnerensis*	Threatened	Yes
INVERTEBRATES			
Bruneau hot springsnail	*Pyrgulopsis bruneauensis*	Endangered	
Mardon skipper	*Polites mardon*	Candidate	
AMPHIBIANS			
Columbia spotted frog	*Rana luteiventris*	Candidate	
Oregon Spotted frog	*Rana pretiosa*	Candidate	

SOUTH DAKOTA			
BIRDS			
Whooping crane	*Grus americanus*	Endangered	
UTAH			
MAMMALS			
Black-footed ferret	*Mustela nigripes*	Endangered	
Utah prarie dog	*Cynomys parvidens*	Threatened	
BIRDS			
California condor	*Gymnogyps californianus*	Endangered	
Mexican spotted owl	*Strix occidentalis lucida*	Threatened	
PLANTS			
Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened	
Autumn buttercup	*Ranunculus aestivalis*	Endangered	
Heliotrope milkvetch	*Astragalus montii*	Threatened	
FISH			
Bonytail	*Gila elegans*	Endangered	
Colorado pikeminnow	*Ptychocheilus lucius*	Endangered	
Humpback chub	*Gila cypha*	Endangered	
Razorback sucker	*Xyrauchen texanus*	Endangered	
WASHINGTON			
MAMMALS			
Canada lynx	*Lynx canadensis*	Threatened	Yes
Fisher	*Martes pennanti*	Candidate	
Gray wolf	*Canis lupus*	Endangered	
Grizzly bear	*Ursus arctos horribilis*	Threatened	
Pygmy rabbit (Columbia Basin DPS)	*Brachylagus idahoensis*	Endangered	
Washington ground squirrel	*Spermophilus washingtonii*	Candidate	
BIRDS			

Yellow-billed cuckoo	*Coccyzus americanus*	Candidate	
PLANTS			
Northern wormwood	*Artemisia campestris wormskioldii*	Candidate	
Spalding's silene	*Silene spaldingii*	Threatened	
Umtanum desert buckwheat	*Eriogonum codium*	Candidate	
Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened	
FISH			
Bull trout	*Salvelinus confluentus*	Threatened	Yes; Potential
INVERTEBRATES			
Mardon skipper	*Polites mardon*	Candidate	
WYOMING			
MAMMALS			
Black-footed ferret	*Mustela nigripes*	Endangered	
Canada lynx	*Lynx canadensis*	Threatened	Yes
Gray wolf	*Canis lupus*	Endangered	
BIRDS			
Interior least tern	*Sterna antillarum*	Endangered	
Piping plover	*Charadrius melodus*	Endangered	
Whooping crane	*Grus americana*	Endangered	Yes
Yellow-billed cuckoo (western)	*Coccyzus americanus*	Candidate	
PLANTS			
Blowout penstemon	*Penstemon haydenii*	Endangered	
Colorado butterfly plant	*Gaura neomexicana coloradensis*	Threatened	
Desert yellowhead	*Yermo xanthocephalus*	Threatened	Yes
Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened	

FISH			
Bonytail	*Gila elegans*	Endangered	Yes
Colorado pikeminnow	*Ptychocheilus lucius*	Endangered	Yes
Humpback chub	*Gila cypha*	Endangered	Yes
Kendall Warm Springs Dace	*Rhinichthys osculus thermalis*	Endangered	
Pallid sturgeon	*Scaphirhynchus albus*	Endangered	
Razorback sucker	*Xyrauchen texanus*	Endangered	Yes
AMPIBIANS			
Wyoming toad	*Bufo baxteri*	Endangered	

Appendix 3 – Upland Wildlife Habitat Management Conservation Practice Standard

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

UPLAND WILDLIFE HABITAT MANAGEMENT

(Ac.)

CODE 645

DEFINITION

Provide and manage upland habitats and connectivity within the landscape for wildlife.

PURPOSE

Treating upland wildlife habitat concerns identified during the conservation planning process that enable movement, or provide shelter, cover, food in proper amounts, locations and times to sustain wild animals that inhabit uplands during a portion of their life cycle.

CONDITIONS WHERE PRACTICE APPLIES

Land where the decision maker has identified an objective for conserving a wild animal species, guild, suite or ecosystem.

Land within the range of targeted wildlife species and capable of supporting the desired habitat.

CRITERIA

General Criteria Applicable to all Purposes

A habitat evaluation or appraisal, approved by the NRCS state office, shall be used to identify habitat-limiting factors in the planning area.

Application of this practice shall remove or reduce limiting factor(s) in their order of significance, as indicated by results of the habitat evaluation.

Application of this practice alone, or in combination with other supporting and facilitating practices, shall result in a conservation system that will enable the planning area to meet or exceed the minimum quality criteria for wildlife habitat established in Section III of the FOTG.

Establish additional criteria for components of this practice including, but not limited to:

- vegetation establishment for shelter, food and to enable movement;
- structural measures to provide shelter, food or enable movement; and
- manipulation of vegetation to sustain desirable habitat conditions over time.

Plant material specifications shall include only high quality and adapted species.

Site preparation, planting dates, and planting methods shall optimize vegetation survival and growth.

Equipment travel, grazing, haying and other disturbance to habitat shall be restricted during critical periods such as nesting, brood rearing, fawning or calving seasons. States may establish exceptions when certain disturbance causing activities are necessary to maintain the health of the plant community and control noxious weeds.

Control of regulated noxious weeds and invasive plants shall be specified.

CONSIDERATIONS

This practice may affect the target species as well as non-target species though mechanisms such as hunting, predation, disease transmission, nest parasitism, etc. Consider effects of this practice on species with declining populations.

Wildlife population control may be necessary to protect and maintain certain habitats. This is a responsibility of the landowner. State and

federal regulations may apply to population control methods.

Undisturbed areas conserved at a sufficient extent during management activities, may sustain disturbance-intolerant animals and plants.

Other conservation practices that may be utilized in conjunction with this practice to create a wildlife management plan include:

Pasture & Hay Planting (512)

Wildlife Watering Facility (648)

Early Successional Habitat Development/Management (647)

Restoration and Management of Rare or Declining Habitats (643)

Tree/Shrub Establishment (612)

Range Planting (550)

Prescribed Grazing (528)

Prescribed Burning (338)

Forage Harvest Management (511)

Use Exclusion (472)

Riparian Forest Buffer (391)

Riparian Herbaceous Cover (390)

Forest Stand Improvement (666)

PLANS AND SPECIFICATIONS

NRCS shall ensure that plans and specifications for this practice are prepared by persons with adequate training in the fields of wildlife management, biology or ecology.

Written specifications, schedules and maps shall be prepared for each planning area and each habitat type.

Specifications shall:

- Identify the amounts and kinds habitat elements, locations and management actions necessary to achieve the client's management objectives.
- Describe the appropriate method, timing and intensity of management needed to produce the desired habitat conditions and sustain them over time.

Specifications shall be transmitted to clients using NRCS approved specifications sheets, job sheets, or customized narrative statements included in the conservation plan.

OPERATION AND MAINTENANCE

The following actions shall be carried out to ensure that this practice functions as intended throughout its expected life:

- Evaluate habitat conditions on a regular basis in order to adapt the conservation plan and schedule of implementation.
- Annually inspect and repair structural or vegetative components of this practice.

REFERENCES

Bolen, Eric and William Robinson. 2002. Wildlife Ecology and Management 5th Edition. Prentice Hall, 656 pp.

Bookhout, T.A. (ed.). 1996. Research and Management Techniques for Wildlife and Habitats, 5th Ed. Wildlife Society, 740 pp

Rayne, Neil F. and Fred C. Bryant. 1994. Techniques for Wildlife Habitat Management of Uplands. McGraw-Hill, Inc., 841 pp.

United States Department of Agriculture, Natural Resources Conservation Service. National Biology Manual. Title 190, Washington, DC.

United States Department of Agriculture, Natural Resources Conservation Service. 2004. National Biology Handbook. Washington, DC.

NRCS, NHCP

April 2010

Appendix 4 – SGI Science Support Element

The SGI envisions 11 potential studies to better inform management of how to maintain and enhance sage-grouse populations. To date, the first 4 of these studies are underway, and the SGI is seeking partners and funding resources to initiate the remaining studies. Following is a brief summary of the topics of interest.

1. Map the locations of sage-grouse core areas range-wide. The BLM has provided necessary funding and WAFWA states contributed necessary lek data for range-wide sage-grouse core area maps (i.e., breeding density maps). Cores have been delineated and partners at the University of Montana, The Nature Conservancy, and the Service are currently writing up the manuscript for publication. Shape files will be provided to partners before the next SGI sign-up so NRCS can better target their initiative in all 11 states.
2. Evaluate benefits of grazing systems to sage-grouse populations. The SGI has secured commitments from 8 ranchers in a sage-grouse core area near Billings, Montana, involving >100,000 acres, to manage stocking rates commensurate with capacity and to rotate deferred grazing in 20-30% of pastures identified as nesting habitat as part of a rest rotation grazing system. A study is underway to radio-mark birds inside and outside grazing treatments to evaluate whether grazing systems benefit vital rates of birds that influence population growth.
3. In Oregon, the SGI evaluating benefits of removing encroached conifers in high priority sage-grouse habitats. Project area is the Warner Mountain region of south-central Oregon, a landscape within this state's largest remaining core area. Project area is 120,000 acres in which private ranchers and BLM propose to remove post-settlement juniper on 27,000 acres over the next 1-5 years. Lakeview District of BLM has already marked 145 grouse recorded >2,000 locations.
4. Replace expiring CRP contracts with EQIP contracts to maintain habitat in WA. The Conservation Reserve Program (CRP) provided the incentive to retire annually tilled cropland and establish perennial sagebrush and grassland cover to benefit populations in the state of Washington. Unique soil and growing conditions enabled establishment of additional shrub land and grassland habitats that now support 50% of nesting sage-grouse. The CRP contracts were expiring, placing past successes in jeopardy by conversion of newly established habitats back to cropland. The SGI stepped in to provide EQIP funding to extend benefits for 3 years.
5. Quantify the benefit of alleviating risk of agricultural tillage by having producers signed-up for the SGI.
6. Quantify the benefit of alleviating risk of subdivision by having long-term easements placed on otherwise vulnerable grazing lands.
7. Assess the mortality risk of sage-grouse strikes to fences and determine how to reduce threats by marking fences and moving fences to appropriate places.
8. Evaluate the mortality risk from birds drowning in stock tanks without escape ramps. Quantify the benefits of retrofitting tanks with ramps and installing ramps in new watering facilities.
9. Model the predictive capabilities of NRCS Ecological Site Descriptions (ESDs) to spatially delineate sage-grouse habitat suitability. Use outcomes to improve applicability of ESDs in sage-grouse conservation planning.
10. Use population viability analyses to evaluate interactions between West Nile virus risks and other anthropogenic influences including energy development. Use outcomes to identify the most at-risk populations to determine appropriate conservation actions.
11. Work with National Resources Inventory (NRI) personnel in NRCS to ensure that NRI sampling and monitoring protocols are relevant to sage-grouse. Resulting NRI data will provide long-term monitoring to assess range land conditions in the long-term future.

Appendix 5 – SGI CEAP Proposal

Background

The NRCS Sage-grouse Initiative seeks to work with ranchers and other private landowners to cooperatively address relevant threats to sage-grouse populations in the West. Assisting producers improve range condition in core sage-grouse population areas benefits sage-grouse habitat quality while ensuring the sustainability of working rangelands. Measuring sage-grouse response to conservation measures implemented is an important element of the initiative. Since the nature of threats to be addressed varies across the sage-grouse range, practices implemented vary accordingly. Therefore, monitoring the effectiveness of the initiative must be structured to capture and measure response across the sage-grouse range, regardless of conservation practices used locally.

Monitoring performance of the initiative is structured to capture sage-grouse habitat and population response at multiple spatial scales. This work will be conducted in coordination with state wildlife agencies, other universities, and NGO partners already engaged in sage-grouse research and management.

Assessment Approach and Deliverables

This assessment is intended to be carried out hierarchically by 1) assessing structural changes in vegetation within seasonal habitats where conservation practices are applied, 2) measuring responses of individual birds to conservation practices and 3) quantifying sage-grouse population-level responses at local and landscape scales.

Outcomes of past evaluations are mixed because success was judged by the number of habitat acres treated without an understanding of the actual benefits to populations. The hierarchy presented here provides a biologically-based and common currency (i.e., birds rather than habitat acres) for judging program benefits.

The sage-grouse is a long-lived species that may response slowly but positively to implemented conservation measures. We envision a series of studies each lasting 7-10 years to assess the biological responses of sage-grouse to management within the aforementioned hierarchy.

The overall and broad intent is to roll-up deliverables from individual projects into a larger comprehensive review of the NRCS Sage-grouse Initiative contributions to sage-grouse and rangeland conservation in the West. Participants must be willing and capable of contributing manuscripts to this comprehensive review for publication.

Steps outlined below articulate expected deliverables describing through time the progress made toward reaching the objectives outlined in each of the steps below.

1. *Vegetation/habitat response*

As part of the sage-grouse conservation initiative, population core areas are being defined within each state. The initiative will support increased NRCS conservation assistance in core areas where conservation practices are expected to address applicable threats to sage-grouse habitats and populations. Within select core areas, statistically valid samples of field sites will be selected for field measurement of vegetation response to conservation practices (e.g., grazing prescriptions, conifer removal and others). A sample of untreated sites also will be surveyed to enable paired comparisons within a before-after research design. Standard sampling protocols tied to sage-grouse life history requirements will be used.

Deliverables consist of reports describing vegetation response to conservation practices in the context of sage-grouse habitat quality by each core area sampled.

2. *Local sage-grouse habitat use*

Within select core areas, statistically valid samples of treated and untreated sites will be used to assess sage-grouse habitat use through radio or satellite telemetry studies, pellet counts, or other standard sage-grouse habitat use survey techniques.

Deliverables consist of reports comparing sage-grouse habitat use of treated versus untreated sites as a measure of sage-grouse response to conservation practices in each core area sampled

.

3. *Local sage-grouse vital rates*

Within select core areas, statistically valid samples of sites will be selected to monitor sage-grouse nest success, female survival rates, winter survival, and other vital rates in the vicinity of treated sites. Results from this work will be used as inputs into population models to estimate population response at the core area level.

Deliverables consist of reports comparing sage-grouse vital rates between areas treated with conservation practices through the sage-grouse initiative and untreated areas, as well as results from population modeling resulting from vital rate estimates.

4. *Landscape-scale assessment*

In coordination with state wildlife agencies, lek count data will be analyzed to track sage-grouse population response in treated versus untreated core areas.

Deliverables consist of reports depicting sage-grouse population status in core areas included and not included in the sage-grouse initiative. Additional landscape analyses that rigorously quantify programmatic benefits of the Initiative to sage-grouse populations are also anticipated and encouraged. Examples may include using lek data and spatial modeling to quantify proportions of populations that were not impacted by tillage, fire or subdivision as a result of the Initiative.

Appendix 6 – Comprehensive Analysis of Each Conservation Practice Standard in the Conference Report

Conservation Practice Standards – Management Practices

Conservation Practice Standard: Upland Wildlife Habitat Management (645) (UMBRELLA MANAGEMENT PRACTICE FOR SAGE-GROUSE)

Definition: Provide and manage upland habitats and connectivity within the landscape for wildlife, including sage-grouse.

Purpose: This practice will be applied to treat and manage upland sage-grouse habitat concerns identified during the conservation planning process, to provide shelter, cover, food in proper amounts, locations and times to sustain sage-grouse that inhabit riparian areas and uplands during a portion of their life cycle. Application of this practice shall remove or reduce limiting factor(s) in their order of significance, as indicated by results of the habitat evaluation.

Resource concerns: Factors that reduce habitat quality or otherwise limit population growth.

Potential Beneficial Effect(s) to Sage-Grouse: This umbrella practice is used to create and improve sage-grouse breeding, nesting, brood rearing, late brood rearing, and winter habitat, and used to reduce threats to sage-grouse that determine population growth.

Potential Adverse Effect(s) to Sage-Grouse: No adverse effects from use of this umbrella practice. However, associated facilitating practices may have effects.

Conservation measures: Utilize available State sage-grouse plan and other relevant information obtained through communication with NRCS/State wildlife biologists to guide development of this practice. See facilitating practice conservation measures.

Conservation Practice Standard: Prescribed Grazing (528) (FACILITATING MANAGEMENT PRACTICE)

Definition: Managing the harvest of vegetation with grazing and/or browsing animals.

Purpose: This practice may be applied to improve or maintain desired species composition and vigor of plant communities, improve or maintain quantity and quality of forage for grazing and browsing animals' health and productivity, improve or maintain surface and/or subsurface water quality and quantity, improve or maintain riparian and watershed function, reduce accelerated soil erosion, and maintain or improve soil condition, improve or maintain the quantity and quality of food and/or cover available for wildlife, and manage fine fuel loads to achieve desired conditions. In sage-grouse habitat, this practice is critical to ensure rangelands are managed sustainably to provide habitat requirements for all life stages of sage-grouse.

Resource concerns: Unrestricted livestock grazing can remove desired vegetation and change plant communities from desired ecological states to undesirable states where invasive and other undesirable plant species predominate. Additionally, unrestricted grazing may lead to overharvest of plant resources, decrease residual cover, decrease plant litter on the soil surface, increase bare ground, accelerate soil erosion rates, decrease water quality, and reduce the overall habitat quality for wildlife, including sage-grouse.

Potential Beneficial Effect(s) to Sage-Grouse: Practice assures that stocking rate is in balance with forage supply, season of use is rotated to ensure plants have adequate reproduction opportunity, and rangeland is monitored to inform adaptive management. These measures ensure that rangelands are managed sustainably to provide continued ecological processes, forage for livestock and wildlife, and habitat for wildlife, including sage-grouse. Planned grazing systems will provide adequate cover for sage-grouse and can be implemented to increase residual cover of perennial grasses and forbs to improve sage-grouse nesting cover and success. Increased residual cover will also improve plant litter cover over the soil surface. Plant litter facilitates better moisture infiltration and produces more vegetative cover for nesting grouse as well as increased forbs for brood habitat. Grazing system can also decrease the time any one pasture is exposed to grazing animals and people reducing overall disturbance of sage-grouse. Can also be used to produce a mosaic of vegetation successional stages to benefit sage-grouse (e.g. create areas of greater forb and resulting insect production, create areas of higher residual cover for nesting birds, create open lek habitat, open up areas of very dense sagebrush to stimulate herbaceous production). Additionally, prescribed grazing can improve riparian and wet meadow habitat to produce better sage-grouse forage in the form of succulent forbs and insects. Browsing could improve sagebrush palatability.

Potential Adverse Effect(s) to Sage-Grouse: AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Conservation Practice Standard: Wetland Wildlife Habitat Management (644) (FACILITATING MANAGEMENT PRACTICE)

Definition: Retaining, developing or managing wetland habitat for sage-grouse.

Purpose: This practice may be applied to maintain, develop, or improve wetland habitat for sage-grouse and associated flora and fauna.

Resource concerns: Factors that reduce habitat quality or otherwise limit population growth.

Potential Beneficial Effect(s) to Sage-Grouse: This practice can be used to create and improve sage-grouse brood rearing habitat.

Potential Adverse Effect(s) to Sage-Grouse: AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Conservation Practice Standard: Restoration and Management of Rare and Declining Habitats (643) (FACILITATING MANAGEMENT PRACTICE)

Definition: Restoring and managing rare and declining habitats and their associated wildlife species to conserve biodiversity.

Purpose: This practice can be applied to provide and manage habitat for rare and declining species, including sage-grouse.

Resource concerns: Cropland fragments sage-grouse habitat, current rangeland condition does not have desired benefits to the species invasive or undesirable plants do not provide needed sage-grouse habitat according to ecological site potential, or planted species do not reach their potential to provide sage-grouse habitat.

Potential Beneficial Effect(s) to sage-grouse: Utilizing this practice can reduce habitat fragmentation and help restore desired diverse grass, forb, and sagebrush plant communities providing quality sage-grouse habitat.

Potential Adverse Effect(s) to sage-grouse: AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Conservation Practice Standard: Access Control (472) (FACILITATING MANAGEMENT PRACTICE)

Definition: The temporary or permanent exclusion of animals, people, vehicles, and/or equipment from an area.

Purpose: This practice may be applied to prevent, restrict, or control access to an area, maintain or improve the quantity and quality of natural resources, or minimize liability and human health concerns. This practice can be used to manage disturbance to sage- grouse and associated habitats.

Resource concerns: Excessive vehicle, domestic animal, or people activities can disturb certain wildlife species at critical seasons thus decreasing breeding success and/or survival. Unmanaged vehicle, domestic animal, or people activities can physically damage important habitat areas thus decreasing breeding success and/or survival.

Potential Beneficial Effect(s) to sage-grouse: Practice can be an effective tool for managing disturbance to sage-grouse and their habitats. It can also be used to help manage vegetative structure and composition for improved nesting and brood rearing.

Potential Adverse Effect(s) to sage-grouse: AE 3: Increased potential for invasive plants.
AE 5: Increased fire hazard. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 5: Woody slash shall be treated if significant build up of fuels occurs (typically in phase II and III juniper treatments). Slash piles shall be burned when wildfire risk is low (usually when soils are frozen or saturated). Follow state forestry laws, when applicable, for treating slash to minimize wildfire risk. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Conservation Practice Standard: Forage Harvest Management (511) (FACILITATING MANAGEMENT PRACTICE)

Definition: The timely cutting and removal of forages from the field as hay, green-chop or ensilage.

Purpose: This practice may be applied to optimize yield and quality of forage at the desired levels, promote vigorous plant re-growth, manage for the desired species composition, use forage plant biomass as a soil nutrient uptake tool, control insects, diseases and weed, to maintain and/or improve wildlife habitat, and to maintain a vigorous plant community that provides cover and insect populations in sage-grouse brood rearing habitat.

Resource concerns: Performing unplanned haying operation in fields used by sage-grouse can result in sage-grouse mortality.

Potential Beneficial Effect(s) to sage-grouse: Maintains vigorous plant community for cover and insect populations that provide brood rearing habitat.

Potential Adverse Effect(s) to sage-grouse: AE 6: Accidental mortality to individual sage-grouse.

Conservation measures: CM 6: Plan and design placement of new fences away from occupied and historic leks. If this is not possible, NRCS will require that fences be adequately marked to increase visibility. Identify existing fences that are nearby to an occupied or historic lek and consider removing or relocating the fence to a site further from the lek. NRCS will require, at a minimum, marking all existing fences within 1/4 mile from an occupied or historic lek, or in areas where collisions are known to occur. Use escape ramps in all new and existing water facilities that occur in sage-grouse habitat. For haying operations, employee techniques to avoid or minimize mortality, such as flush bars, slower speeds and harvesting patterns that herd wildlife out of the hayland (e.g., from center to outside of field).

Conservation Practice Standards – Vegetative Practices

Conservation Practice Standard: Brush Management (Conifer tree Removal) (314) (FACILITATING VEGETATIVE PRACTICE)

Definition: Conifer removal (individual tree removal) - Targeted conifers are removed by manual or mechanical means, such as, chainsaws, feller bunchers, hydraulic sheers, or masticators. Cut trees can be left in place, lopped-and-scattered, piled-and-burned, chipped, or hauled off-site.

Conifer removal (chaining) - Conifer stands are removed by dragging an anchor chain across the site. Practice is typically done in stands in later successional stages of encroachment where sagebrush and other shrubs, grasses, and forbs are greatly reduced or absent (e.g., in Phases II and III, where trees are co-dominant or dominant with shrubs and herbs, and either the trees or all three layers influence ecological processes of the site.)

Purpose: This practice can be applied to create the desired plant community consistent with the ecological site, to improve forage accessibility, quality and quantity for livestock and wildlife, or to remove post-settlement aged conifers, such as juniper, that have encroached into shrub and grasslands to restore or improve sage-grouse habitats.

Resource concerns: Trees have expanded into shrub/grassland areas, increasing vertical structure on the landscape, affecting sage-grouse use and eventually resulting in loss of grasses, forbs, and shrubs (sagebrush) which reduces habitat suitability. Increased conifers on the landscape also increase the risk of predation by raptors and ravens.

Potential Beneficial Effect(s) to Sage-Grouse: Practice can reduce vertical structure on the landscape, prevent loss of understory vegetation, and restore habitat suitability for sage-grouse. Practice may result in decreased risk of predation by raptors and ravens and increased amount/availability of suitable habitat. Practice may also improve groundwater recharge that enhances grass/forb production.

Potential Adverse Effect(s) to Sage-Grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants. AE 5: Increased fire hazard.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency

recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 5: Woody slash shall be treated if significant build up of fuels occurs (typically in phase II and III juniper treatments). Slash piles shall be burned when wildfire risk is low (usually when soils are frozen or saturated). Follow state forestry laws, when applicable, for treating slash to minimize wildfire risk.

Conservation Practice Standard: Forest Slash Treatment (384) (FACILITATING VEGETATIVE PRACTICE)

Definition: Woody plant slash or debris generated as a by-product of a management activity, such as conifer removal, is removed, reduced, or otherwise treated to limit fuel loads on site and to promote regeneration of remaining plant community. Slash treatment methods typically include pile-and-burn, chipping, lop-and-scatter, removal, crushing, or mulching.

Purpose: This practice can be applied to reduce risk of wildfire and prevent sage-grouse habitat loss, remove or reduce predator perches and cover, and to release and promote understory grasses, forbs, and sagebrush.

Resource concerns: Cut trees left in shrub/grasslands can provide increased vertical structure increasing the risk of predation by raptors and ravens. Slash on the landscape can also result in loss of grasses, forbs, and sagebrush, reducing habitat suitability for sage-grouse.

Potential Beneficial Effect(s) to Sage-Grouse: Using this practice can reduce vertical structure on the landscape, release and promote understory vegetation, and restore habitat suitability for sage-grouse. Implementing this practice may also result in a decreased risk of predation by raptors and ravens and increased amount/availability of suitable habitat. Practice can also reduce the risk of wildfire.

Potential Adverse Effect(s) to Sage-Grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants. AE 5: Increased fire hazard.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical

disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 5: Woody slash shall be treated if significant build up of fuels occurs (typically in phase II and III juniper treatments). Slash piles shall be burned when wildfire risk is low (usually when soils are frozen or saturated). Follow state forestry laws, when applicable, for treating slash to minimize wildfire risk.

Conservation Practice Standard: Firebreak (394) (FACILITATING, VEGETATIVE PRACTICE)

Definition: A permanent or temporary strip of bare or vegetated land established to retard fire. Existing vegetation is removed or manipulated by mechanical means, such as mowers or disks, to reduce fuel loads and promote fire-resistant plants or bare ground. Practice may require seeding of fire-resistant plants.

Purpose: This practice may be applied to reduce the spread of wildfire to prevent sage-grouse habitat loss, contain prescribed burns, and interrupt the feedback cycle of wildfire to invasive plants.

Resource concerns: Wildfires can result in small-scale or large-scale catastrophic sage-grouse habitat degradation or loss.

Potential Beneficial Effect(s) to Sage-Grouse: Practice can help reduce the spread of wildfires thus reducing the risk of large-scale, catastrophic habitat loss.

Potential Adverse Effect(s) to Sage-Grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants. AE 4:

Removing sagebrush and understory vegetation during implementation of the conservation practice standard.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 4: Design conservation practice standard to minimize or avoid loss of sagebrush during practice installation. For linear practices, limit removal of sagebrush to one side of disturbance and to only the width of removal vehicle. If access for operation and maintenance is required, limit access to one side of disturbance and a limit access to one vehicle width. NRCS shall coordinate with the State Wildlife Agency to determine overall practice applicability, location, extent, configuration, and timing in conservation practice standard's where removal of sagebrush and associated understory vegetation is the objective (brush management, grazing land mechanical treatment, prescribed burning).

Conservation Practice Standard: Conservation Cover (327) (FACULTATIVE VEGETATIVE PRACTICE)

Definition: Establishing and maintaining permanent vegetative cover.

Purpose: This practice may be applied to reduce soil erosion and sedimentation, improve water quality, improve air quality, enhance wildlife habitat, improve soil quality, or manage plant pests. Practice is applied to agricultural lands in sage- grouse habitat to restore sage-grouse habitat and reduce fragmentation.

Resource concerns: Cropland fragments sage-grouse habitat, or current rangeland condition does not have desired beneficial species. Existing invasive or undesirable plants, which do not provide quality habitat, compete with desired plant species and necessitate active planting to restore habitat conditions.

Potential Beneficial Effect(s) to sage-grouse: Practice reduces habitat fragmentation and can help restore desired diverse plant communities providing quality sage-grouse habitat. Practices provide diverse grass, forb and sagebrush communities beneficial to sage-grouse.

Potential Adverse Effect(s) to sage-grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed

mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Conservation Practice Standard: Cover Crop (340) (FACILITATING VEGETATIVE PRACTICE)

Definition: Crops including grasses, legumes and forbs established for seasonal cover and other conservation purposes.

Purpose: This practice may be applied to reduce soil erosion from wind and water, increase soil organic matter content, capture and recycle or redistribute nutrients in the soil profile, promote biological nitrogen fixation, increase biodiversity, weed suppression, provide supplemental forage, soil moisture management, reduce particulate emissions into the atmosphere, minimize and reduce soil compaction, and to provide multi-species cover crops on cropland adjacent to sage-grouse nesting habitat for a full growing season or planted after small grain harvest to create and improve sage-grouse brood rearing habitat.

Resource concerns: Limited sage-grouse brood rearing habitat can reduce brood survival.

Potential Beneficial Effect(s) to sage-grouse: Multi-species cover crops planted on cropland adjacent to sage-grouse nesting habitat for a full growing season or planted after small grain harvest can create and improve brood rearing habitat.

Potential Adverse Effect(s) to sage-grouse: AE 6: Accidental mortality to individual sage-grouse.

Conservation measures: CM 6: Plan and design placement of new fences away from occupied and historic leks. If this is not possible, NRCS will require that fences be adequately marked to increase visibility. Identify existing fences that are nearby to an occupied or historic lek and consider removing or relocating the fence to a site further from the lek. NRCS will require, at a minimum, marking all existing fences within 1/4 mile from an occupied or historic lek, or in areas where collisions are known to occur. Use escape ramps in all new and existing water facilities that occur in sage-grouse habitat. For haying operations, employee techniques to avoid or minimize mortality, such as flush bars, slower speeds and harvesting patterns that herd wildlife out of the hayland (e.g., from center to outside of field).

Conservation Practice Standard: Riparian Herbaceous Cover (390) (FACILITATING VEGETATIVE PRACTICE)

Definition: Grasses, sedges, rushes, ferns, legumes, and forbs tolerant of intermittent flooding or saturated soils, established or managed as the dominant vegetation in the transitional zone between upland and aquatic habitats.

Purpose: This practice may be applied as to provide or improve food and cover for fish, wildlife and livestock, improve and maintain water quality, establish and maintain habitat corridors, increase water storage on floodplains, reduce erosion and improve stability to stream banks and shorelines, increase net

carbon storage in the biomass and soil, enhance pollen, nectar, and nesting habitat for pollinators, restore, improve or maintain the desired plant communities, dissipate stream energy and trap sediment, enhance stream bank protection as part of stream bank soil bio-engineering practices. Restoring the desired native wetland and aquatic vegetation will provide quality sage-grouse habitat.

Resource concerns: Riparian habitats that lack important functional groups and contain limited plant diversity often provide reduced food and cover for wildlife and sage-grouse.

Potential Beneficial Effect(s) to sage-grouse: Practice can help restore desired diverse plant communities that provide quality sage-grouse habitat. Functional riparian habitats provide critical sage-grouse brood habitat with abundant forbs, legumes and associated insects.

Potential Adverse Effect(s) to sage-grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 10: To benefit the quality of sage-grouse

habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Conservation Practice Standard: Conservation Crop Rotation (328) (FACILITATING VEGETATIVE PRACTICE)

Definition: Growing crops in a planned sequence on the same field.

Purpose: This practice may be applied to reduce sheet-and-rill or wind erosion, improve soil quality, manage the balance of plant nutrients, increase cropping system diversity, manage crop consumptive use of water, manage saline seeps, manage plant pests (weeds, insects, and diseases), provide food for domestic livestock., provide food and cover for wildlife, including pollinator forage, cover, and nesting. Where sage-grouse are using cropland, this practice is used to promote crops used by sage-grouse to meet breeding and brood-rearing requirements, especially when cropland is adjacent to quality native habitat or other cropland planted to native vegetation. In specific regions and in certain situations, establishment of selected crops can provide suitable vegetation for sage-grouse leks.

Resource concerns: Selected crops and crop management activities may not provide the appropriate cover required for use by sage-grouse.

Potential Beneficial Effect(s) to sage-grouse: Practice promotes use of cropland that in some cases has lek sites. Fields planted to wheat can create an area of short vegetation that is desirable to sage- grouse during early spring, especially when cropland is adjacent to quality native habitat or other cropland planted to native vegetation. Additionally, practice promotes use of cropland and hayland by sage-grouse as a food source, specifically insects found in alfalfa stands, during the brooding season. This is primarily the case when cropland is adjacent to quality native habitat or other cropland planted to native vegetation.

Potential Adverse Effect(s) to sage-grouse: AE 1: Physical disturbance (including noise) of birds. AE 6: Accidental mortality to individual sage-grouse.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 6: Plan and design placement of new fences away from occupied and historic leks. If this is not possible, NRCS will require that fences be adequately marked to increase visibility. Identify existing fences that are nearby to an occupied or historic lek and consider removing or relocating the fence to a site further from the lek. NRCS will require, at a minimum, marking all existing fences within 1/4 mile from an occupied or historic lek, or in areas where collisions are known to occur. Use escape ramps in all new and existing water facilities that occur in sage-grouse habitat. For haying operations, employee techniques to avoid or minimize mortality, such as flush bars, slower speeds and harvesting patterns that herd wildlife out of the hayland (e.g., from center to outside of field).

Conservation Practice Standard: Critical Area Planting (342) (FACILITATING VEGETATIVE PRACTICE)

Definition: Establishing permanent vegetation on sites that have or are expected to have high erosion rates, and on sites that have physical, chemical or biological conditions that prevent the establishment of vegetation with normal practices.

Purpose: This practice may be applied to stabilize areas with existing or expected high rates of soil erosion by water, stabilize areas with existing or expected high rates of soil erosion by wind, rehabilitate and re-vegetate degraded sites that cannot be stabilized through normal farming practices, stabilize coastal areas, such as sand dunes and riparian areas. Practice will improve sage-grouse habitat by establishing native and/or non-invasive vegetation in areas with disturbed soil from installation of other practices, such as grade stabilization structure.

Resource concerns: Un-vegetated, disturbed soil creates sites for invasive species to colonize, promotes increased soil erosion, and reduces wildlife and sage-grouse habitat quality.

Potential Beneficial Effect(s) to sage-grouse: Establishing native and/or non-invasive vegetation in areas with disturbed soil will help stabilize soil to maintain newly installed conservation practice and reduce soil erosion. For example, maintaining grade structures will reduce channel down cutting and help reestablish natural flows that meander across the meadow instead of concentrating in the original channel or ditch locations. This restored meadow will provide forb and insect food resources.

Potential Adverse Effect(s) to sage-grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to

optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Conservation Practice Standard: Pasture and Hayland Planting (512) (FACILITATING VEGETATIVE PRACTICE)

Definition: Establishing native or introduced forage plant species.

Purpose: This practice may be applied to establish adapted and compatible species, varieties, or cultivars for forage production to improve or maintain livestock nutrition and/or health, balance forage supply and demand during periods of low forage production, reduce soil erosion and improve water quality, and increase carbon sequestration. In sage-grouse habitats, this practice is typically used to seed former croplands with perennial, productive, introduced grass/legume mixes to meet seasonal needs of livestock and lessen grazing demands on native rangeland habitats.

Resource concerns: Forage demand for livestock often exceeds sustainable forage production on native rangelands. Additionally, spring and fall forage is often limited in supply on native rangelands and overuse of native rangelands during these critical times of year lead to decreased residual cover, decreased range health, and may limit residual cover important for successful sage-grouse nesting. Scatted cropland units in sage-grouse habitats also increase fragmentation.

Potential Beneficial Effect(s) to sage-grouse: Plantings reduce fragmentation by conversion of cropland to grassland, increase available forage for livestock which remove grazing pressure from native rangelands and can lead to increased native range condition and increased residual cover important for nest success.

Potential Adverse Effect(s) to sage-grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice

objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Conservation Practice Standard: Herbaceous Weed Control (315) (FACILITATING VEGETATIVE PRACTICE

Definition: The chemical, biological, or mechanical removal or control of herbaceous weeds including invasive, noxious and prohibited plants.

Purpose: This practice may be applied to control or remove invasive and noxious weeds in order to restore native or desired plant communities and habitat for sage-grouse consistent with the ecological site. It secondarily protects soils, controls erosion, reduces fine-fuels fire hazards, and improves air quality.

Resource concerns: Invasive and noxious weeds degrade ecological sites by increasing competition with native and desirable plant species, increasing soil erosion, reducing water quality, increasing fire frequency, etc. This results in decreased sustainability and resiliency of the ecological sites and leads to reduced habitat quality and quantity for wildlife, including sage-grouse.

Potential Beneficial Effect(s) to sage-grouse: Practice implementation removes or reduces invasive or other weed species that directly or indirectly limit Sage-grouse habitat improvement and productivity. Practice can beneficially influence the vigor and establishment of native or desirable vegetation required to provide sage-grouse habitat.

Potential Adverse Effect(s) to sage-grouse: AE 1: Physical disturbance (including noise) of birds. AE 4: Removing sagebrush and understory vegetation during implementation of the conservation practice standard.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 4: Design conservation practice standard to minimize or avoid loss of sagebrush during practice installation. For linear practices, limit removal of sagebrush to one side of disturbance and to only the width of removal vehicle. If access for operation and maintenance is required, limit access to one side of disturbance and a limit access to one vehicle width. NRCS shall coordinate with the State Wildlife Agency to determine overall practice applicability, location, extent, configuration, and timing in conservation practice standard's where removal of sagebrush and associated understory vegetation is the objective (brush management, grazing land mechanical treatment, prescribed burning).

Conservation Practice Standard: Rangeland Planting (550) (FACULTATIVE VEGETATION PRACTICE)

Definition: Establishment of adapted perennial or self-sustaining vegetation such as grasses, forbs, legumes, shrubs and trees.

Purpose: This practice may be applied to restore a plant community similar to the Ecological Site Description reference state for the site or the desired plant community. This planting may also provide or improve forages for livestock, provide or improve forage, browse or cover for wildlife, reduce erosion by wind and/or water, improve water quality and quantity, and increase carbon sequestration. In sage-grouse habitats, this practice can be used to restore important native habitats to meet all habitat requirements for sage-grouse.

Resource concerns: Cropland fragments sage-grouse habitat or current rangeland condition does not have desired species beneficial to sage-grouse. Invasive or undesirable plants do not provide needed sage-grouse habitat according to ecological site potential.

Potential Beneficial Effect(s) to Sage-Grouse: Practice reduces habitat fragmentation and can help restore desired diverse plant communities providing quality sage-grouse habitat.

Potential Adverse Effect(s) to Sage-Grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well

as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Conservation Practice Standards – Structural Practices

Conservation Practice Standard: Watering Facility (614) (FACILITATING STRUCTURAL PRACTICE)

Definition: A permanent or portable device to provide an adequate amount and quality of drinking water for livestock and or wildlife.

Purpose: This practice will be applied to facilitate livestock grazing management and provide access to drinking water for livestock and/or wildlife in order to meet daily water requirements and improve animal distribution to conserve or enhance important sage-grouse habitat. Watering facilities are commonly designed/ implemented to provide adequate livestock water. Commonly used watering facilities are constructed from concrete, fiberglass, metal, or rubber tires. Each tank is typically fed by a pipeline and also contains an overflow for excess water. Winter tanks are routinely buried or covered to prevent freezing and have small drinking areas exposed. Wooden cross-fence is often implemented to prevent livestock entry into tanks and to protect the plumbing associated with the facility.

Resource concerns: Insufficient infrastructure (livestock water) limits grazing rotation options resulting in limited livestock distribution and over/under utilization of forage and decreased range health. Additionally, current water sources may concentrate livestock on important wildlife habitats, reducing the quality. Limited stock water greatly restricts the ability of land managers to manage livestock in a way that promotes rangeland sustainability and improved wildlife and sage-grouse habitat.

Potential Beneficial Effect(s) to sage-grouse: Use of this practice can facilitate improved livestock grazing management and can provide water for sage-grouse and other wildlife.

Potential Adverse Effect(s) to Sage-Grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants. AE 4: Removing sagebrush and understory vegetation during implementation of the conservation practice standard. AE 7: Increased potential for west Nile virus. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 4: Design conservation practice standard to minimize or avoid loss of sagebrush during practice installation. For linear practices, limit removal of sagebrush to one side of disturbance and to only the width of removal vehicle. If access for operation and maintenance is required, limit access to one side of disturbance and a limit access to one vehicle width. NRCS shall coordinate with the State Wildlife Agency to determine overall practice applicability, location, extent, configuration, and timing in conservation practice standard's where removal of sagebrush and associated understory vegetation is the objective (brush management, grazing land mechanical treatment, prescribed burning). CM 7: Where a conservation practice standard involves the creation of an open water source, excluding livestock watering tanks, follow recommendations from the State Wildlife Agency and design practice to minimize or eliminate the threat of West Nile virus to the

species. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Conservation Practice Standard: Spring Development (574) (FACILITATING STRUCTURAL PRACTICE)

Definition: Collection of water from springs or seeps to provide water for a conservation need.

Purpose: This practice will be applied to improve the quantity and/or quality of water for livestock, wildlife or other agricultural uses, which can improve mesic habitat quality for sage-grouse and broods. Natural springs are commonly developed to provide a clean source of water for livestock. In addition to providing water for livestock, the development of springs protects the spring source from degradation caused by unrestricted livestock use. The actual development of the spring includes installation of a "spring box" to filter and collect water to be delivered via pipeline to livestock. Pipeline flow is achieved by gravity or pumping conditions.

Resource concerns: Insufficient infrastructure (livestock water) limits grazing rotation options resulting in limited livestock distribution and over/under utilization of forage and decreased range health. Additionally, current water sources may concentrate livestock on important wildlife habitats, reducing the quality. Limited stock water greatly restricts the ability of land managers to manage livestock in a way that promotes rangeland sustainability and improved wildlife and sage-grouse habitat.

Potential Beneficial Effect(s) to sage-grouse: Use of this practice to create infrastructure (livestock water) offers a clean source of water for livestock and can protect the spring from degradation caused by improper grazing use.

Potential Adverse Effect(s) to Sage-Grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris

prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Conservation Practice Standard: Pumping Plant (533) (FACILITATING STRUCTURAL PRACTICE)

Definition: A facility that delivers water at a designed pressure and flow rate that includes the required pump(s), associated power unit(s), plumbing, appurtenances, and sometimes on-site fuel or energy source(s) and protective structures.

Purpose: This practice, applied as a part of a resource management system, can achieve one or more of the following: 1) Delivery of water to livestock watering facilities to facilitate livestock management in a way that promotes rangeland sustainability and improved wildlife and sage-grouse habitat; 2) This practice provide water in areas of limited brood-rearing habitat.

Resource concerns: Insufficient infrastructure (livestock water) limits grazing rotation options resulting in limited livestock distribution and over/under utilization of forage and decreased range health. Additionally, current water sources may concentrate livestock on important wildlife habitats, reducing the quality. Limited stock water greatly restricts the ability of land managers to manage livestock in a way that promotes rangeland sustainability and improved wildlife and sage-grouse habitat.

Potential Beneficial Effect(s) to Sage-Grouse: Irrigated plantings can increase cover and improve succulent forbs and insects for brood rearing habitat. Practice can facilitate improved livestock grazing management and can provide water for sage-grouse and other wildlife.

Potential Adverse Effect(s) to Sage-Grouse: AE 1: Physical disturbance (including noise) of birds. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical

disturbance within prescribed distances of leks. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Conservation Practice Standard: Water Well (642) (FACILITATING STRUCTURAL PRACTICE)

Definition: A hole drilled, dug, driven, bored, jetted or otherwise constructed to an aquifer.

Purpose: Provide water for livestock, wildlife, irrigation, human, and other uses. Provide for general water needs of farming/ranching operations. Facilitate proper use of vegetation on rangeland, pastures and wildlife areas, which can provide water in areas of limited brood-rearing habitat.

Resource concerns: Insufficient infrastructure (livestock water) limits grazing rotation options resulting in limited livestock distribution and over/under utilization of forage and decreased range health. Additionally, current water sources may concentrate livestock on important wildlife habitats, reducing the quality. Limited stock water greatly restricts the ability of land managers to manage livestock in a way that promotes rangeland sustainability and improved wildlife and sage-grouse habitat.

Potential Beneficial Effect(s) to Sage-Grouse: Practice can facilitate improved livestock grazing management and can provide water for sage-grouse where brood habitat is limited.

Potential Adverse Effect(s) to Sage-Grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and

install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Conservation Practice Standard: Pipeline (516) (FACILITATING STRUCTURAL PRACTICE)

Definition: Small pipeline having an inside diameter of 8 inches or less.

Purpose: This practice, applied as a part of a resource management system, can convey water from a source of supply to points of use for livestock, wildlife, or recreation. Typically this involves conveyance from a spring development or well to a livestock watering facility. Pipelines are commonly implemented underground at depths ranging from 18" to 6' depending on use (winter vs. non-winter).The primary purpose is to facilitate a livestock grazing management plan developed to improve rangeland sustainability and sage-grouse habitat.

Resource concerns: Insufficient infrastructure (livestock water) limits grazing rotation options resulting in limited livestock distribution and over/under utilization of forage and decreased range health. Additionally, current water sources may concentrate livestock on important wildlife habitats, reducing the quality. Limited stock water greatly restricts the ability of land managers to manage livestock in a way that promotes rangeland sustainability and improved wildlife and sage-grouse habitat.

Potential Beneficial Effect(s) to sage-grouse: Practice can facilitate livestock grazing management to improve rangeland sustainability and improve sage-grouse habitat quality.

Potential Adverse Effect(s) to Sage-Grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants. AE 4: Removing sagebrush and understory vegetation during implementation of the conservation practice standard. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following

the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 4: Design conservation practice standard to minimize or avoid loss of sagebrush during practice installation. For linear practices, limit removal of sagebrush to one side of disturbance and to only the width of removal vehicle. If access for operation and maintenance is required, limit access to one side of disturbance and a limit access to one vehicle width. NRCS shall coordinate with the State Wildlife Agency to determine overall practice applicability, location, extent, configuration, and timing in conservation practice standard's where removal of sagebrush and associated understory vegetation is the objective (brush management, grazing land mechanical treatment, prescribed burning). CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Conservation Practice Standard: Grade stabilization structure (410) (FACILITATING STRUCTURAL PRACTICE)

Definition: A structure used to control the grade and head cutting in natural or artificial channels. The water table in incised channels and ditches will be elevated using a variety of approaches to reestablish the natural hydrology of these wet meadows. The practice may include one or more of the following: (1) depositing and compacting appropriate fill material (soil) into these incised channels; (2) installation of hard structure (plastic sheet pile, rock or gabion structures) that extend out 30' perpendicular to the channel, at intervals every one foot drop in grade to maintain the integrity of the filled channel; (3) planting of native or natural vegetation at structure placement to reinforce hard structure with above ground and root structure of these sedges, rushes and grasses.

Purpose: This practice may be applied to stabilize the grade and control erosion in natural or artificial channels, to prevent the formation or advance of gullies, and to enhance environmental quality and reduce pollution hazards. Maintaining or restoring hydrology to these sites are important for sage-grouse brood rearing habitat.

Resource concerns: Altered hydrology in mesic sites often results in reduced water tables, reduced vegetative production, reduced forb and legume abundance, and subsequent reduction in insect production. These factors contribute to decreased brood rearing habitat for sage-grouse.

Potential Beneficial Effect(s) to sage-grouse: Practice can maintain or restore hydrology of swales, coulees, and riparian sites that are important for brood rearing habitat.

Potential Adverse Effect(s) to sage-grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants. AE 4: Removing sagebrush and understory vegetation during implementation of the conservation practice

standard. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 4: Design conservation practice standard to minimize or avoid loss of sagebrush during practice installation. For linear practices, limit removal of sagebrush to one side of disturbance and to only the width of removal vehicle. If access for operation and maintenance is required, limit access to one side of disturbance and a limit access to one vehicle width. NRCS shall coordinate with the State Wildlife Agency to determine overall practice applicability, location, extent, configuration, and timing in conservation practice standard's where removal of sagebrush and associated understory vegetation is the objective (brush management, grazing land mechanical treatment, prescribed burning). CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Conservation Practice Standard: Fence (382) (FACILITATING STRUCTURAL PRACTICE)

Definition: A constructed barrier to animals or people.

Purpose: This practice may be applied to facilitate the accomplishment of conservation objectives by providing a means to control movement of animals and people, including vehicles. Practice can benefit sage-grouse habitat by facilitating the implementation of the prescribed grazing practice to improve rangeland health, increase residual cover, and ensure sustainability of rangeland resource. Additionally, the practice can be used for the relocation of existing fences located in areas of known or suspected sage-grouse collisions.

Resource concerns: Insufficient infrastructure (fences and livestock water) limits grazing rotation options resulting in limited livestock distribution and over/under utilization of forage and decreased range health. Limited infrastructure greatly restricts the ability of land managers to manage livestock in a way that promotes rangeland sustainability and improved wildlife and sage-grouse habitat. Additionally, practice can be an effective tool for managing wild and domestic animal disturbance to sage-grouse habitat or reseeded or reclaimed sites.

Potential Beneficial Effect(s) to sage-grouse: Accidental mortality resulting from collisions can be reduced by removing existing fences and constructing to sites where collisions are less likely (e.g. away from leks and sage-grouse wintering areas). Fragmentation of habitat caused by fencing will be reduced by relocating fences to less sensitive sites.

Potential Adverse Effect(s) to sage-grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants. AE 4: Removing sagebrush and understory vegetation during implementation of the conservation practice standard. AE 6: Accidental mortality to individual sage-grouse. AE 8: increased potential for predation. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever

possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 4: Design conservation practice standard to minimize or avoid loss of sagebrush during practice installation. For linear practices, limit removal of sagebrush to one side of disturbance and to only the width of removal vehicle. If access for operation and maintenance is required, limit access to one side of disturbance and a limit access to one vehicle width. NRCS shall coordinate with the State Wildlife Agency to determine overall practice applicability, location, extent, configuration, and timing in conservation practice standard's where removal of sagebrush and associated understory vegetation is the objective (brush management, grazing land mechanical treatment, prescribed burning). CM 6: Plan and design placement of new fences away from occupied and historic leks. If this is not possible, NRCS will require that fences be adequately marked to increase visibility. Identify existing fences that are nearby to an occupied or historic lek and consider removing or relocating the fence to a site further from the lek. NRCS will require, at a minimum, marking all existing fences within 1/4 mile from an occupied or historic lek, or in areas where collisions are known to occur. Use escape ramps in all new and existing water facilities that occur in sage-grouse habitat. For haying operations, employee techniques to avoid or minimize mortality, such as flush bars, slower speeds and harvesting patterns that herd wildlife out of the hayland (e.g., from center to outside of field). CM 8: Minimize to the extent possible the removal of existing vegetation when installing practice. Whenever possible when installing fence, use T-posts or cones on posts to reduce perching opportunities for avian predators. Avoid leaving trash or brush piles that could provide cover for predator species. Powerlines should be buried whenever possible or use solar systems to supply required power needs. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Conservation Practice Standard: Obstruction Removal (500) (FACILITATING STRUCTURAL PRACTICE)

Definition: Removal and disposal of buildings, structures, other works of improvement, vegetation, debris or other materials.

Purpose: This practice may be applied to remove and dispose of unwanted obstructions in order to apply conservation practices or facilitate the planned land use and decrease availability of predator nests, dens, and perches. Removal of structures and other obstructions can benefit sage-grouse by decreasing opportunities for predation and accidental mortality due to collisions.

Resource concerns: Structures, including buildings and fences can provide predator perches and nesting sites and can increase predation rates for wildlife including sage-grouse and may cause wildlife to decrease use of otherwise suitable habitats. Additionally, these structures can cause accidental mortality for sage-grouse from collisions.

Potential Beneficial Effect(s) to Sage-Grouse: Practice will benefit sage-grouse by removing unnecessary fences that contribute to fragmentation and direct mortality due to collisions, removing unwanted on farm

power lines or infrastructure that provides corvid/raptor perches, and removing structures that serve as mammalian predator habitat and/or visual/psychological obstructions that cause sage-grouse to partially or completely abandon otherwise suitable habitat.

Potential Adverse Effect(s) to Sage-Grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment.

Conservation Practice Standard: Fish and Wildlife Structure (734) (FACILITATING STRUCTURAL PRACTICE)

Definition: A structure designed and implemented specifically for fish or wildlife.

Purpose: This practice can be a part of a fish or wildlife habitat management plan to serve one or more of the following functions: (a) Provide structure for loafing, escape, nesting, rearing, roosting, perching, or basking; (b) Provide an escape, avoidance, or exclusionary feature from otherwise life-threatening conditions; (c) Provide alternative cover when natural cover is not readily available. (d) Isolate native

species populations from non-natives; (e) Improve or restore habitat connectivity; (f) Reduce the spread of wildfire; and (g) Contain prescribed burns. This practice can be applied to minimize accidental mortality to sage-grouse resulting from livestock watering facilities and fences, to improve overall habitat conditions.

Resource concerns: Certain wildlife species, including sage-grouse, may enter and utilize water structures and be unable to exit or can be seriously injured by collisions with fences and other structures.

Potential Beneficial Effect(s) to Sage-Grouse: This wholly beneficial practice can minimize risk of wildlife injury or death associated with fences (fence markers) and livestock watering facilities (wildlife escape ramps).

Potential Adverse Effect(s) to Sage-Grouse: No adverse effects identified with this practice.

Conservation measures: None identified.

Conservation Practice Standard: Road/Trail/Landing Closure and Treatment (654) (FACILITATING STRUCTURAL PRACTICE)

Definition: The closure, decommissioning, or abandonment of roads, trails, and/or landings and associated treatment to achieve conservation objectives.

Purpose: To minimize various resource concerns associated with existing roads, trails, and/or landings by closing them and treating to a level where one or more the following objectives are achieved: (a) Controlling erosion, chemical residues, sediment deposition and damage, accentuated storm runoff, and particulate matter generation; (b) Restoring land to a productive state by reestablishing adapted plants and habitat (wildlife food, cover, and shelter), reconnecting wildlife habitat and migration corridors including streams and riparian areas, and controlling noxious and invasive species; (c) Reestablishing drainage patterns that existed prior to construction of the road, trail, or landing to restore the form and integrity of associated hill slopes, channels and floodplains and (d) minimizing human impacts to the closure area to meet safety, aesthetic, or wildlife habitat requirements. This practice can be used to decommission roads and restore areas to historic conditions when in important sage-grouse habitats, or to remove temporary roads needed for habitat restoration purposes.

Resource concerns: Sage-grouse habitat can be fragmented by roads and trail ways, furthering invasive plant spread, habitat degradation and loss.

Potential Beneficial Effect(s) to Sage-Grouse: Practice can be used to close and reclaim roads that are no longer needed/wanted, thus reducing fragmentation of sage-grouse habitat.

Potential Adverse Effect(s) to Sage-Grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion

protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment.

Conservation Practice Standards – Limited Use Practices

Limited Use Conservation Practice Standard: Windbreak/Shelterbelt Establishment (380) (FACILITATING VEGETATIVE PRACTICE)

Definition: Windbreaks or shelterbelts are single or multiple rows of trees or shrubs in linear configurations.

Purpose: This practice may be applied to reduce soil erosion from wind, protect plants from wind related damage, alter the microenvironment for enhancing plant growth, manage snow deposition, provide shelter for structures, animals, and people, provide noise screens, provide visual screens, improve air quality by reducing and intercepting air borne particulate matter, chemicals and odors. It can delineate property and field boundaries, improve irrigation efficiency, and increase carbon storage in biomass and soils. It also can provide wintering/feeding livestock important tree and shrub vegetative cover outside of sage-brush habitat.

Resource concerns: Wintering/feeding livestock on native range can degrade or destroy sage-brush that provides sage-grouse habitat.

Potential Beneficial Effect(s) to Sage-Grouse: Practice can remove livestock from sage brush habitat by providing shelter for wintering livestock on cropland or other non-sage brush habitat.

Potential Adverse Effect(s) to Sage-Grouse: AE 8: Increased potential for predation. AE 9: Identified as a "limited use" practice.

Conservation measures: CM 8: Minimize to the extent possible the removal of existing vegetation when installing practice. Whenever possible when installing fence, use T-posts or cones on posts to reduce perching opportunities for avian predators. Avoid leaving trash or brush piles that could provide cover for predator species. Powerlines should be buried whenever possible or use solar systems to supply required power needs. CM 9: Where the particular "limited use" conservation practice standard is planned, NRCS shall coordinate with state wildlife agency to develop and implement site-specific guidelines to determine practice applicability, location, extent, configuration, and timing to reduce risk to sage-grouse and their habitats.

Limited Use Conservation Practice Standard: Access Road (560) (FACILITATING STRUCTURAL PRACTICE)

Definition: Construction of a travel-way for equipment and vehicles.

Purpose: This practice can provide a fixed route for vehicular travel for resource activities involving ranch and farm management, while protecting the soil, water, air, fish, wildlife, and other adjacent natural resources. Use of the practice in conjunction with road closure conservation practice can replace existing roads to areas outside of important sage-grouse habitats (such as leks).

Resource concerns: Sage-grouse habitat can be fragmented by roads and trail ways, furthering invasive plant spread, habitat degradation and loss.

Potential Beneficial Effect(s) to Sage-Grouse: Reducing conflicts with sage-grouse if used in conjunction with road closure to ensure proper ranching use while keeping vehicular traffic away from important Sage-grouse habitats.

Potential Adverse Effect(s) to Sage-Grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants. AE 4: Removing sagebrush and understory vegetation during implementation of the conservation practice standard. AE 8: Increased potential for predation. AE 9: Identified as a "limited use" practice. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency

recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 4: Design conservation practice standard to minimize or avoid loss of sagebrush during practice installation. For linear practices, limit removal of sagebrush to one side of disturbance and to only the width of removal vehicle. If access for operation and maintenance is required, limit access to one side of disturbance and a limit access to one vehicle width. NRCS shall coordinate with the State Wildlife Agency to determine overall practice applicability, location, extent, configuration, and timing in conservation practice standard's where removal of sagebrush and associated understory vegetation is the objective (brush management, grazing land mechanical treatment, prescribed burning). CM 8: Minimize to the extent possible the removal of existing vegetation when installing practice. Whenever possible when installing fence, use T-posts or cones on posts to reduce perching opportunities for avian predators. Avoid leaving trash or brush piles that could provide cover for predator species. Powerlines should be buried whenever possible or use solar systems to supply required power needs. CM 9: Where the particular "limited use" conservation practice standard is planned, NRCS shall coordinate with state wildlife agency to develop and implement site-specific guidelines to determine practice applicability, location, extent, configuration, and timing to reduce risk to sage-grouse and their habitats. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Additional measure for this conservation practice standard: Access roads will only be built when absolutely necessary to reduce conflicts with sage-grouse. Note that this Standard is used in conjunction with road closure practice (654) and (472).

Limited Use Conservation Practice Standard: Brush Management (non-conifer) (314) (FACILITATING VEGETATIVE PRACTICE)

Definition: The management or removal of woody (non-herbaceous) plants, including sagebrush.

Purpose: This practice may be applied to create the desired plant community phase consistent with the ecological site description and preferable to sage-grouse.

Resource concerns: Sagebrush range sites lacking diversity and if comprised of monotypic stands of brush species limit the availability of understory vegetation (forbs, legumes, and grasses) limiting both sage-grouse habitat and livestock forage. These monotypic stands are modified by creating a mosaic of small,

irregular shaped openings to increase diversity. Typical means to create the mosaic include tebuthiron application and mowing.

Potential Beneficial Effect(s) to Sage-Grouse: Opening up sagebrush canopy in monotypic stands by creating a mosaic of small, irregular shaped openings to increase diversity and create early brood rearing habitat by increasing forbs and legumes to improve insect populations and succulent forbs, needed by sage-grouse in early life stages. Nesting habitat is also improved by increasing the understory vegetation.

Potential Adverse Effect(s) to Sage-Grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants. AE 4: Removing sagebrush and understory vegetation during implementation of the conservation practice standard. AE 9: identified as a "limited use" practice. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 4: Design conservation practice standard to minimize or avoid loss of sagebrush during practice installation. For linear practices, limit removal of

sagebrush to one side of disturbance and to only the width of removal vehicle. If access for operation and maintenance is required, limit access to one side of disturbance and a limit access to one vehicle width. NRCS shall coordinate with the State Wildlife Agency to determine overall practice applicability, location, extent, configuration, and timing in conservation practice standard's where removal of sagebrush and associated understory vegetation is the objective (brush management, grazing land mechanical treatment, prescribed burning). CM 9: Where the particular "limited use" conservation practice standard is planned, NRCS shall coordinate with state wildlife agency to develop and implement site-specific guidelines to determine practice applicability, location, extent, configuration, and timing to reduce risk to sage-grouse and their habitats. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Limited Use Conservation Practice Standard: Grazing Land Mechanical Treatment (548) (FACILITATING VEGETATIVE PRACTICE)

Definition: Modifying physical soil and/or plant conditions with mechanical tools by treatments such as pitting, contour furrowing, ripping, chiseling, or sub-soiling.

Purpose: To establish conditions where the desired plant community phase, consistent with the ecological site description, can re-establish on a degraded ecological site by a) Fracturing compacted soil layers and improve soil permeability, b) Reducing water runoff and increase infiltration, c) Breaking up sod-bound conditions and thatch to increase plant vigor, and d) Renovating and stimulating the soil and plant community for greater productivity and yield.

Resource concerns: Degraded ecological sites that have restrictive soil and vegetation layers prevent natural re-colonization of the desired plant community. This results in reduced amounts of understory vegetation (forbs, legumes, grasses) that are important for ecological processes, robust sage-grouse habitat, and livestock forage.

Potential Beneficial Effect(s) to Sage-Grouse: Use of this practice can remove restricted soil layers and reduce invasive or other plant species that directly or indirectly limit Sage-grouse habitat improvement and productivity. Practice can beneficially alter the height, density, vigor, and seedling establishment of sagebrush and other desired understory plant species.

Potential Adverse Effect(s) to Sage-Grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants. AE 4: Removing sagebrush and understory vegetation during implementation of the conservation practice standard. AE 9: Identified as a "limited use" practice. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site

conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 4: Design conservation practice standard to minimize or avoid loss of sagebrush during practice installation. For linear practices, limit removal of sagebrush to one side of disturbance and to only the width of removal vehicle. If access for operation and maintenance is required, limit access to one side of disturbance and a limit access to one vehicle width. NRCS shall coordinate with the State Wildlife Agency to determine overall practice applicability, location, extent, configuration, and timing in conservation practice standard's where removal of sagebrush and associated understory vegetation is the objective (brush management, grazing land mechanical treatment, prescribed burning). CM 9: Where the particular "limited use" conservation practice standard is planned, NRCS shall coordinate with state wildlife agency to develop and implement site-specific guidelines to determine practice applicability, location, extent, configuration, and timing to reduce risk to sage-grouse and their habitats. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Limited Use Conservation Practice Standard: Prescribed Burning (338) (FACILITATING VEGETATIVE PRACTICE)

Definition: Controlled fire applied to a predetermined area.

Purpose: This practice may be applied to create the desired plant community phase consistent with the ecological site description that is preferable to sage-grouse.

Resource concerns: Sagebrush range sites lacking diversity and comprised of monotypic stands of brush species limit the availability of understory vegetation (forbs, legumes and grasses) limiting sage-grouse habitat and livestock forage.

Potential Beneficial Effect(s) to Sage-Grouse: Opening up sagebrush canopy in monotypic stands by establishing a mosaic of small, irregular shaped openings to increase diversity creates early brood rearing habitat by increasing forbs and legumes, which improves insect populations and succulent forbs needed by sage-grouse in early life stages. Nesting habitat is also improved by increasing the understory vegetation.

Potential Adverse Effect(s) to sage-grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants. AE 8: Increased potential for predation. AE 9: Identified as a "limited use" practice. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM8: Minimize to the extent possible the removal of existing vegetation when installing practice. Whenever possible when installing fence, use T-posts or cones on posts to reduce perching opportunities for avian predators. Avoid leaving trash or brush piles that could provide cover for predator species. Powerlines should be buried whenever possible or use solar systems to supply required power needs. CM 9: Where the particular "limited use" conservation practice standard is planned, NRCS shall coordinate with state wildlife agency to develop and implement site-

specific guidelines to determine practice applicability, location, extent, configuration, and timing to reduce risk to sage-grouse and their habitats. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Limited Use Conservation Practice Standard: Irrigation System, Micro Irrigation (441) (FACILITATING STRUCTURAL PRACTICE)

Definition: Drip irrigation system.

Purpose: This practice, applied as a part of a resource management system, can achieve improvements in water conservation, and can facilitate woody and herbaceous plantings for sage-grouse.

Resource concerns: Insufficient infrastructure leads to unproductive and improper mix of vegetation, leading to poor sage-grouse habitat.

Potential Beneficial Effect(s) to sage-grouse: Irrigated plantings increases cover and improvements in vegetation by producing succulent forbs and insects for brood rearing habitat. Practice can facilitate improved livestock grazing management and can provide water for sage-grouse and other wildlife.

Potential Adverse Effect(s) to sage-grouse: AE 7: Increased potential for west Nile virus. AE 9: Identified as a "limited use" practice. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 7: Where a conservation practice standard involves the creation of an open water source, excluding livestock watering tanks, follow recommendations from the State Wildlife Agency and design practice to minimize or eliminate the threat of West Nile virus to the species. CM 9: Where the particular "limited use" conservation practice standard is planned, NRCS shall coordinate with state wildlife agency to develop and implement site-specific guidelines to determine practice applicability, location, extent, configuration, and timing to reduce risk to sage-grouse and their habitats. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Limited Use Conservation Practice Standard: Irrigation System, Sprinkler (442) (FACILITATING STRUCTURAL PRACTICE)

Definition: Sprinkler - not to include center pivot or wheel lines.

Purpose: This practice, applied as a part of a resource management system, can improve production of forbs and insects for brood rearing and establishment of woody vegetation for sage-grouse.

Resource concerns: Insufficient infrastructure leads to unproductive and improper mix of vegetation, leading to poor sage-grouse habitat.

Potential Beneficial Effect(s) to Sage-Grouse: Irrigated plantings increase cover and improve succulent forbs and insects for brood rearing habitat and sage brush for sage-grouse.

Potential Adverse Effect(s) to Sage-Grouse: AE 7: Increased potential for west Nile virus. AE 9: Identified as a "limited use" practice. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 7: Where a conservation practice standard involves the creation of an open water source, excluding livestock watering tanks, follow recommendations from the State Wildlife Agency and design practice to minimize or eliminate the threat of West Nile virus to the species. CM 9: Where the particular "limited use" conservation practice standard is planned, NRCS shall coordinate with state wildlife agency to develop and implement site-specific guidelines to determine practice applicability, location, extent, configuration, and timing to reduce risk to sage-grouse and their habitats. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Limited Use Conservation Practice Standard: Irrigation System, Surface and Subsurface (443) (FACILITATING STRUCTURAL PRACTICE)

Definition: A system in which all necessary water-control structures have been implemented for the efficient distribution of water by surface means, such as furrows, borders, contour levees, or contour ditches, or by subsurface means.

Purpose: This practice, applied as a part of a resource management system, can improve production of forbs and insects for brood rearing and establishment of woody vegetation for sage-grouse.

Resource concerns: Insufficient infrastructure leads to unproductive and improper mix of vegetation, leading to poor sage-grouse habitat.

Potential Beneficial Effect(s) to sage-grouse: Irrigation of plantings increases cover and improvements in vegetation by producing succulent forbs and insects for brood rearing habitat, which can facilitate improved livestock grazing management and can provide water for sage-grouse and other wildlife.

Potential Adverse Effect(s) to Sage-Grouse: AE 7: Increased potential for west Nile virus. AE 9: Identified as a "limited use" practice. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 7: Where a conservation practice standard involves the creation of an open water source, excluding livestock watering tanks, follow recommendations from the State Wildlife Agency and design practice to minimize or eliminate the threat of West Nile virus to the species. CM 9: Where the particular "limited use" conservation practice standard is planned, NRCS shall coordinate with state wildlife agency to develop and implement site-specific guidelines to determine practice applicability, location, extent, configuration, and timing to reduce risk to sage-grouse and their habitats. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Limited Use Conservation Practice Standard: Irrigation Water Conveyance-Pipeline (430AA-GG) (FACILITATING STRUCTURAL PRACTICE)

Definition: Pipes water to sprinklers and used in association with other irrigation system practices such as Irrigation System - Sprinkler (442)

Purpose: This practice, applied as a part of a resource management system, can improve water conservation, facilitate sagebrush and herbaceous plantings for grouse, or reduce risk of WNV by replacing flood irrigation systems with alternate systems, and improve production of forbs and insects for brood rearing improve production.

Resource concerns: Insufficient infrastructure leads to poor brood habitat, possible disease, degraded upland habitat conditions.

Potential Beneficial Effect(s) to Sage-Grouse: Irrigated plantings increase cover and improve succulent forbs and insects for brood rearing habitat, reduced risk of WNV, improved upland habitat conditions, improved riparian condition due to water conservation.

Potential Adverse Effect(s) to Sage-Grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants. AE 4: Removing sagebrush and understory vegetation during implementation of the conservation practice standard. AE 7: Increased potential for west Nile virus. AE 9: Identified as a "limited use" practice. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants

preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 4: Design conservation practice standard to minimize or avoid loss of sagebrush during practice installation. For linear practices, limit removal of sagebrush to one side of disturbance and to only the width of removal vehicle. If access for operation and maintenance is required, limit access to one side of disturbance and a limit access to one vehicle width. NRCS shall coordinate with the State Wildlife Agency to determine overall practice applicability, location, extent, configuration, and timing in conservation practice standard's where removal of sagebrush and associated understory vegetation is the objective (brush management, grazing land mechanical treatment, prescribed burning). CM 7: Where a conservation practice standard involves the creation of an open water source, excluding livestock watering tanks, follow recommendations from the State Wildlife Agency and design practice to minimize or eliminate the threat of West Nile virus to the species. CM 9: Where the particular "limited use" conservation practice standard is planned, NRCS shall coordinate with state wildlife agency to develop and implement site-specific guidelines to determine practice applicability, location, extent, configuration, and timing to reduce risk to sage-grouse and their habitats. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Limited Use Conservation Practice Standard: Above Ground, Multi-Outlet Pipeline (431) (FACILITATING STRUCTURAL PRACTICE)

Definition: A water distribution tubing consisting of aluminum, PVC, or lay-flat polyethylene pipeline with closely spaced orifices or gates.

Purpose: This practice, applied as a part of a resource management system, can improve water conservation, facilitate woody and herbaceous plantings for grouse, reduce risk of West Nile Virus by replacing flood irrigation systems with alternate systems, improve production of forbs and insects for brood rearing improve production to allow improvements in priority sage-grouse habitat.

Resource concerns: Insufficient infrastructure leads to poor brood habitat, possible disease, and degraded upland habitat conditions.

Potential Beneficial Effect(s) to sage-grouse: Irrigated plantings increase cover and improve succulent forbs and insects for brood rearing habitat, reduced risk of WNV, improved upland habitat conditions, improved riparian condition due to water conservation.

Potential Adverse Effect(s) to sage-grouse: AE 1: Physical disturbance (including noise) of birds. AE 7: Increased potential for west Nile virus. AE 9: Identified as a "limited use" practice. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation

practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 7: Where a conservation practice standard involves the creation of an open water source, excluding livestock watering tanks, follow recommendations from the State Wildlife Agency and design practice to minimize or eliminate the threat of West Nile virus to the species. CM 9: Where the particular "limited use" conservation practice standard is planned, NRCS shall coordinate with state wildlife agency to develop and implement site-specific guidelines to determine practice applicability, location, extent, configuration, and timing to reduce risk to sage-grouse and their habitats. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Limited Use Conservation Practice Standard: Irrigation Field Ditch Irrigation System, Surface and Subsurface (388) (FACILITATING STRUCTURAL PRACTICE)

Definition: A permanent irrigation ditch constructed in or with earth materials, to convey water from the source of supply to a field or fields in an irrigation system.

Purpose: This practice, applied as a part of a resource management system, can produce of forbs and insects for brood rearing and establishment of woody vegetation for sage-grouse.

Resource concerns: Insufficient infrastructure leads to poor brood and other sage-grouse habitat.

Potential Beneficial Effect(s) to sage-grouse: Irrigated plantings increase cover and improve succulent forbs and insects for brood rearing habitat and sage brush for sage-grouse.

Potential Adverse Effect(s) to sage-grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants. AE 4: Removing sagebrush and understory vegetation during implementation of the conservation practice standard. AE 7: Increased potential for west Nile virus. AE 9: Identified as a "limited use" practice. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per

local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 4: Design conservation practice standard to minimize or avoid loss of sagebrush during practice installation. For linear practices, limit removal of sagebrush to one side of disturbance and to only the width of removal vehicle. If access for operation and maintenance is required, limit access to one side of disturbance and a limit access to one vehicle width. NRCS shall coordinate with the State Wildlife Agency to determine overall practice applicability, location, extent, configuration, and timing in conservation practice standard's where removal of sagebrush and associated understory vegetation is the objective (brush management, grazing land mechanical treatment, prescribed burning). CM 7: Where a conservation practice standard involves the creation of an open water source, excluding livestock watering tanks, follow recommendations from the State Wildlife Agency and design practice to minimize or eliminate the threat of West Nile virus to the species. CM 9: Where the particular "limited use" conservation practice standard is planned, NRCS shall coordinate with state wildlife agency to develop and implement site-specific guidelines to determine practice applicability, location, extent, configuration, and timing to reduce risk to sage-grouse and their habitats. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Limited Use Conservation Practice Standard: Irrigation Water Management (449) (FACILITATING STRUCTURAL PRACTICE)

Definition: The process of determining and controlling the volume, frequency and application rate of irrigation water in a planned, efficient manner.

Purpose: This practice, applied as a part of a resource management system, can produce of forbs and insects for brood rearing and establishment of woody vegetation for sage-grouse.

Resource concerns: Insufficient infrastructure leads to poor brood and other sage-grouse habitat.

Potential Beneficial Effect(s) to sage-grouse: Irrigated plantings increase cover and improve succulent forbs and insects for brood rearing habitat and sage brush for sage-grouse.

Potential Adverse Effect(s) to Sage-Grouse: AE 7: Iincreased potential for west Nile virus. AE 9: Identified as a "limited use" practice. AE 10: Practice implementation in isolation without concurrent

grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 7: Where a conservation practice standard involves the creation of an open water source, excluding livestock watering tanks, follow recommendations from the State Wildlife Agency and design practice to minimize or eliminate the threat of West Nile virus to the species. CM 9: Where the particular "limited use" conservation practice standard is planned, NRCS shall coordinate with state wildlife agency to develop and implement site-specific guidelines to determine practice applicability, location, extent, configuration, and timing to reduce risk to sage-grouse and their habitats. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.

Limited Use Conservation Practice Standard: Pond (378)
(FACILITATING STRUCTURAL PRACTICE)

Definition: A water impoundment made by constructing an embankment or by excavating a pit or dug out to provide water for livestock and/or wildlife.

Purpose: This practice will be applied to facilitate livestock grazing management and provide access to drinking water for livestock and/or wildlife in order to meet daily water requirements and improve animal distribution to conserve or enhance important sage-grouse habitat.

Resource concerns: Insufficient infrastructure (livestock water) limits grazing rotation options resulting in limited livestock distribution and over/under utilization of forage and decreased range health. Additionally, current water sources may concentrate livestock on important wildlife habitats, reducing the quality. Limited stock water greatly restricts the ability of land managers to manage livestock in a way that promotes rangeland sustainability and improved wildlife and sage-grouse habitat.

Potential Beneficial Effect(s) to sage-grouse: Use of this practice can facilitate improved livestock grazing management and can provide water for sage-grouse and other wildlife.

Potential Adverse Effect(s) to Sage-Grouse: AE 1: Physical disturbance (including noise) of birds. AE 2: Temporary soil and vegetation disturbances. AE 3: Increased potential for invasive plants. AE 4: Removing sagebrush and understory vegetation during implementation of the conservation practice standard. AE 7: Increased potential for west Nile virus. AE 9: Identified as a "limited use" practice. AE 10: Practice implementation in isolation without concurrent grazing management prescribed to address sage-grouse habitat needs, can result in a reduction of sage-grouse habitat quality.

Conservation measures: CM 1: NRCS shall coordinate with the various State Wildlife Agencies to identify appropriate restrictions on the placement, extent, configuration, and timing of conservation practice standards and the area where these practice restrictions would apply so as to avoid or minimize physical disturbance to sage-grouse where they may occur. For example, state wildlife agency may recommend that certain activities will not be allowed such as placement of practices that cause physical disturbance within prescribed distances of leks. CM 2: Evaluate the site's potential for soil erosion and invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during installation of conservation practices. During installation, utilize soil erosion protection measures if potential for off-site soil erosion exists. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice

objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those plants that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 3: Evaluate the site's potential for invasion by undesirable plants during practice planning and design. Minimize soil and vegetative disturbances during implementation of conservation practices. Following the evaluation of local site conditions, site-specific Ecological Site Descriptions and the specific needs of the sage-grouse will be used to inform the reclamation strategy. Native species will be used whenever possible to meet practice objectives with preference to shrubs, forbs, grasses and grass-like plants preferred by sage-grouse as well as those species that reflect the potential of the specific ecological site to optimize sage-grouse habitat. Tree species should not be planted. When non-native species are necessary to stabilize disturbed areas, avoid the use of plants identified as either invasive or aggressive. All seed mixes should be State-certified weed free. Timing of planting and post-establishment vegetation management will be designed as per local site conditions to meet NRCS practice specifications and NRCS biologist or State Wildlife Agency recommendations. Machinery associated with the practice should be clean and free of vegetative debris prior to use to prevent the spread of invasive plant species. Newly seeded/planted sites should be rested from livestock grazing for an appropriate period as determined by NRCS to ensure stand establishment. CM 4: Design conservation practice standard to minimize or avoid loss of sagebrush during practice installation. For linear practices, limit removal of sagebrush to one side of disturbance and to only the width of removal vehicle. If access for operation and maintenance is required, limit access to one side of disturbance and a limit access to one vehicle width. NRCS shall coordinate with the State Wildlife Agency to determine overall practice applicability, location, extent, configuration, and timing in conservation practice standard's where removal of sagebrush and associated understory vegetation is the objective (brush management, grazing land mechanical treatment, prescribed burning). CM 7: Where a conservation practice standard involves the creation of an open water source, excluding livestock watering tanks, follow recommendations from the State Wildlife Agency and design practice to minimize or eliminate the threat of West Nile virus to the species. CM 9: Where the particular "limited use" conservation practice standard is planned, NRCS shall coordinate with state wildlife agency to develop and implement site-specific guidelines to determine practice applicability, location, extent, configuration, and timing to reduce risk to sage-grouse and their habitats. CM 10: To benefit the quality of sage-grouse habitat, the umbrella systems practice Upland Wildlife Habitat Management (code 645) for the Sage-grouse Initiative shall be used to design, implement and install the other facilitating practice standards to ensure that sage-grouse habitat is maintained or improved following application.