

**Greater Sage-grouse (*Centrocercus urophasianus*)**

**CANDIDATE CONSERVATION AGREEMENT WITH ASSURANCES**

**between the  
Oregon State Land Board,  
Oregon Department of State lands and the  
U.S. Fish and Wildlife Service**



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## EXECUTIVE SUMMARY

Greater sage-grouse (*Centrocercus urophasianus*; hereafter referred to as 'sage-grouse') have declined across their range for a variety of reasons and now occur in 11 states and two Canadian provinces. On March 23, 2010 the U.S. Fish and Wildlife Service (FWS) released its finding that the sage-grouse warranted listing under the Endangered Species Act (ESA), but listing was precluded by other, higher priority actions (75 CFR 13909). The primary threats to sage-grouse identified in this finding are habitat loss, fragmentation and degradation. Other threats include an increase in the use of sagebrush habitat for renewable energy, such as wind power and spread of West Nile virus. While improperly managed livestock grazing was identified as a threat FWS noted: "There are data to support both beneficial and detrimental aspects of grazing (Klebenow 1981, p.122; Beck and Mitchell 200, p.993), suggesting that the risk of livestock grazing to sage-grouse is dependent on site-specific management" (75 FR 13998). Positive impacts of livestock grazing could include increased brood use of lightly to moderately grazed areas (as opposed to ungrazed or heavily grazed areas), the maintenance of large areas of contiguous sagebrush, and the ability of ranchers and range managers to detect weed infestations early (increasing the likelihood that weed control will be successful). A neutral impact could be the maintenance of perennial bunchgrasses with moderate levels of livestock use. A negative effect could be a reduction in residual perennial grass cover at nesting sites (i.e. visual obstruction).

In anticipation of a final listing decision by the FWS, the Oregon Department of State Lands (DSL) requested assistance from FWS in developing a sage-grouse strategy for grazing management activities that could offer DSL assurances their operations could continue in the event the species was listed under the ESA. DSL and FWS have developed this Candidate Conservation Agreement with Assurances (CCAA).

A CCAA is a voluntary agreement whereby landowners agree to manage their lands to remove or reduce threats to species at risk of being listed under the ESA. In return for managing their lands to the benefit of species at risk, landowners receive assurances against additional regulatory requirements should that species ever be listed under the ESA. Under a CCAA, the FWS will issue DSL an Enhancement of Survival (EOS) Permit (Permit) pursuant to section 10(a)(1)(A) of the ESA for a period of 30 years. Since the agreement is voluntary, DSL can end it at any point, although in doing so they would give up any assurances, and coverage under the EOS Permit would terminate. This agreement can also be updated and revised through adaptive management procedures so that it will continue to provide added conservation benefits for sage-grouse.

The purpose of this CCAA is to reduce or eliminate negative impacts of rangeland management practices to sage-grouse and to maintain and support livestock grazing practices that are beneficial or neutral to sage-grouse on State Trust lands administered by DSL in Oregon. Livestock production is a primary use of Oregon's public rangelands, and listing the sage-grouse could have significant impacts on this use, as well as communities and livelihoods which depend on livestock production. This CCAA is an important component of a strategic, landscape-level approach to address the conservation needs of sage-grouse in Oregon.



This CCAA provides a framework for DSL, often working in partnership with lessees, to voluntarily implement conservation measures (CM) for sage-grouse on DSL administered lands in Oregon, beyond measures they are already required to implement by state regulation.

This CCAA includes:

- A general description of responsibilities for both parties, and the area covered under the CCAA;
- Background, status and general threats to sage-grouse for the covered area, and conservation measures needed to remove or reduce those identified threats;
- Expected benefits of prescribed actions in relation to the five threat factors the FWS is required to evaluate when considering a species for listing; and
- Level of take likely to occur from activities on enrolled lands, assurances, monitoring, and annual reporting.

## PURPOSE

The purpose of this CCAA is to conserve sage-grouse on Oregon State Trust Lands administered by the DSL. The conservation goal of this agreement is to contribute to ongoing efforts throughout the range of sage-grouse to achieve the protection and management necessary to preclude the listing of greater sage-grouse. The conservation goal will be met by giving DSL incentives to implement conservation measures through regulatory certainty concerning land use restrictions that might otherwise apply should the greater sage-grouse become listed under the ESA. The CCAA supports ongoing efforts to sustain and enhance the existing populations of the species.

This Candidate Conservation Agreement with Assurances (CCAA) promotes grazing practices that reduce or eliminate threats to sage-grouse on DSL managed lands and ensures grazing practices that are neutral or beneficial to sage-grouse can continue unaffected if the species is listed in the future, while contributing to the economic sustainability of the State's Trust Lands, the State's lessees, and maintaining the ranching culture and agricultural way of life in Southeast Oregon.

## INTRODUCTION

This agreement recognizes that Oregon State's Trust Lands in Southeast Oregon have contributed to the well-being of greater sage-grouse (*Centrocercus urophasianus*; hereafter referred to as 'sage-grouse') by providing large areas of continuous, high quality habitat on public trust lands. In addition, the continued sustainability of these operations is a primary means of preventing further habitat fragmentation and loss.<sup>1</sup> This CCAA provides the State assurances that land management practices associated with forage lease management can continue in the event sage-grouse are listed under the Endangered Species Act (ESA), while also identifying opportunities to provide additional benefits by reducing or removing existing threats to sage-grouse.

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<sup>1</sup> Habitat fragmentation is the breaking up of habitat used by sage-grouse into smaller parcels, creating discontinuous habitat.

A CCAA is a voluntary agreement whereby a landowner agrees to manage their lands to remove or reduce threats to a species that may become listed under the ESA. In return for managing their lands to the benefit of a species at risk, landowners receive assurances against additional regulatory requirements should that species ever be listed under the ESA.

DSL, operating under the direction of and on the behalf of the State Lands Board and the Common School Fund, has requested an EOS Permit pursuant to section 10(a)(1)(A) of the ESA for a period of 30 years. Since the agreement is voluntary, DSL can end it at any point, although in doing so, any assurances and incidental take coverage under the Permit would terminate.

By this CCAA DSL agrees to maintain contiguous habitat by avoiding further fragmentation and to address all other threats to sage-grouse and their habitats within their control with one or more Conservation Measures (CMs). A CM is defined as an activity or action which, when implemented or continued to be implemented, will reduce or remove threats to sage-grouse and will improve or maintain their habitat. By doing this DSL lands will meet the "CCAA Standard"<sup>2</sup>.

DSL, in coordination with the FWS and other partners, will utilize State statutes, administrative rules, forage leases, Leasehold (Rangeland) Management Plans and Annual Operating Plans as existing and from time to time revised for individual leaseholds, as the collective commitment and performance under the Permit.

This ownership-wide strategy allows DSL to identify issues and opportunities appropriate to all DSL managed lands as well as those unique to individual parcels that may be addressed by specific CMs. This CCAA provides, in Appendix A, a comprehensive list of specific CMs from which DSL can select those measures most appropriate to individual parcels that will adequately address the identified threats to sage-grouse. This CCAA also provides DSL the opportunity to develop additional CMs when an appropriate CM cannot be found in Appendix A.

The goals this CCAA is designed to meet are:

- The conservation goal of this agreement is to contribute to ongoing effort throughout the range of sage-grouse to achieve the protection and management necessary to preclude the need to list greater sage-grouse as threatened or endangered under the ESA.
- Provide DSL and Lessees assurances that current ranch and land management practices covered by this CCAA will continue in the event sage-grouse are listed under the ESA, provided that the CCAA is being implemented as agreed upon.
- Support implementation of the sage-grouse Conservation Assessment and Strategy for Oregon (Hagen 2011).
- Implement CMs that reduce or remove threats to sage-grouse through proactive ranch and land management, providing comprehensive conservation to meet the CCAA standard.
- Serve as an umbrella document for CMs implemented by lessees and those implemented

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<sup>2</sup> The CCAA standard is: "When evaluating a potential CCAA, the FWS must determine that the benefits of conservation measures to be implemented by a property owner under a CCAA, when combined with those benefits that would be achieved if the conservation measures were also to be implemented on other necessary properties, would preclude or remove any need to list the covered species."



directly by DSL.

- Serve as an important component of a larger, landscape-level approach to address the conservation needs of sage-grouse in Oregon.
- Recognize the interrelated nature of public and private land and the contribution to sage-grouse conservation made by working ranches.
- Provide an ecological approach to maintain current sage-grouse habitat and to improve habitat that is not meeting conservation objectives, as identified in DSL's baseline assessment.

This species is currently a candidate for listing under ESA; it is not listed. Therefore, there are no ESA regulations related to sage-grouse currently impacting DSL managed lands and livestock operations. In Oregon, the sage-grouse is currently managed by Oregon Department of Fish & Wildlife (ODFW).

### **Species Distribution and History**

Prior to settlement in the 19<sup>th</sup> century, sage-grouse inhabited 13 western states and three Canadian provinces, and their potential habitat covered over 463,509 square miles. Sage-grouse have declined across their range due to a variety of causes and now occur in 11 states and two Canadian provinces. Overall, the species distribution and numbers have shown a decreasing trend. Many factors played a role in reducing sage-grouse from an abundant, broadly distributed species, but the primary threat across their range is loss of habitat due to increased surface disturbance and general fragmentation of the landscape.

In Oregon, sage-grouse were once found in most grass land and sagebrush habitats east of the Cascades. European settlement and conversion of sagebrush steppe into agricultural production led to extirpation of the species in the Columbia Basin by the early part of the 1900s, but sagebrush rangelands have persisted, particularly in southeast Oregon. Sage-grouse populations have fluctuated markedly since the mid-1900s, with notable declines in populations from the 1950s to early 1970s. Oregon sage-grouse numbers apparently have declined over the long-term (Hagen 2005). However, population indices over the last 30 years suggest a relatively stable statewide population (Hagen 2011). Reasons for these losses likely are the cumulative effects of habitat loss and degradation, changes in predator control methods, and increases in human disturbance (Hagen 2005). Habitat loss and fragmentation are the primary cause for long-term changes in population abundance and distribution. Additional threats include, sagebrush removal, agricultural conversion, drought, rising CO<sub>2</sub> levels, flooding, West Nile virus, unmanaged or improper grazing, feral horses, recreation, predation<sup>3</sup>, sagebrush defoliating insects (*Aroga moth*, *Aroga websteri*), and energy development and other infrastructure (USFWS 2010).

Throughout sagebrush habitat in Oregon, wildfire in low elevation sagebrush and the resultant increase of exotic annual grasses, as well as juniper encroachment in high elevation sagebrush due to lack of fire are the two largest factors causing habitat loss.

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<sup>3</sup> Predation may be underestimated as a limiting factor to sage-grouse population success in much of its occupied habitat (Coates and Delehanty 2010; Coates *et al.* 2008; Dinkins *et al.* 2012; Kolada *et al.* 2009; Kolada *et al.* 2009b; Moynahan *et al.* 2007; Willis *et al.* 1993). In particular the impacts of predation on sage-grouse can increase where habitat quality has been compromised by anthropogenic activities (Coates 2007; Bui 2009; Hagen 2012).

Current harvest management is not considered a significant threat to sage-grouse populations. (USFWS 2010) In southeastern Oregon there are healthy populations of sage-grouse with limited hunting. ODFW allows harvest of up to 5% of the projected fall population of birds and in practice harvest has been estimated at less than 3% of the fall population in hunted areas. (Hagen 2005). Current research found that such limited hunting does not affect populations (Connelly *et al.* 2000; Sedinger *et al.* 2010). Harvest of sage-grouse is currently permissible under Oregon law. Hunters contribute to sage-grouse management by submitting wings of harvested birds to ODFW, allowing biologists to learn more about age, sex, reproductive success, and distribution of the species.

### **Listing**

Between 1999 and 2003, the FWS received eight petitions to list various populations of sage-grouse under the ESA. On January 12, 2005, the FWS published a finding that the sage-grouse did not warrant range-wide protection under the ESA (70 FR 2244). This “not warranted” finding was challenged in court, and in December 2007, a federal judge ordered the FWS to reconsider its decision. On March 23, 2010, the FWS published a range-wide “warranted but precluded” finding (75 FR 13909). The 2010 finding indicated that sage-grouse warrant listing under ESA, but higher priority species precluded proceeding with a listing rule at that time, thereby conferring candidate status on the sage-grouse. The primary range-wide threats to sage-grouse, as defined in the 2010 finding, are: 1) habitat loss, fragmentation and degradation; and 2) inadequate regulatory mechanisms. In the 2010 FWS finding, additional threats were identified including an increase in the use of sagebrush habitat for renewable energy such as wind power and the spread of West Nile virus.

### **CCAA Development**

In anticipation of a final listing decision by the FWS, DSL requested assistance from FWS in developing a sage-grouse strategy for land management activities that could offer DSL assurances their practices could continue in the event the species was listed under the ESA. DSL indicated a desire to develop an “all lands – all threats” CCAA. However in a letter from the FWS dated November 2, 2012 the FWS indicated that this CCAA should be limited to rangeland (livestock) production. Livestock production is a primary use of DSL’s rangelands, and listing the sage-grouse could have a significant impact on this use and the communities of Southeast Oregon.

Information on existing conditions, status, and threats in this CCAA is summarized from the:

- Oregon Department of Fish and Wildlife’s Greater sage-grouse conservation assessment and strategy for Oregon (hereafter referred to as ‘ODFW Strategy’) (Hagen 2011)
- FWS March 23, 2010, 12-month Finding (75 FR 13910)
- FWS January 12, 2005, 12-month Finding (70 FR 2243)
- Greater sage-grouse ecology and conservation of a landscape species and its habitat (Knick and Connelly 2011).

We refer the reader to these documents for a more in-depth analysis.

### **1. Factors Affecting the Species**

The long-term persistence of sage-grouse will depend on maintenance of intact shrub steppe landscapes as well as associated riparian and meadow habitats that serve as important brood



rearing habitat. Sage-grouse are landscape-scale species and the destruction and fragmentation of their habitat has contributed to significant population declines throughout its range over the past century. If current trends persist, many local populations may disappear in the next several decades, with remaining fragmented populations vulnerable to extinction. Habitat fragmentation is the most significant threat to the long-term persistence of sage-grouse. Threats to sage-grouse and their habitats are outlined in Appendix A with corresponding CMs.

## **2. Conservation Approach**

The basic conservation approach described in this CCAA is an ecologically-based approach to maintain current sage-grouse habitat and to improve deficient habitat. This approach relies on habitat models (Appendix C) that describe factors that impact plant community composition and structure over time. These models indicate specific threats that can be influenced by management to improve habitat quality for sage-grouse; these threats are, in turn, the basis for habitat-related CMs (Appendix A). Also identified are species-specific threats and associated CMs for non-habitat factors that directly (e.g. West Nile virus) and indirectly (e.g., insecticide use) impact sage-grouse populations (Appendix A).

## **3. Baseline Inventory and Apparent Trend**

From summer 2013 through summer 2014, DSL conducted an inventory of leased rangelands. This inventory was associated with the 15 year renewal of the majority of currently active leases, which concluded in February, 2015. The baseline data for long term monitoring (trend) was collected, summarized, and completed prior to September 2014 for leaseholds expiring on February 28, 2015. Currently unleased parcels and leaseholds not expiring on February 28, 2015 will be completed prior to October 2015. The inventory process was modified to incorporate the acquisition of necessary baseline information, apparent ecological trend determinations, and initial identification of potential conservation measures for sage-grouse (See Leasehold Inventory Sheet, Appendix D-1). Identification of sage-grouse habitat or non-habitat will be included in the baseline inventory based on the following criteria:

- Core Area Habitat or Preliminary Primary Habitat (PPH): Areas identified as having the highest conservation value to maintaining sustainable sage-grouse populations in the ODFW Sage-grouse Conservation Assessment and Strategy for Oregon which includes known breeding, late brood-rearing, and known winter concentration areas. These areas also correspond to Priority Areas for Conservation (PAC's) as identified in the FWS 2013 Conservation Objectives Team Report which includes the most important areas for maintaining sage-grouse representation, redundancy, and resiliency across the landscape.
- Other Occupied Habitat: Areas of occupied seasonal or year-round habitat outside of Core Area Habitat. This includes areas described in the ODFW Sage-grouse Conservation Assessment and Strategy for Oregon as Low Density Habitat. It also includes additional areas of potentially suitable sagebrush habitat referred to as Priority General Habitat (PGH).

## **Reporting**

Baseline inventory, assessment of ecological states, threats, and the CMs that will address those threats on individual parcels will be identified in Sage-Grouse Habitat Assessments (SGHAs, see Appendix B). SGHAs will be similar to site specific plans in that they will contain the



ecological information necessary to determine which threats exist to sage-grouse on a given parcel and which CMs would be appropriate to implement on that parcel. Prior to permit issuance, SGHAs for a minimum of 25% of the covered area (~152,750 acres) shall be reviewed and approved by FWS to ensure that they meet the CCAA standard before the permit will be issued as part of this agreement. In addition, an interim plan documenting any currently known habitat data, threats, and potential CMs will be submitted for the remaining 75% of the covered area not yet in SGHAs. This plan will provide a potential implementation plan; however, CMs will not be finalized until they are in approved SGHAs. Following permit issuance, SGHAs for a minimum of 25% of the covered area shall be submitted in each subsequent year for three years such that all SGHAs will be completed by the end of 2018 and all DSL lands will then be covered under this agreement. SGHAs must meet the CCAA standard in order for the lands to be included in this agreement and have applicable take coverage. (See Section 12 Authorized Take for further information).

#### **4. Lease Contracts, Leasehold Management Plans and Annual Operating Plans**

DSL managed rangelands in addition to statutory and administrative guidelines are, where leased, administered under contractual relationships between the State and individual lessees. DSL retains management control of the land and may undertake needed actions independently of lessees, in partnership with lessees, or direct lessee actions as appropriate under the terms of the lease contracts. Leasehold Management Plans (LMPs) and Annual Operating Plans (AOPs) are tools described in the lease contract and used to further specify management requirements unique to a leasehold or pasture. Where identified conservation measures such as grazing management, drought, juniper removal or wildfire are directly associated with lessee use of the parcel, LMPs or AOPs may be utilized to direct needed actions to implement prescribed conservation measures by the lessee.

As mentioned in Section 3 above, SGHAs for the DSL lands within the covered area will be similar to site specific plans and will be reviewed by FWS to ensure they meet the CCAA standard. The SGHAs will contain all of the CMs required to address the threats to sage-grouse on each individual parcel. Section 5 below describes how CMs will be selected for each parcel. SGHAs will be dynamic documents updated and revised as informed through annual monitoring and adaptive management (see Section 6 below). The SGHAs will collectively serve to help prioritize and direct DSL actions and range improvement projects. Specific CMs may be incorporated in LMPs which constitute binding contractual amendments to leases. AOPs may incorporate changes to the implementation of the CMs on an annual and individual lease basis.

#### **5. Conservation Measures Development**

DSL will promote good land stewardship by implementing actions on their managed lands that benefit sage-grouse. DSL will identify threats and select CMs identified in this CCAA for application to their managed lands and will describe specific conservation practices that will be implemented on DSL managed lands to maintain, rehabilitate, or enhance habitat for the species, and remove or reduce any unfavorable impacts to the species arising from the management of these lands. Since all appropriate CMs cannot be anticipated, additional CMs can be included which were not identified in this CCAA that support healthy sage-grouse habitat, provided DSL and FWS mutually agree to the CM.



The overall management approach is to stratify the lands based upon the ecological requirements for sage-grouse habitat, and then identify the current state of that habitat for each plant community (determined by initial baseline inventory). Once identified, each plant community may transition (change) due to impacts on the site which may be natural, influenced by man, or a combination of both. Those actions that cause transition to improve or maintain sage-grouse habitat are considered conservation measures (CMs); the actions or impacts which degrade sage-grouse habitat are considered threats to the habitat. The ecological model, "state and transition" (Appendix C) demonstrates this process by plant community in a flow chart. An associated set of flow charts located in Figure 1. Page 14, describe the step-by-step process for habitat stratification and identifying current states of plant communities. Derived from that classification, the flow charts continue on, identifying potential threats and CMs that will maintain or improve sage-grouse habitat. Through annual monitoring (apparent trend) of the plant communities and long term monitoring (trend) the direction of transition of habitat can be determined, which will then be used to make informed decisions on habitat management.

The process of selecting and/or developing specific CMs for individual leaseholds or pastures will be based on the threats identified for the parcel in the baseline inventory. DSL will identify specific threats and select and/or develop CM(s) to remove or reduce each threat. Each identified threat within the control of DSL will be addressed and will have one or more corresponding CM(s); the FWS and DSL recognize not every potential CM listed for a particular threat is appropriate for a given parcel. Therefore, CMs selected or developed will be based on their likely effectiveness, ability to be implemented, and should be the most beneficial for sage-grouse conservation on that particular parcel.

If no threats are identified or if current management is addressing identified threats, a description of current management and a monitoring strategy will suffice. On all enrolled lands **DSL agrees to CM 1: Maintain contiguous habitat by avoiding further fragmentation.** The objective for this CM is for no net loss in 1) habitat quantity (as measured in acres) and 2) habitat quality (as determined by the ecological state). The baseline determination of habitat quality and quantity will be completed during the baseline inventory and will serve as a reference point in meeting the objective for CM 1.

While this is the objective on CM 1, FWS and DSL understand that changes out of the control of DSL will be handled as a changed circumstance. If changed circumstances occur, conservation measures need to be included consistent with *Section 14. Changed Circumstances*. CM 1 does not exclude CMs that might create a short term loss of habitat quality or quantity because such measures are intended to result in a long term improvement to sage-grouse habitat.

While these CMs should apply across the landscape, there may be circumstances where site-specific modifications or conditions warrant changes to the standard prescriptions. Changes to CMs and or development of CMs will occur in consultation with and must have concurrence from the FWS. DSL will note those changes for enrolled properties, including rationale or justification for any modifications.

This CCAA incorporates by reference all conservation strategies in the ODFW Strategy (Hagen 2011) that are relevant to DSL managed lands. DSL and FWS will draw from those strategies

while developing CMs and implementing actions for sage-grouse on DSL managed lands under this CCAA. However, it is unlikely that the ODFW Strategy and this CCAA cover all needs for certain circumstances, so site specific measures outside of these references will be determined, as necessary.

## **6. Inventory and Monitoring Protocols**

The **overall management goal** is to facilitate maintenance of, or transition to, a desired ecological state that can serve the habitat needs of sage-grouse using an ecologically-based model (see state and transition diagrams for low elevation, high elevation, and riparian habitat shown in Appendix C). Additional conservation measures may be used to further increase the quality/value of sage-grouse habitat (e.g., timing of grazing in nesting habitat) or mitigate species-specific threats (e.g., raptor perches in the vicinity of essential habitat). However, focusing on species-specific conservation measures in habitat that is in, or at risk of, transition to a non-desired state can divert resources from addressing underlying ecological issues that ultimately define the current and future value of such habitats to sage-grouse and other sagebrush obligate wildlife species. For this reason, an ecologically-based model will be used to determine inventory, monitoring, and conservation needs (for a detailed explanation of State and Transition Models, see Appendix C).

This section:

- Explains how individual parcels are classified for upland and riparian sites (Site Selection Protocol);
- Visually depicts with a flow chart the stepwise process of inventorying the existing habitat conditions and establishing a data base for long term monitoring (Figure 1);
- Provides criteria for each ecological state and visually depicts how information about the current ecological state of the pasture or leasehold feeds into the process of identifying potential threats, relevant objectives, needed conservation measures, and associated monitoring (Figures 2-5);
- Explains the purposes of long term monitoring (trend) and annual monitoring and refers the reader to each method's protocols and forms.

### ***Site Inventory Protocol***

- A. Background information-Blocked leaseholds are divided into pastures as inventory and monitoring units. Isolated parcels are generally treated as a single management unit and may be mapped in conjunction with adjacent private or BLM pastures. DSL data sets generally include the following background information for each leasehold or pasture: aerial photographs, satellite imagery, written histories, disturbance history (e.g., burn maps), management history, property maps, plant species lists, ecological sites and site descriptions, improvement locations and soil maps.
- B. Stratify by habitat suitability using existing data-Leaseholds or pastures have been or will be inventoried and stratified into areas of:
  - a. existing suitable sage-grouse habitat (i.e., low elevation ecological states A, B, and D; mid elevation ecological state A,B; high elevation ecological states A and B; lotic riparian ecological states characterized by consistent access to floodplain) or,



- b. potentially suitable sage-grouse habitat (i.e. low elevation ecological state C; mid elevation ecological states C, D, and E; high elevation ecological states C, D, and E; lotic riparian ecological states without consistent access to floodplain) and,
  - c. areas of persistently unsuitable habitat (e.g., historically non-habitat or permanently converted habitat – infrastructure, agriculture, etc.) (see Figure 1).
- C. On-site documentation of upland ecological states -The upland property has been stratified by management unit (typically by pasture). Each upland management unit will be stratified into the three primary ecological types (i.e., high elevation sagebrush rangeland, mid elevation sagebrush rangeland, and low elevation sagebrush rangeland) using a combination of existing knowledge and/or data, ecological site descriptions, GIS techniques, and field reconnaissance. Ecological types within management units will be stratified by the ecological states described in their respective state and transition model. Preliminary ecological state strata will be determined using existing vegetative data from prior and current inventorying efforts and available GIS data. The resultant preliminary strata will be used to direct any additional habitat inventory efforts.
- D. Monitor upland trend sites: establishing an apparent trend– Sites which are representative of the ecological status of a pasture will be selected during baseline inventory using ocular assessment if not previously selected during normal rangeland analysis and ongoing monitoring. In addition to gathering data to establish apparent trend, these sites will be used for determining utilization levels for livestock use in each pasture and will be initially selected for this purpose.

Upland monitoring, will consist of gathering ecological site attributes consisting of ocular estimates of canopy cover(annual/perennial grasses, shrubs, forbs and standing litter), ocular estimates of basal cover (bare ground, litter, rock/gravel and bio crusts) and grazing use by estimating utilization by grazed species. Sites will be revisited as needed as indicated in completed baseline inventory for isolated parcels but not more than once every eight years. The changes in plant community attributes over time determine if the ecological state of the plant community is changing (transitioning) toward or away from desired habitat or remaining stable. This information will be assessed along with annual monitoring to determine cause(s) of change which may be management or climatic or a combination of both. This becomes the basis for determining if selected conservation measures are having the desired effect or if adaptive changes are needed. The basic method of upland monitoring used in this CCAA is a Utilization/Pace 180° transect with cover estimates. Photo monitoring will continue using previously established photo points and by establishing additional permanent photo monitoring points as necessary. The CCAA provides DSL with the flexibility to employ the most efficient, generally accepted rangeland monitoring methodologies to measure change in ecological states as related to specific objectives. If new monitoring protocols are adopted FWS must approve. For a detailed explanation of the upland protocols see Appendix D.

- E. Stratify riparian areas - Each stream will be stratified by separate stream reaches. This will be done to better identify the factors that are influencing change within each management unit (i.e. pasture). A site visit will be performed on the stream segments to

identify critical areas (e.g. headcuts, extreme down cutting) and to perform Proper Functioning Condition (PFC) and other ocular assessments. The ocular assessment is a point-in-time measurement of visual indicators and will be used for initial assessment to determine the ecological state of each stream reach within the model (Appendix C). Ideally one ocular assessment will be done per stream segment; however, due to stream heterogeneity and changes in ecological condition multiple assessments may be necessary.

- F. Establish and monitor riparian sites – Permanent representative trend sites will be determined during ocular assessment for low gradient stream segments. The upstream and downstream ends of the monitoring location have previously been marked. Any other critical area in between will be documented with GPS. These permanent locations are/will be used as repeat photo monitoring points. Photos will be taken from these points both upstream and downstream to assess stream movement, site stability, and vegetative trend. Monitoring will consist of performing a PFC report between the upstream and downstream permanent photo points and updating these photos. If photo monitoring or PFC report indicates an unstable ecological state (C or D) then a CM will be applied with further assessment. If this assessment determines the stream segment is non-functioning or functioning-at-risk, then a quantitative method of trend monitoring should be enacted. The method selected will be determined by DSL for the specific stream segment.

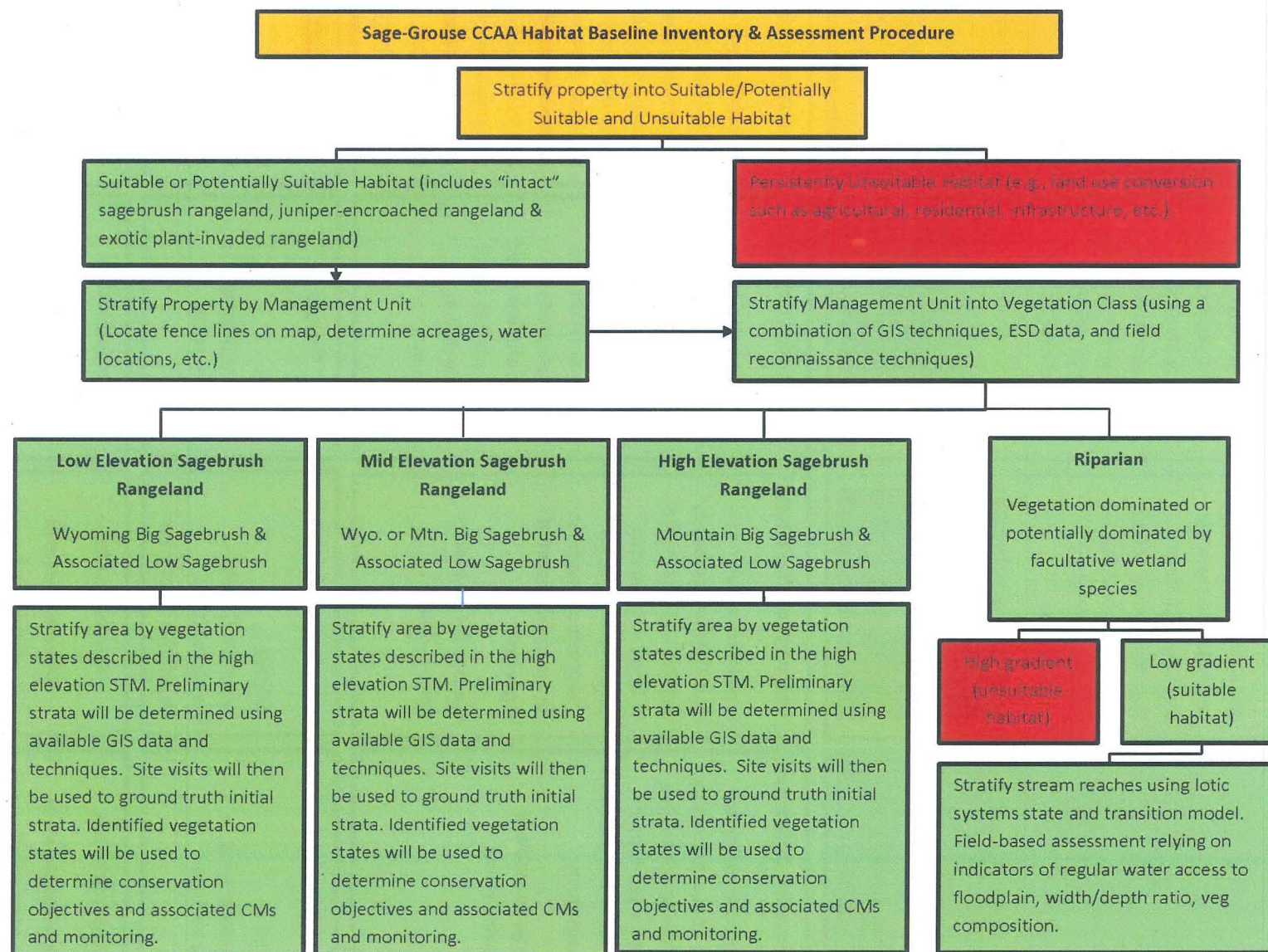
### ***Annual Monitoring***

Sagebrush rangelands are dynamic systems that constantly change in response to fire, wildlife, climate, insect infestations, weed invasions, and natural vegetation succession; not just to inputs from management. Annual monitoring focuses on identifying management inputs and factors external to the management program that affect the responses of sagebrush rangeland over time. These are the factors that influence the change documented with trend monitoring (described above) and may include growing conditions for plants (e.g., precipitation, temperature trends, drought, etc.), livestock and wildlife numbers, utilization patterns of livestock and wildlife, insect and rodent infestations, recreational use, trespass livestock, and timing, duration, and frequency of livestock grazing. Appendix D provides the forms used for annual monitoring. Additional information relating to livestock grazing use may be gathered on the Utilization/Pace 180° form in Appendix D-3.

The following set of flow charts describes the step-by-step process for habitat stratification and identifying current states of plant communities. Derived from that classification, the flow charts continue on, identifying potential threats and the conservation measures that will maintain or improve sage-grouse habitat.



**Figure 1: Baseline Inventory and Assessment Procedure**





**Figure 2: Low Elevation Sagebrush Rangeland**




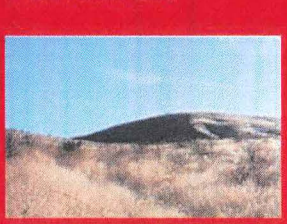





Low Elevation Sagebrush Rangeland			
<p><b>Ecological State A</b></p> <p>Site dominated by sagebrush, large perennial bunch-grasses, and perennial forbs. Sagebrush cover &gt;10%. Capable of providing year around habitat for sage-grouse.</p> 	<p><b>Ecological State B</b></p> <p>Site dominated by large perennial bunchgrasses and perennial forbs. Sagebrush cover &lt;10%. Capable of providing seasonal habitat for sage-grouse.</p> 	<p><b>Ecological State C</b></p> <p>Site dominated by decadent sagebrush and Sandberg bluegrass and/or annual grasses. Sagebrush cover &gt; 10%. Capable of providing seasonal habitat.</p> 	<p><b>Ecological State D</b></p> <p>Site dominated by exotic species. Often results in exotic annual grass-fire cycle. Not capable of providing habitat for sage-grouse in current state.</p> 
<p><b>Conservation Objectives</b></p> <p>Prevent conversion to exotic annual grasses by maintaining dominance of large, deep-rooted perennial bunchgrasses and sagebrush.</p> <p>Manage for stable or improving trend.</p>	<p><b>Conservation Objectives</b></p> <p>Prevent conversion to exotic annual grasses by maintaining dominance of large, deep-rooted perennial bunchgrass and provide conditions for reestablishment of sagebrush.</p> <p>Manage for transition toward State A..</p>	<p><b>Conservation Objectives</b></p> <p>Maintain a dominant overstory layer of sagebrush and reestablish deep-rooted perennial vegetation. Experimentation with various methods for reestablishment might be necessary to cause desirable shift in vegetation.</p>	<p><b>Conservation Objectives</b></p> <p>Despite being in a non-habitat state currently, conservation objectives are suggested because of the inherent risks posed by exotic plant presence on the landscape. Manage fire risk and/or re-vegetate areas of exotic plants to veg dominated by deep-rooted perennial grasses.</p>
<p><b>Threats</b></p> <p>Wildfire Improper grazing Exotic Invasives</p>	<p><b>Threats</b></p> <p>Wildfire Improper Grazing Exotic Invasives Vegetative Treatment</p>	<p><b>Threats</b></p> <p>Wildfire Improper Grazing Exotic Invasives</p>	<p><b>Threats</b></p> <p>Wildfire Exotic Invasives Vegetative Treatment</p>
<p><b>Applicable CMs</b></p> <p>Listed by threat in Appendix A.</p>	<p><b>Applicable CMs</b></p> <p>Listed by threat in Appendix A.</p>	<p><b>Applicable CMs</b></p> <p>Listed by threat in Appendix A.</p>	<p><b>Applicable CMs</b></p> <p>Listed by threat in Appendix A.</p>


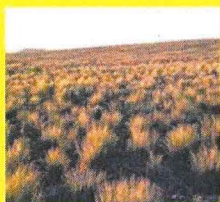
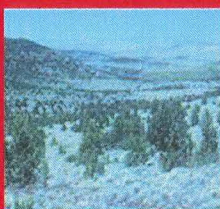
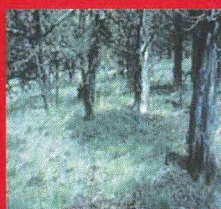
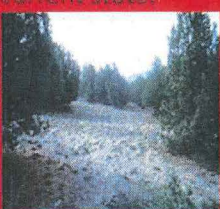


Figure 3: Mid Elevation Sagebrush Rangeland

Mid Elevation Sagebrush Rangeland				
<p><b>Ecological State A</b></p> <p>Site dominated by sagebrush, large perennial bunchgrasses, and perennial forbs. Sagebrush cover &gt;10%. Capable of providing year around habitat.</p> 	<p><b>Ecological State B</b></p> <p>Site dominated by large perennial bunchgrasses and perennial forbs. Sagebrush cover &lt;10%. Capable of providing seasonal habitat.</p> 	<p><b>Ecological State C</b></p> <p>Co-dominance of conifers, perennial grasses and sagebrush. Areas of conifer cover &gt;5% not capable of providing seasonal habitat.</p> 	<p><b>Ecological State D</b></p> <p>Site dominated by conifers. Depleted perennial understory. Exotic annuals present. Not capable of providing habitat in current state.</p> 	<p><b>Ecological State E</b></p> <p>Site dominated by exotic species. Often results in exotic annual grass-fire cycle. Not capable of providing habitat for sage-grouse in current state.</p> 
<p><b>Conservation Objectives</b></p> <p>Maintain sagebrush and large perennial bunchgrasses and perennial forbs. Maintain sagebrush cover &gt;10%.</p>	<p><b>Conservation Objectives</b></p> <p>Provide conditions for an increase in the cover of sagebrush. Manage for transition toward State A.</p>	<p><b>Conservation Objectives</b></p> <p>Restore shrubs and perennial herbaceous vegetation by removing of conifers and post treatment restoration of desired species.</p>	<p><b>Conservation Objectives</b></p> <p>Restore dominance of shrub and perennial grasses and forbs through removal of dominant conifer overstory and reveg.</p>	<p><b>Conservation Objectives</b></p> <p>Manage fire risk and/or revegetate areas of exotic plants to vegetation dominated by deep-rooted perennial grasses.</p>
<p><b>Threats</b></p> <p>Lack of fire High severity fire Improper grazing Conifer encroachment</p>	<p><b>Threats</b></p> <p>High severity fire Improper grazing Conifer encroachment</p>	<p><b>Threats</b></p> <p>High severity fire Improper grazing Exotic Invasives Conifer encroachment</p>	<p><b>Threats</b></p> <p>Wildfire Exotic Invasives</p>	<p><b>Threats</b></p> <p>Wildfire Exotic Invasives</p>
<p><b>Applicable CMs</b></p> <p>Listed by threat in Appendix A.</p>	<p><b>Applicable CMs</b></p> <p>Listed by threat in Appendix A.</p>	<p><b>Applicable CMs</b></p> <p>Listed by threat in Appendix A.</p>	<p><b>Applicable CMs</b></p> <p>Listed by threat in Appendix A.</p>	<p><b>Applicable CMs</b></p> <p>Listed by threat in Appendix A.</p>



**Figure 4: High Elevation Sagebrush Rangeland**

High Elevation Sagebrush Rangeland				
<b>Ecological State A</b>  Site dominated by sagebrush, large perennial bunchgrasses, and perennial forbs. Sagebrush cover >10%. Capable of providing year around habitat. 	<b>Ecological State B</b>  Site dominated by large perennial bunchgrasses and perennial forbs. Sagebrush cover <10%. Capable of providing seasonal habitat. 	<b>Ecological State C</b>  Co-dominance of conifers, perennial grasses and sagebrush. Areas of conifer cover >5% not capable of providing seasonal habitat. 	<b>Ecological State D</b>  Site over shallow soils dominated by conifers. Shrubs and herbaceous understory largely absent. Not capable of providing habitat in current state. 	<b>Ecological State E</b>  Site over deep soils dominated by conifers. Understory shrubs largely absent. Perennial herbaceous plant present. Not capable of providing habitat in current state. 
<b>Conservation Objectives</b>  Maintain sagebrush and large perennial bunchgrasses and perennial forbs. Maintain sagebrush cover >10%.	<b>Conservation Objectives</b>  Provide conditions for an increase in the cover of sagebrush. Manage for transition toward State A.	<b>Conservation Objectives</b>  Remove conifers and prevent further encroachment and maintain cover of perennial grass and sagebrush	<b>Conservation Objectives</b>  Restore dominance of shrub and perennial grasses and forbs through removal of dominant conifer overstory.	<b>Conservation Objectives</b>  Restore shrubs and perennial herbaceous vegetation by removing of conifers and post treatment restoration of desired species.
<b>Threats</b>  Lack of fire Improper grazing Conifer encroachment	<b>Threats</b>  Lack of fire Improper grazing Conifer encroachment	<b>Threats</b>  Lack of fire Improper grazing Conifer encroachment Exotic Invasives	<b>Threats</b>  Lack of fire Exotic Invasives	<b>Threats</b>  Lack of fire Exotic Invasives
<b>Applicable CMs</b>  Listed by threat in Appendix A.	<b>Applicable CMs</b>  Listed by threat in Appendix A.	<b>Applicable CMs</b>  Listed by threat in Appendix A.	<b>Applicable CMs</b>  Listed by threat in Appendix A.	<b>Applicable CMs</b>  Listed by threat in Appendix A.



**Figure 5: Lotic Riparian Systems**

Lotic Riparian Systems			
<b>Ecological State A</b>  Highly stable channel (width/depth ratio <12), annual flow usually reaches floodplain creating a large riparian buffer. Vegetation is dominated by deep-rooted riparian species.	<b>Ecological State B</b>  Moderately stable channel (width/depth ratio >12), annual flow usually reaches floodplain creating a large riparian buffer. Vegetation is dominated by deep-rooted riparian species.	<b>Ecological State C</b>  Unstable channel (width/depth ratio >12), annual flow usually does not access floodplain. Deep-rooted riparian vegetation is limited by water table depth.	<b>Ecological State D</b>  Unstable channel (width/depth ratio <12), annual flow usually does not access floodplain. Deep-rooted riparian vegetation is limited by water table depth.
<b>Conservation Objectives</b>  Maintain stable water table and manage riparian vegetation	<b>Conservation Objectives</b>  Maintain stable water table and manage riparian vegetation	<b>Conservation Objectives</b>  Decrease depth to water table and improve riparian vegetation	<b>Conservation Objectives</b>  Decrease depth to water table and improve riparian vegetation
<b>Threats</b>  Catastrophic flood Improper grazing Exotic invasives Conifer encroachment	<b>Threats</b>  Catastrophic flood Improper grazing Exotic invasives Conifer encroachment	<b>Threats</b>  Catastrophic flood Improper grazing Exotic invasives Conifer encroachment	<b>Threats</b>  Catastrophic flood Improper grazing Exotic invasives Conifer encroachment
<b>Applicable CMs</b>  Listed by threat in Appendix A.	<b>Applicable CMs</b>  Listed by threat in Appendix A.	<b>Applicable CMs</b>  Listed by threat in Appendix A.	<b>Applicable CMs</b>  Listed by threat in Appendix A.

### ***Scientific Studies & Species Monitoring***

Currently species monitoring is limited to official lek counts by ODFW which any landowner may participate in. Landowners may conduct lek counts when proper training for counts is acquired from ODFW.

Important information can be learned by closely monitoring sage-grouse populations on a relatively fine scale. Furthermore, scientific studies on sage-grouse can help to more effectively implement conservation measures. Knowledge of the seasonal habitat use of sage-grouse, for example, will help prioritize conservation measures in areas of known use, thus increasing the benefit to sage-grouse. Monitoring activities and scientific studies are encouraged in cooperation with appropriate agencies. Findings from monitoring and scientific studies may result in modification of existing CMs with concurrence by FWS.

### ***Monitoring Summaries, Evaluation, and Reporting***

- Annual Trend Monitoring – Each year, DSL will review all documentation and complete an on-site visit on 25% of blocked leaseholds. DSL will make visits to parcels and pastures where there is an identified threat such as noxious weeds, wildfire or lease compliance issues and CMs are being implemented annually or as needed. During the on-site visit DSL will view current habitat conditions and complete the Rangeland Monitoring Form (Appendix D-2) and Utilization/Pace 180° form (Appendix D-3). Data collected will be compared to previous year's data. The completed form will include progress toward implementing agreed upon CMs, and recommendations for any additional or modified actions to be implemented. The completed forms will be retained in the appropriate leasehold monitoring files and a copy of all monitoring records will be sent to the respective lessee for their records.
- DSL will evaluate the outcome of the applied CMs, comparing the initial (baseline) data to the current trend data to determine if the site habitat characteristics measured indicate movement toward or away from objectives. DSL will provide the lessee a trend monitoring report, which will include the results of trend monitoring, an evaluation of these results, and any adaptive management DSL directs the lessee to take.
- Every year, DSL will report the summary of results of all trend monitoring conducted that year. The report will be submitted to FWS for review and comment and will include an analysis of the overall changes to habitat quality, changes in ecological states, extent of threats addressed, and recommendations for adaptive management.

### ***Use of Adaptive Management in the CCAA process***

The results of monitoring efforts outlined above will be considered from an adaptive management perspective. Many of the potential CMs have been successfully implemented as part of other conservation efforts. However, outcomes of a few CMs may vary based upon local site conditions. Specifically, CMs with a vegetation rehabilitation component may have varying success based upon local soil type and climatic conditions such as rainfall timing and amount. For these CMs, careful monitoring both before and after implementation, along with the flexibility provided through adaptive management, will maximize the likelihood of success through possible changes to seed mixtures, rescheduling of rehabilitation efforts, timing of treatments, and other adjustments.



An adaptive, outcome-based approach (Walters 1986) will be used to allow management flexibility, recognizing CMs may need to be updated based on changing conditions or new information. Such an adaptive approach explicitly recognizes multiple factors (environmental conditions, biological processes) affect sage-grouse populations. Furthermore, the consequences of prescriptive CMs cannot be predicted with certainty. Therefore, the CCAA provides a framework for making objective decisions in the face of uncertainty. If the desired results of a CM are not achieved, DSL will modify the CM or enact another CM in order to achieve the desired results. Adaptive management relies on an iterative cycle of monitoring, assessment, and decision making to clarify the relationships among the CMs and the response of habitat and, ultimately, sage-grouse abundance.

## **7. Authorities**

### **FWS**

Sections 2, 7, and 10 of the ESA of 1973, as amended (Act, 16 U.S.C. 1531 *et seq.*), allow the FWS to enter into this CCAA. Section 2 of the ESA states that encouraging interested parties, through Federal financial assistance and a system of incentives, to develop and maintain conservation programs is key to safeguarding the Nation's heritage in fish, wildlife, and plants. Section 7 of the ESA requires the FWS to review programs it administers and utilize such programs in furtherance of the purposes of the ESA. The purposes of the ESA are "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved," and "to provide a program for the conservation of such endangered species and threatened species ..." "Conserve" is defined in section 3(3) of the ESA and means "to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary."

Section 10 of the ESA describes Permits issued under the ESA, exempting certain prohibitions under Section 9 of the ESA. Section 10(a)(1)(A) of the ESA authorizes the issuance of EOS Permits to "enhance the survival" of a listed species. Enhancement means the Permitted activities benefit species in the wild. By entering into a CCAA, the FWS is utilizing its Candidate Conservation Programs for further conservation of the Nation's fish and wildlife, consistent with the FWS's "Candidate Conservation Agreement with Assurances Final Policy" (64 FR 32726; June 17, 1999). The conservation goal of this CCAA is to maintain and enhance sage-grouse on DSL managed State Lands within the range of the species in Oregon. Upon approval of this CCAA the FWS will issue an EOS Permit to DSL. DSL will meet this conservation goal by implementing agreed upon CMs to address threats to the species, and will receive regulatory certainty from the FWS concerning land use restrictions that might otherwise apply, should this species be listed under the ESA.

The FWS cannot guarantee listing will never be necessary for all or part of the sage-grouse range. It is important to note that the FWS's directive to, "preclude or remove any need to list" is based upon the removal of threats and the stabilization or improvement of the species' status. The decision to list or not to list sage-grouse under the ESA is a regulatory process independent of a CCAA or a Candidate Conservation Agreement (CCA). The FWS will evaluate actions and successes of this CCAA in accordance with the FWS Policy for Evaluation of Conservation

Efforts (PECE) during the listing determination process, as required under section 4(b)(2)(A) of the ESA. The FWS will consider the contribution to conservation made by these agreements in a "five-factor analysis" which is used to make any species listing determination. (50 CFR Chapter IV, Federal Register Vol. 63, No. 60. March 2003)

The five factors include:

- A. The present or threatened destruction, modification, or curtailment of the species' habitat or range
- B. Overutilization of the species for commercial, recreational, scientific, or educational purposes
- C. Disease or predation
- D. The inadequacy of existing regulatory mechanisms
- E. Other natural or man-made factors affecting the species' continued existence

### **DSL**

Oregon Revised Statute (ORS) 190.110 gives Oregon Department of State Lands statutory authority to enter into agreements such as this CCAA with United States governmental agencies.

Proprietary activities are governed by the following provisions of the Oregon Constitution and Admission Act, statutory requirements, and administrative rules.

### **Constitutional Mandate**

Article VIII, Section 5 (2) of the Oregon State Constitution contains the primary directive to the Land Board and DSL concerning the management of its lands:

*The (Land) board shall manage lands under its jurisdiction with the object of obtaining the greatest benefit for the people of this state, consistent with the conservation of this resource under sound techniques of land management."*

This is the basic standard that must be considered by the state in negotiating any land acquisitions, trades, divestitures; offering leases, licenses, easements and other forms of authorization or determining allowable uses on/of land managed by DSL.

### **Admission Act Mandate**

Section 4 of the Congressional Act admitting Oregon into the Union (February 14, 1859) on an equal footing with the other states provides:

*"First, the sections numbered sixteen and thirty-six in every township of public lands in said state, and where either of said sections, or any part thereof, has been sold or otherwise disposed of, other lands equivalent thereto, and as contiguous as may be shall be granted to said state for use of schools."*

This provision provides a higher standard of management responsibility (above that imposed by the State Constitution) on the Land Board and DSL with regard to Admission Act Land. This land broadly referred to as "Trust Land" or "Common School Land", must be managed not only in a manner consistent with this state's constitutional requirements, but also to obtain full market



value from its sale, rental or other use. When dealing with Trust Land, the Constitutional requirement concerning “greatest benefit for the people” has been interpreted by the Oregon Attorney General to be the maximization of revenue from this land over the long term. As the trustee of this land, the Land Board and DSL are, therefore, obligated to manage these lands with revenue maximization as their primary goal.

### **Statute and Administrative Rule**

Oregon Revised Statutes (ORS) 273.815-825 and Oregon Administrative Rules (OAR) 141-Division 110 govern grazing leases on DSL administered lands.

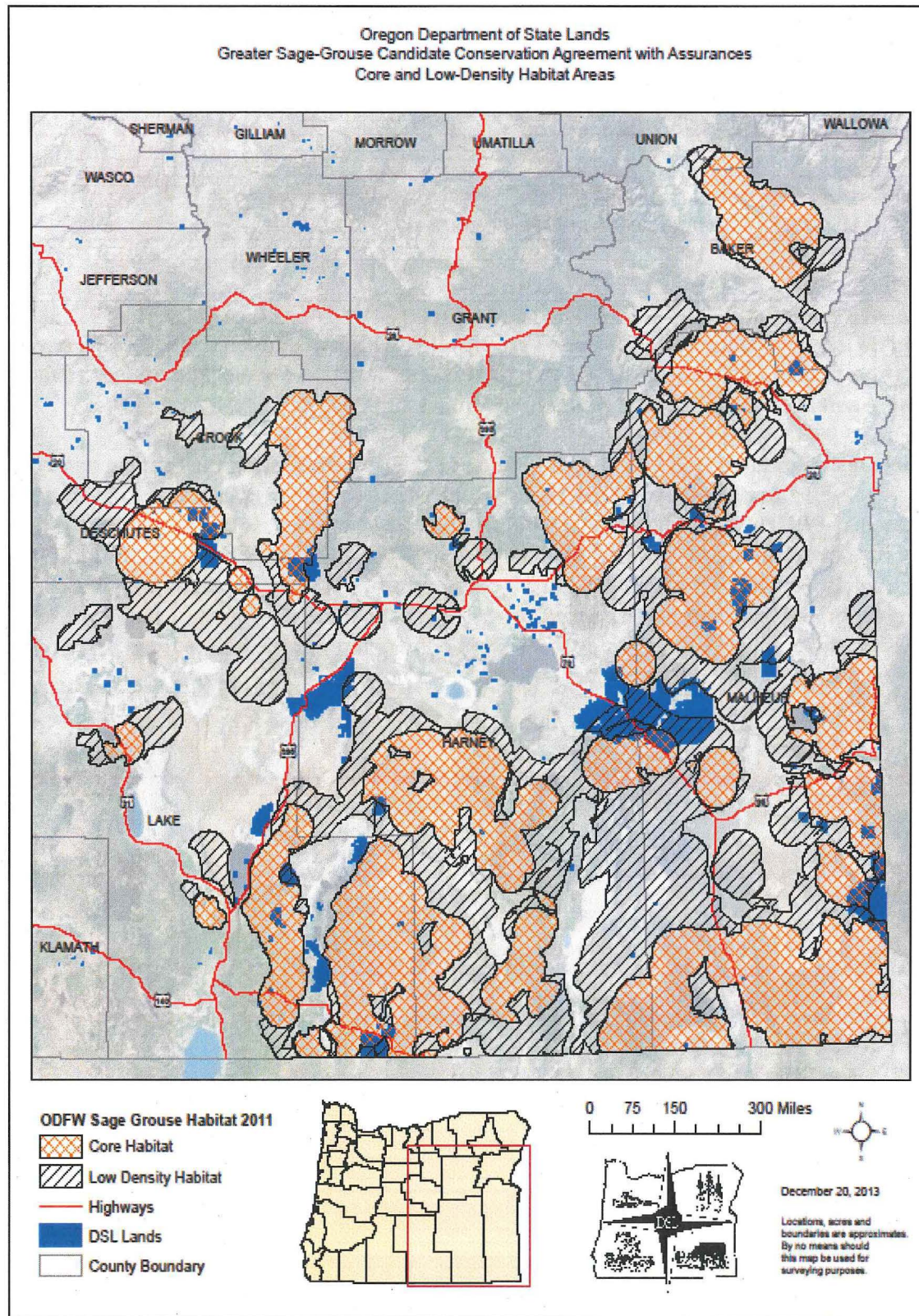
### **8. Covered Area**

DSL manages approximately 633,000 acres of Oregon State Trust Lands classified as rangelands in eastern Oregon of which 611,000 acres are enrolled within the covered area i.e. the current distribution of greater sage-grouse. Of this total about 560,000 is in blocked ownership and the remaining acreage is in parcels of generally less than 1,000 acres.

For purposes of analysis, FWS analyzed PPH and PGH as representing the best current estimate of sage-grouse habitat. However, DSL lands within the covered area that are not currently designated as PPH or PGH but have the characteristics of sage-grouse habitat or have known sage-grouse occupancy are included in the agreement. The DSL managed lands currently include approximately 153,107 acres of PPH and 380,705 acres of PGH for a total of 533,812 acres. These categories assist in prioritizing the currently occupied range of greater sage-grouse in Oregon. However, these categories do not describe the quality of the habitat (e.g., the presence of invasive weeds or other land use issues).



**Figure 6: Map of Covered Area**





## **9. Responsibilities of the Parties**

### **The U.S. Fish and Wildlife Service will:**

- Upon execution of this agreement by all parties and satisfaction of all applicable legal requirements, issue a permit to DSL, under section 10(a)(1)(A) of the Endangered Species Act (ESA), in accordance with 50 CFR 17.22 and 17.32(d), with a term of 30 years that will provide DSL authorization for incidental take of greater sage-grouse and provide regulatory assurances should the species be listed under the ESA in the future. The Permit will authorize incidental take of greater sage-grouse resulting from otherwise lawful activities associated with livestock grazing on DSL managed State Lands;
- Provide assistance in coordinating development and implementation of this CCAA
- Provide technical assistance to aid in implementing the CMs;
- Review monitoring data for consistency with CCAA objectives to determine if conservation measures are providing the desired benefit to sage-grouse;
- Serve as an advisor, providing expertise on the conservation of sage-grouse;
- Assist in the implementation of conservation measures, monitoring, or other measures if agreed upon by DSL;
- Provide FWS funding, to the extent funding is available consistent with Section 26 of the CCAA, to support implementation;
- Provide support and assist in obtaining funding from other sources for the implementation of CMs;
- Review both the SGHAs for a minimum of 25% of the covered area and the interim draft plan for the remaining 75% of the covered area prior to issuance of the permit to ensure that they meet the CCAA standard;
- Review SGHAs for a minimum of 25% of the covered area each year for three years after permit issuance to ensure that by the end of year three of this agreement 100% of SGHAs have been reviewed and are enrolled under the permit;
- Provide a document of concurrence for SGHAs that meet the CCAA standard and that are consistent with the terms and conditions in both the CCAA and the permit. If an SGHA does not meet the CCAA standard, FWS will work cooperatively with DSL to meet the standard. If an agreement cannot be reached on the threats and CMs within a specific SGHA, then those lands will no longer be eligible for enrollment under this CCAA or for take coverage under the permit;
- Provide comment during public review for any new applications for livestock grazing on DSL managed State Lands within the range of greater sage-grouse;
- Assist DSL in developing measures that protect and enhance sage-grouse habitat;
- Review monitoring and other reports submitted by DSL to the FWS for compliance with the terms of the CCAA, and notify DSL of any possible amendments to the CCAA that may warrant consideration;

### **Oregon Department of State Lands will:**

- Continue current management practices that conserve sage-grouse and its habitats;
- Manage rangelands within current range of greater sage-grouse to protect and where possible enhance habitat as identified in the CCAA;
- Develop Farm Plans, LMPs and AOPs as needed to facilitate the accomplishment of appropriate CMs on individual leases;

- Provide SGHAs for a minimum of 25% of the covered area to FWS for review prior to permit issuance and SGHAs for a minimum of 25% of the covered area per year for the first three years after permit issuance to ensure that 100% (25% will be reviewed prior to permit issuance and 75% after permit issuance) of the SGHAs have been reviewed for compliance and have met the CCAA standard;
- Acknowledges that if the FWS determines that a SGHA does not meet the CCAA standard, then DSL will work cooperatively with FWS to meet the standard. If an agreement cannot be reached on the threats and CMs within a specific SGHA, then DSL acknowledges that the lands will be removed from the CCAA and the permit, resulting in a reduction of authorized take;
- Acknowledges that if all SGHAs have not been completed by the end of 2018, then they will be out of compliance with the CCAA and may have their permit revoked or modified to exclude lands that do not have SGHAs in place;
- Work collaboratively with FWS to address FWS comments on SGHAs/LMPs to ensure that they meet the CCAA standard;
- Record dates, locations, and numbers of sage-grouse observed on their lands to be included in the habitat summary reports;
- Record new observations of noxious weeds;
- Report observed mortalities of sage-grouse;
- Conduct annual and long term monitoring activities and other reporting requirements
- Review and update leasehold management plans (LMPs) from time to time covering forage leases on all blocked ownership and on isolated parcels which include core habitat:
  1. Ensure LMPs incorporate applicable conservation strategies from the SGHAs when they are completed, and other provisions consistent with this CCAA;
  2. Provide the FWS notice and opportunity to participate in LMP development and to comment during public review process. Notice will be sent to the FWS's Oregon Fish and Wildlife Office at 2600 SE 98<sup>th</sup> Avenue, Suite 100, Portland, Oregon 97266.
- Work with lessees to ensure appropriate implementation of applicable CMs consistent with this CCAA. In the event that a lessee fails to implement required CMs, take such administrative or legal action as is necessary to enforce the lease terms.
- Submit a habitat summary report to the FWS that documents activities implemented under the CCAA, their effects, and effects of activities undertaken in prior years that require multi-year monitoring. Monitoring reports will be sent to the FWS' Oregon Fish and Wildlife Office in Portland. Reports are due by the following January 31 of every year beginning from execution of this CCAA, with the first report due by January 31, 2017 to document the current status of DSL lands.

## 10. Covered Activities

The term "covered activities" refers to those activities carried out by DSL or their authorized representative on enrolled lands that may result in authorized incidental take of covered species (e.g. sage-grouse) consistent with the EOS Permit and CCAA. In this case, covered activities include:

- Ongoing and planned rangeland practices listed below,



- Conservation measures (Appendix A) and changed circumstances conservation measures (Section 16),
- Limited use of specific herbicides as described in Appendix E,
- Inventory and monitoring activities identified in the CCAA as well as Appendix D.

### **Ongoing and planned rangeland practices**

Activities that are covered by this CCAA and the associated EOS Permit include most activities commonly practiced on rangelands. Rangeland practices were divided into four categories: rangeland treatments, livestock management, recreation, existing agricultural operations; and are described in more detail below and in association with the conservation measures in Appendix A.

#### **Rangeland Treatments**

- Establishing and maintaining fire breaks or green strips of fire resilient vegetation
- Limited sagebrush removal in areas where the sagebrush canopy cover is too high (>25%) for the development of understory grasses and forbs if they are determined to be limited
- Seeding or plugs with perennial grasses, forbs, and sagebrush to enhance both sage-grouse habitat and livestock forage
- Juniper and conifer removal to enhance sage-grouse habitat
- Weed control (mechanical, herbicides, biological agents)
- General stewardship of rangelands
- ATV use for DSL/livestock management

#### **Livestock Management**

- Grazing of forage
- Construction, placement, and maintenance of fences, ponds, stock-tanks and other watering sources
- Feeding hay and dietary supplements in pastures
- Establishing and maintaining remote camps
- Gathering, moving, trailing, temporary penning, rounding-up and shipping livestock;
- Calving and branding operations
- Disposal of dead animals
- General stewardship and animal husbandry practices

#### **Recreation**

- Legal hunting and fishing with proper licensing and tags through ODFW (hunting of sage-grouse is not a covered activity under the CCAA)
- Horseback riding
- Camping and hiking
- Use of recreational vehicles both on and off established roads

#### **Agricultural Operations**

- Cultivation of existing fields, including planting, cultivation and harvesting crops
- Mechanical treatment of fields and pastures and application of soil amendments

- Irrigation by flooding or sprinklers
- Burning to control weeds within fields and along ditch banks
- Maintenance of fences, irrigation equipment, and roads

### **Stipulations on Land Alteration in this CCAA**

- Land alterations that are not associated with the immediate operations of range and existing agricultural management are not covered activities under this agreement. Examples of land alteration not covered include multiple unit residential development or subdivisions, resort developments, energy developments, mining activities, and utility lines.
- Any proposed new alterations impacting existing sage-grouse habitat will include separate and internal analysis including mitigation that will conform to relevant regulatory policies and ensure enrolled lands will still meet the CCAA standard.

### **11. Anticipated Incidental Take**

Take<sup>4</sup> may occur as a result of covered activities or implementation of conservation measures. Take that results from, but is not the purpose of, carrying out an otherwise lawful activity such as rangeland management is known as incidental take. Incidental take will likely occur sporadically on enrolled lands and is not expected to nullify the conservation benefits that are described under this CCAA.

### **Types of Incidental Take**

We considered three primary types of incidental take: (1) injury or death; (2) harm in the form of habitat fragmentation, loss, or degradation and (3) harassment in the form of human activities that significantly disrupt normal behavioral patterns such as breeding, feeding, or sheltering. For each type of take we describe the associated covered activities and conservation measures that will minimize the take.

#### **Injury or death**

- Haying and other farming operations that use heavy equipment can directly kill or injure adult and juvenile sage-grouse especially brooding females and their young or eggs. If only the female is killed or injured any young or eggs are likely to die due to lack of parental care. The risk of this is low because areas that are under cultivation are typically not suitable sage-grouse habitat, however margins of fields that have sagebrush habitat nearby may be used for nesting and foraging. This risk will be minimized by requiring specific farming practices in leases adjacent to sagebrush habitat under a written farm plan that DSL may reasonably impose on the Property.
- Fences used for livestock management, especially those in certain high-risk locations can cause direct mortality to sage-grouse from collision (Beck and Mitchell 2000; Connelly et al. 2004; Crawford et al. 2004; Cagney et al. 2010) The risk of collision with fences will be minimized by removing unnecessary fences; and marking fences in high-risk locations to make them more visible to sage-grouse (see CM 28 and 29). Vertical structures such as

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<sup>4</sup> Take is defined in the ESA to include a number of activities including harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Harm includes significant habitat modification or degradation where it kills or injures sage-grouse by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.



telephone and power lines and poles serve as raptor perches and therefore can indirectly contribute to injury and death to sage-grouse from avian predators. This risk will be minimized by removing unnecessary structures, undergrounding lines when feasible, and limiting new construction (See CM 2 and 5).

- Sage-grouse can drown in livestock water tanks when they use them as a water source. This risk will be minimized by properly equipping stock-tanks with escape ramps (See CM 27).
- Standing water sources including stock-tanks and ponds managed for livestock watering can attract mosquitoes and increase the risk of West Nile virus outbreaks (USFWS 2010). West Nile virus is known to injure or kill sage-grouse. This risk will be reduced by minimizing unnecessary standing water sources (see CM 56).
- Use of the herbicides listed in Appendix E are not known to directly injure or kill sage-grouse, however there have been limited studies that are specific to sage-grouse. The risk of mortality associated with herbicide use will be minimized by only using approved herbicides consistent with Appendix E, implementing all best management practices and applicable CMs on enrolled lands (See CM 34, 40, and 46). If it is found that these herbicides do injure or kill sage-grouse their use may be discontinued as a covered activity consistent with changed circumstances provisions (See CCCM16).

**Harm:**

- Construction of new fences or power lines is likely to decrease habitat quantity and/or quality. Any actions of this type will be carefully designed to minimize impacts and mitigation consistent with state policies will be required to ensure that the impact of these actions are mitigated in order to meet the CCAA standard and meet the objectives of CM 1 (See CM 1, 2, 4, 5).
- Removing sagebrush along roadsides to create firebreaks can decrease the amount of this habitat available to sage-grouse. However, the benefits of firebreaks outweigh the harm. Firebreaks can prevent large tracts of sage-grouse habitat from being degraded by fire or may serve as an anchor point to effectively fight fire from. Risk will be minimized by limiting size of firebreaks (See CM 6).
- Rangeland treatments may temporarily reduce sagebrush cover in order to inter-seed with desired grasses and forbs to improve sage-grouse habitat, resulting in a short term loss but long term gain in sage-grouse habitat. This risk will be minimized by limiting size of treatment area, consideration of how treatments will affect overall landscape for sage-grouse and assessment of current vegetation condition or other effective measure as identified. (See CM 43-48).
- Improperly managed livestock grazing can result in decreased beneficial grasses and forbs in nesting and brood-rearing habitat (Hagen et al. 2007; Gregg et al. 1994). There are several CMs that address impacts of livestock grazing and lessees will be required to modify grazing practices if the threat of "improperly managed livestock grazing" is occurring on leaseholds. This risk will be further minimized with annual implementation/compliance monitoring and reporting of utilization as well as adapting to drought or other environmental factors that may increase or decrease forage (See CM 19-30).
- Concentration of livestock that results in compaction of soils and increased bare ground can degrade nesting and brood-rearing habitat and increase the risk of establishing invasive weeds (Mack and Thompson 1982; Miller and Eddleman 2000). This risk will be minimized if the threat is identified by changing timing, intensity, and duration of livestock grazing in

areas at risk or other effective measure as identified. (See CM 19-30).

### **Harassment**

- Due to seasonal accessibility or weather issues, rangeland treatments such as juniper removal from sagebrush habitat may need to be conducted when sage-grouse are nesting or otherwise utilizing these areas. If so this would cause some temporary harassment of sage-grouse. However without treatment, juniper encroachment can make habitat unsuitable for sage-grouse. Harassment will be minimized through careful scheduling of treatments. (See CM 15)
- Livestock management activities such as moving cattle to different areas may cause sage-grouse to flush or otherwise disrupt their behavior. In the majority of instances this disturbance is expected to be of very short duration such that it does not rise to the level of take. (See CM 20-21)
- Farm operations including the use of heavy equipment, vehicles, noise from generators or windmill powered pumps may cause short-term disturbances to sage-grouse or in the case of ongoing noise and frequent activities, it may cause sage-grouse to avoid otherwise usable habitat. These impacts are expected to be fairly localized as birds using the margins of fields can easily retreat to sagebrush from machinery noise. When economically feasible new and existing pumps would be converted to solar power to reduce noise and sage-grouse disturbance. (See CM 4)
- Recreational activities in the vicinity of active leks may cause birds to flush or abandon. This risk will be minimized by limiting un-necessary access during certain times of the year when sage-grouse are using lands (for example: lekking, wintering or brood-rearing) as applicable. (See CM 53)
- Development activities associated with construction of new fences or power lines can cause harassment of sage-grouse. Risk of disturbance from these activities can be minimized by timing them outside of the breeding and nesting season. (See CM 20-21)

### **12. Authorized Take**

Authorization of incidental take is provided in the EOS Permit issued by the FWS, if sage-grouse is listed. This authorization is limited to incidental take resulting from covered activities and implementation of conservation measures identified in the CCAA and EOS Permit. The amount of authorized incidental take from covered activities is a maximum of 990 sage-grouse over the 30-year term of the CCAA or 33 birds annually. This level of take was determined based on the amount of acres of PPH and PGH in the current covered area. If the species is listed, take will be authorized based on the amount of acres of PPH and PGH in approved SGHAs. DSL lands that do not have approved SGHAs will not receive take coverage until an SGHA is complete. Thus, take coverage will be incremental until 100% of the covered area is included in an approved SGHA. Additionally, evaluation of take will be based on a rolling 5-year average such that if take is high in one year it will not exceed authorized take unless the 5-year average annual take exceeds authorized take. Statewide population estimates as well as the amount and types of sage-grouse habitat (PPH and PGH) (Table 3, Appendix F) were used to come up with this level of take.



Table 1: Estimated Take Calculation\* The CCAA covered area has approximately 380,705 acres of PGH with an estimated 0.0003 birds per acre and 153,107 acres of PPH with an estimated 0.0034 birds per acre.

<b>Take Calculation:</b>	<b>Habitat Type</b>	<b>Acres Impacted</b>	<b>Birds Exposed</b>	<b>Rate of Injury or Mortality</b>	<b>Annual Take</b>
<b>Rangeland Treatments</b>	5% of PGH	19,035	6	3.59%	0.20
	5% of PPH	7,655	26	3.59%	0.93
<b>Livestock Management</b>					
Nest Abandonment	PGH (5%)		19	3.59%	0.68
(60% of 638 Birds Exposed =383)	PPH (95%)		362	3.59%	13.00
Nest Trampling	PGH (5%)		19	1.11%	0.21
(60% of 638 Birds Exposed =383)	PPH (95%)		362	1.11%	4.03
<b>Farm Operations</b>					
Haying	PGH	0	0	0.95%	0
	PPH	1,436	1	0.95%	0.01
<b>Development</b>					
Fences (high risk marked)	100% of PGH		115	1.62%	1.86
	100% of PPH		521	1.62%	8.43
<b>Additional Authorized Take</b>	100% of PGH	380,705	115	0.50%	0.58
	100% of PPH	153,107	521	0.50%	2.60
<b>Total authorized Annual Take</b>					<b>33</b>
<b>Total Take over 30 years</b>					<b>990.00</b>
<b>Annual Take Percentage</b>					<b>5.19%</b>

\*For details on how the numbers above were calculated see Appendix F.

### **Impacts of the Taking**

Authorizing an average annual take of approximately 5% of the estimated statewide spring total sage-grouse population from covered activities will not adversely affect the population (Sedinger 2010; Connelly 2000; ODFW 2010). The authorized take associated with this CCAA (~5%), combined with ODFW's actual (3%) or allowed (5%) harvest rates (Hagen 2011) could account for an average 8-10% annual loss of the sage-grouse population in areas that are under this CCAA and where hunting of sage-grouse occurs. Cumulative impacts of harvest on sage-grouse populations in Oregon are evaluated annually by ODFW. A 8-10% loss is within range-wide sage-grouse management guidelines that recommend a harvest rate of 10% or less for healthy sage-grouse populations (Connelly et al. 2000), and below recently published peer-reviewed science for Colorado and Nevada, which found "at harvest rates <11% harvest is unlikely to have an important influence on local population dynamics of sage-grouse" (Sedinger et al. 2010).

The authorized amount of take may be adjusted if the statewide 10-year minimum spring breeding population average changes by more than 10%.

### **Monitoring and Evaluation of Take**

Monitoring of take will be addressed through the monitoring strategies. These include monitoring of the extent of occupied habitat and habitat condition. DSL will report mortality from incidental take to the FWS as required in *Section 9. Responsibilities of the Parties*. Evaluation of take will be based on a rolling 5-year average such that if take is high in one year it will not exceed authorized take unless the 5-year average exceeds the amount of take Permitted.

### **13. Expected Benefits**

Benefits to sage-grouse habitat are expected as a result of this agreement. The CMs identified in this CCAA are expected to benefit sage-grouse through maintenance, enhancement, and rehabilitation of sage-grouse habitats by reducing threats causing direct and indirect mortality. Enhanced survival of sage-grouse is the objective of this agreement and implementation of the CMs identified in this CCAA is expected to compensate any estimated take. Rangeland management can be complementary to sage-grouse habitat; livestock management was not a primary contributor to the 2010 “warranted” determination. In the FWS 2010 listing decision, the FWS determined the act of grazing was not the specific threat affecting the species, but that some aspects of livestock management have the potential to influence habitat loss, fragmentation, and degradation.

The sage-grouse is affected rangewide by a variety of threats, such as habitat fragmentation from wildfire, invasive species, conifer encroachment, energy and other types of development as well as predation, recreation, sagebrush conversion and other threats. This CCAA addresses a subset of these threats on a portion of the species range; the occupied sage-grouse habitat on DSL managed lands in Oregon. For this CCAA, the conservation measures must reduce all the threats within DSL control on enrolled lands. If actions identified in species conservation strategies<sup>5</sup> were undertaken on all necessary properties rangewide, the declining trend would be reversed and there would be no need to list. This level of conservation benefit is more than just a net conservation benefit to recovery; it is a reversal in the species trend - if it could be replicated on all necessary properties. Thus, it is more than just an improvement in status on DSL property; it is significant reduction in threats.

Some specific benefits to sage-grouse habitat provided by rangeland management activities implemented in accordance with this CCAA include:

- maintenance of large tracts of un-fragmented and undeveloped land;
- managing fuels to help reduce the risk of catastrophic wildfires and associated fragmentation;
- potentially increasing rangeland plant diversity, including perennial grasses and forbs;
- weed and invasive species management;
- maintenance and enhancement of healthy springs and seeps (Beck and Mitchell 2000; Connelly et al. 2004; Crawford et al. 2004; Cagney et al. 2010);
- contributing to meeting the strategies and objectives of ODFW’s Strategy (Hagen 2011) that are relevant to DSL lands; and
- ranking preference for obtaining resources from federal, state, and local programs for sage-grouse habitat improvement (e.g. NRCS Sage-grouse Initiative, FWS Partners, OWEB which

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<sup>5</sup> Species Conservation Strategies have been developed rangewide by state and federal agencies e.g. ODFW’s 2011 Strategy other state sage-grouse plans, the National Technical Team Report (NTT), The Conservation Objectives Team Report (COT), and others.



are primarily available through lessees engaging in projects combining DSL leaseholds with adjacent private property).

DSL agrees to manage their lands in a manner that provides a benefit to sage-grouse. Enrolled lands may be suitable for appropriate mitigation actions or conservation banking from off-site development (if and when available). As FWS, SWCD, and other cooperators become aware of any mitigation opportunities in Oregon or nationally, they will help direct such opportunities to DSL. Mitigation actions or conservation banks for off-site or on-site development may occur, but will have a separate agreement with independent requirements (for information about internal mitigation - mitigation within DSL's enrolled property- see *Development Subsection in Section 10.Covered Activities*).

Additionally, the assurances conferred under the CCAA program by section 10(a)(1)(A) EOS Permits provide economic stability of current land and livestock management activities on enrolled lands. Since DSL controls substantial acreage of important habitat for sage-grouse, implementation of CMs could potentially maintain or improve over 600,000 acres of sage-grouse habitat. The FWS believes if similar conservation measures that address threats to sage-grouse were implemented throughout sage-grouse range; the need to list sage-grouse would likely be precluded.

#### **14. Assurances Provided**

Through this CCAA, the FWS provides DSL with assurances that no additional conservation measures or additional land, water, or resource use restrictions, beyond those voluntarily agreed to and described in the Conservation Measures (Appendix A) of this CCAA will be required for covered activities on covered lands should sage-grouse become listed as a threatened or endangered species in the future, provided the CCAA and associated CMs are being properly implemented as agreed upon (the ONLY exception is when an unforeseen circumstance occurs - see *Section 18. Unforeseen Circumstances*). These assurances will be authorized with the issuance of an EOS Permit under ESA section 10(a)(1)(A).

#### **15. Changed Circumstances**

Changed circumstances are changes affecting sage-grouse or the geographic area covered by this CCAA that can reasonably be anticipated and can be planned for. This CCAA has identified wildfire, drought, West Nile virus, catastrophic flooding and habitat fragmentation from development and herbicide use as potential changed circumstances that are expected to occur over the 30-year life of the Permit.

If it is determined by DSL or FWS that a changed circumstance(s) exists, DSL will implement the appropriate CCCM or a mutually agreed upon approach to address the additional threat or threats created by the changed circumstance(s). CCCMs will be adopted to meet the CCAA standard on enrolled lands. All modifications, changes or additions will be mutually agreed upon by DSL and FWS. If a changed circumstance(s) occurs DSL will notify the FWS of the DSL managed lands affected, the impact of the changed circumstance(s), and the CCCM(S) that will be implemented to address the changed circumstance(s). The FWS will provide a letter of concurrence (within 30 days) approving the CCCMs if the CCCM's will allow enrolled lands to continue to meet the CCAA standard.

The following list provides possible conservation measures to address threats created by a changed circumstance(s). Conservation Measures not identified on this list may be developed by DSL with approval of FWS.

**Wildfire** - Wildfire impacts affecting DSL managed lands will be handled on a case-by-case basis. DSL will determine the management practices to be applied, which may include:

**CCCM 1.** DSL will evaluate the need for rehabilitation based on pre-fire plant community health, fire intensity, and proximity to invasive species (e.g. cheatgrass, medusahead, green rabbitbrush) and need for active rehabilitation or for natural recovery.

**CCCM 2.** DSL will allow for natural vegetation recovery where healthy pre-fire plant communities exist and observed fire intensity indicates natural recovery and proximity of invasive species are not a concern. Timing of livestock grazing following wildfire will depend on response of desirable vegetation. DSL will identify and set quantifiable objectives for post-fire vegetation recovery based on pre-fire monitoring data, returning livestock grazing once objectives have been met.

**CCCM 3.** Following wildfire, DSL will undertake rehabilitation where natural recovery is unlikely, due to fire intensity and/or proximity to invasive annual species, and where feasible, practicable, and if adequate funding is available. Where annual grasses or invasive species are prevalent, plant aggressive fire-resistant perennial species to stabilize the site and allow for long term recovery of sagebrush and other native species.

**CCCM 4.** If applicable DSL will implement CMs listed under "Threat: Exotic Annual Invasion" in Appendix A.

**CCCM 5.** DSL will conduct post-treatment monitoring to determine if rehabilitation techniques have been successful or if implementation changes are indicated (*see Section 6. Inventory and Monitoring Protocols*).

**CCCM 6.** DSL will replace fence or temporarily fence where needed to protect recovering habitat post-fire, and, where appropriate, mark these fences with anti-strike markers or other agreed upon visual markers, as described by CM 29 in Appendix A.

**Drought** - When rangeland plants are deprived of precipitation, it affects the plant's growth cycle, volume of growth, and fruition. When drought conditions exist, annual monitoring will be used to determine site-specific recommendations. Drought is site specific and is typically considered to occur when two growing seasons of precipitation are below the long term average, affecting plant life cycles as described above. Prolonged drought is when the conditions described above persist for three or more growing seasons.

Variation in precipitation is common throughout the sage-grouse range. Annual rangeland monitoring and CMs are expected to address year to year variations in precipitation. Droughts in important sage-grouse habitats may create conditions reducing seasonally available habitat resulting in changed circumstances. In some instances, failure to make timely adjustments in



livestock use during drought has resulted in limited plant regrowth, overuse in wet meadows and riparian areas, and has negated gains in rangeland conditions made during higher-precipitation years (Thurrow and Taylor 1999).

In the event of moderate to extreme drought, as determined by drought declarations by the Governor, National Oceanic and Atmospheric Administration (NOAA)<sup>6</sup> or if annual monitoring indicates drought conditions, DSL will evaluate the drought condition effect on rangelands. The following CCCM is intended to address the changed circumstance:

**CCCM 7.** Utilize adaptive management to adjust levels and season of livestock grazing during drought conditions to maintain rangeland health using the site specific conditions as determined in the baseline and subsequent trend monitoring. These adaptive management measures may include:

- Implement management changes, such as grazing rest, deferment, rotation, or other changes designed to maintain long term vegetation health for rangelands
- Develop additional water sources for livestock and sage-grouse
- Employ other vegetation management to ensure long term plant community health

**West Nile Virus-**WNV has spread to eastern Oregon. In 2006, a die-off of at least 60 sage-grouse was documented near Burns Junction, and two other sage-grouse deaths were confirmed from WNV near Crane and Jordan Valley. Of the birds found dead, 3 provided suitable tissue samples and all were confirmed to be infected with WNV. No other significant mortalities have been documented in Oregon since 2006. However, there is the potential for an outbreak among sage-grouse, which are susceptible to the disease and suffer a high rate of mortality when infected. Currently, sage-grouse show low to no resistance to WNV, and mortality is assumed to be 100% (Naugle et al. 2004).

If outbreak occurs, as identified by state health officials<sup>7</sup> or other appropriate regulatory agency, DSL will implement the following CCCMs, as appropriate:

**CCCM 8.** Report observations of dead or sick sage-grouse or other bird deaths that could be attributed to disease or parasites to FWS within 48 hours.

**CCCM 9.** Cooperate with responsible agencies to implement feasible mosquito control, which may include:

1. Minimize unnecessary standing water that could be used as mosquito breeding grounds within sage-grouse habitat
2. Use larvicides in areas that mosquito habitat cannot be reduced
3. Evaluate the effectiveness of spraying for adult mosquitoes, and consider using mosquito specific control measures

**Habitat fragmentation and disturbance resulting from development:**

Impacts can include both direct loss of habitat from agricultural development or sagebrush removal and habitat fragmentation by roads, pipelines, power lines, wind turbines and other

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<sup>6</sup> For updated drought conditions visit the following link: <http://www.ncdc.noaa.gov/sotc/drought/2012/8>

<sup>7</sup> Website/link of the health authorities that track West Nile virus in Oregon:

<http://public.health.oregon.gov/DISEASES/CONDITIONS/DISEASESAZ/WESTNILEVIRUS/Pages/survey.aspx>

infrastructure. Accompanying noise disturbance can also reduce lek attendance and nesting success.

By letter of decision dated November 2, 2012 FWS specifically excluded from this CCAA impacts from development not associated with rangeland production. It is expressly understood that any such development under the direction and control of DSL will be evaluated independently of this CCAA.

In the event of development on, or adjacent to, lands enrolled under this CCAA, in which DSL does not have the legal ability (e.g. split estate mineral rights, noise disturbance from adjacent development) to exclude such development, the following measures may apply:

**CCCM 10.** DSL and FWS will evaluate the direct and indirect impacts to determine if the impacts will negate the intended benefits of the conservation measures being implemented or planned to be implemented on DSL managed lands.

**CCCM 11.** If these impacts are found to negate the CMs on some portion of DSL managed lands, DSL and FWS will meet and develop alternative, mutually-agreed-upon conservation measures including, but not limited to, alternate CM implementation location within DSL managed lands.

**Catastrophic Flooding** –Excessive runoff resulting from catastrophic hydrological events (e.g. rain on snow event) are associated with mass-wasting of hill slopes, damage to river banks, and downstream flooding. These events have the capability to drastically change stream hydrology and vegetative composition of riparian corridors. These events are often associated with a 100-year flood cycle.

**CCCM 12.** Utilize adaptive management based on evaluation of degree of flood impact. Adjust levels and season of livestock grazing after a catastrophic flood event to maintain and/or rehabilitate suitable sage-grouse habitat.

**CCCM 13.** Re-evaluate stream segments to identify critical areas and changes in ecological state and identify measures that could enhance stream function.

**Herbicide Use** – Currently, information is lacking on the direct effects of herbicides to sage-grouse; however, research on sage-grouse is ongoing and published studies and other new information often become available. If new research or other information indicates that one or more of the covered herbicides causes significant adverse effects to sage-grouse that outweigh the benefits of treating their habitats, the following CCCM may be implemented.

**CCCM 16.** The FWS can remove those herbicides (or group of herbicides) from the covered list; or if feasible require implementation of additional best management practices with DSL to avoid and minimize take.

## **16. Changed Circumstances Not Provided for in the CCAA**

If FWS determines that additional conservation measures not provided for in the CCAA are necessary to respond to the changed circumstances the FWS will not require any additional CMs in the CCAA without the consent of DSL, provided CMs are being properly implemented. The FWS, and/or DSL, may seek funding to implement the agreed upon CMs.



### **17. Unforeseen Circumstances**

Unforeseen circumstances are changes in circumstances affecting sage-grouse or the geographic area covered by the CCAA that could not reasonably have been anticipated by DSL and the FWS at the time of the CCAA's development, and result in a substantial and adverse change in the status of the sage-grouse.

The only situation where modification of conservation measures can be required by FWS is an unforeseen circumstance. To respond to unforeseen circumstances, the FWS may require modified or additional conservation measures by DSL, but only if such measures maintain the original terms of the CCAA. The FWS will consider whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of sage-grouse in the wild. Additional conservation measures will not involve the commitment of additional land, water, or DSL funds, or additional restrictions on the use of land, water, or other natural resources available for use under the original terms of the CCAA without the consent of DSL, provided the CCAA is being properly implemented. Funding for conservation measures warranted under this section will be sought by FWS and/or other partners, including DSL.

The FWS will have the burden of demonstrating that unforeseen circumstances exist, using information that is both reliable and credible and incorporates the best scientific and commercial data available. These findings must be clearly documented and based upon reliable technical information regarding the status and habitat requirements of sage-grouse. The FWS will consider, but not be limited to, the following factors:

- Size of the current range of sage-grouse
- Percentage of range adversely affected within the CCAA
- Percentage of range conserved by the CCAA
- Ecological significance of that portion of the range affected by the CCAA
- Level of knowledge about sage-grouse and the degree of specificity of the species' conservation program under the CCAA

### **18. Duration of CCAA and EOS Permit**

This CCAA will be in effect for 30 years following its approval and signing by the FWS. The section 10(a)(1)(A) EOS Permit authorizing take of the species also will have a term of 30 years concurrent with the CCAA. This duration should be sufficient to determine that the CMs are benefiting the sage-grouse.

### **19. Termination of CCAA**

DSL agrees to give 30-days written notice to the FWS of intent to terminate this CCAA. DSL may terminate implementation of the CCAA voluntary management actions prior to the CCAA expiration date, even if the expected benefits have not been realized. However, in so doing, any assurances and incidental take coverage under the EOS Permit would also terminate.

### **20. Modification of CCAA**

The FWS may not, through modification of the CCAA, impose any new requirements or conditions on, or modify any existing requirements or conditions applicable to DSL or successor

in interest to DSL to compensate for changes in the conditions or circumstances of any species or ecosystem, natural community, or habitat covered by the CCAA except as stipulated in 50 CFR 17.22(d)(5) and 17.32(d)(5).

17.22 is the section of the Code of Federal Regulations (CFR) pertaining to: Permits for scientific purposes, enhancement of propagation or survival, or for incidental taking.

17.32 is the section of the Code of Federal Regulations CFR pertaining to: Permits – general.

Language for both CRF sections is identical, and is as follows:

(5) *Assurances provided to Permittee in case of changed or unforeseen circumstances.* The assurances in this paragraph (d)(5) apply only to Permits issued in accordance with paragraph (d)(2) where the Candidate Conservation with Assurances Agreement is being properly implemented, and apply only with respect to species adequately covered by the Candidate Conservation with Assurances Agreement. These assurances cannot be provided to Federal agencies.

## **21. Succession and Transfer**

DSL agrees to give 30 days' written notice to FWS of intent to sell any parcel or of any transfer of ownership, so that FWS can attempt to contact the new owner, explain the baseline responsibilities applicable to the property, and allow the new owner to have the option of receiving CCAA assurances by signing the original CCAA. As a party to the original Permit, the new owner will have the same rights and obligations with respect to the enrolled property as DSL. Alternatively, the new owner may enroll in a new CCAA if sage-grouse has not been listed. Assignment or transfer of the Permit shall be governed by FWS regulations in force at the time. If a new owner chooses not to enroll, the Permit authorizations and assurances will cease.

## **22. EOS Permit Suspension or Revocation**

The FWS may suspend the privileges of exercising some or all of the EOS Permit authority at any time if DSL is not in compliance with the conditions of the Permit, or with any applicable laws or regulations governing the conduct of the Permitted activity. Such suspension shall remain in effect until the issuing officer determines that DSL has corrected the deficiencies. Additionally, FWS may suspend a portion of the Permit coverage if individual parcels are found to be in violation of the Permit terms and conditions or with any applicable laws or regulations governing the conduct of the Permitted activity.

*The FWS may not revoke an EOS Permit except as follows:*

The FWS may revoke an EOS Permit for any reason set forth in 50 CFR 13.28(a)(1) through (4). This regulation authorizes revocation if: the Permittee willfully violates any Federal or State statute or regulation, or any Indian tribal law or regulation, or any law or regulation of any foreign country, which involves a violation of the conditions of the Permit or of the laws or regulations governing the Permitted activity; or the Permittee fails within 60 days to correct deficiencies that were the cause of a Permit suspension; or the Permittee becomes disqualified; or a change occurs in the statute or regulation authorizing the Permit that prohibits the continuation of a Permit issued by FWS.



*A Permit can be disqualified or revoked if:*

1. A conviction, or entry of a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act disqualifies any such person from receiving or exercising the privileges of a Permit, unless such disqualification has been expressly waived by the Director in response to a written petition.
2. The revocation of a Permit for reasons found in § 13.28 (a)(1) or (a)(2) disqualifies any such person from receiving or exercising the privileges of a similar Permit for a period of five years from the date of the final agency decision on such revocation.
3. The failure to pay any required fees or assessed costs and penalties, whether or not reduced to judgment disqualifies such person from receiving or exercising the privileges of a Permit as long as such moneys are owed to the United States. This requirement shall not apply to any civil penalty presently subject to administrative or judicial appeal; provided that the pendency of a collection action brought by the United States or its assignees shall not constitute an appeal within the meaning of this subsection.
4. The failure to submit timely, accurate, or valid reports as required may disqualify such person from receiving or exercising the privileges of a Permit as long as the deficiency exists.

The FWS may revoke an EOS Permit if continuation of the permitted activity would either appreciably reduce the likelihood of survival and recovery in the wild of any listed species, or directly or indirectly alter designated critical habitat such that it appreciably diminishes the value of that critical habitat for both the survival and recovery of a listed species.

Before revoking a Permit for either of the two reasons in the preceding paragraph, the FWS, with the consent of the Permittee, will pursue all options that FWS consider appropriate to avoid Permit revocation. These options may include, but are not limited to: extending or modifying the existing Permit, compensating the enrolled landowner to forgo the activity, purchasing an easement or fee simple interest in the enrolled property, or arranging for a third party acquisition of an interest in the property.

### **23. Remedies**

Each party shall have all remedies otherwise available to enforce the terms of the CCAA and the EOS Permit, except that no party shall be liable in monetary damages for any breach of this CCAA, any failure to perform an obligation under this CCAA, or any other cause of action arising from this CCAA.

### **24. Dispute Resolution**

DSL and FWS recognize disputes concerning implementation of, compliance with, or termination of the CCAA and EOS Permit may arise from time to time. DSL and FWS agree to work together in good faith to resolve such disputes, using the informal dispute resolution procedures set forth in this section, or such other procedures upon which the parties may later agree. However, if at any time any party determines circumstances so warrant, they may seek any available remedy without waiting to complete informal dispute resolution.

### ***Informal dispute resolution process***

Unless the parties agree upon another dispute resolution process, or unless an aggrieved party has initiated administrative proceedings or suit in Federal court as provided in this section, the parties may use the following process to attempt to resolve disputes:

- The aggrieved party will notify the other parties of the provision potentially violated, the basis for contending a violation has occurred, and the remedies it proposes to correct the alleged violation.
- The party alleged in violation will have 30 days, or such other time as may be agreed, to respond. During this time it may seek clarification of the information provided in the initial notice. The aggrieved party will use its best efforts to provide any available information responsive to such inquiries.
- Within 30 days after such response was provided or was due, representatives of the parties having authority to resolve the dispute will meet and negotiate in good faith toward a solution satisfactory to all parties, or will establish a specific process and timetable to seek such a solution.
- If any issues cannot be resolved through such negotiations, the parties will consider non-binding mediation and other alternative dispute resolution processes and, if a dispute resolution process is agreed upon, will make good faith efforts to resolve all remaining issues through that process.

### **25. Availability of Funds**

Nothing in this CCAA will be construed by any party to require the obligation, appropriation, or expenditure of any funds from the U.S. Treasury, The Oregon State Treasury or the Common School Fund. The FWS and DSL will not be required under this CCAA to expend any federal or State agency's appropriated funds unless and until an authorized official of that agency affirmatively acts to commit to such expenditures as evidenced in writing.

### **26. Relationship to Other Agreements**

The Oregon Cattlemen's Association, BLM, and FWS have signed a Candidate Conservation Agreement (CCA) for certain federal public lands and Harney County SWCD has signed a Programmatic Candidate Conservation Agreement with Assurances for private lands in that County. Crook, Deschutes, Grant, Lake, Malheur and the portion of Union county under the jurisdiction of Baker SWCD are developing plans very similar to the agreement that was approved in Harney County. Many livestock operations are dependent upon public land livestock grazing, both federal and State, for much or portions of their livestock grazing operations. It is critical that all plans are complimentary and the goal is for DSL lands to be managed seamlessly between Federal and enrolled private lands. While coordination between the documents is essential, federal, State and private lands are innately different, so some differences exist.

### **27. No Third-party Beneficiaries**

This CCAA does not create any new right or interest in any member of the public as a third-party beneficiary, nor shall it authorize anyone not a party to this CCAA to maintain a suit for personal injuries or damages pursuant to the provisions of this CCAA. The duties, obligations, and responsibilities of DSL and FWS to this CCAA with respect to third parties shall remain as imposed under existing law.



## 28. Reports

Annual summary reports will be delivered to the person listed below:

Field Supervisor, Oregon Fish and Wildlife Office

U.S. Fish and Wildlife Service

2600 SE 98<sup>th</sup> Ave, Suite 100

Portland, OR 97266

IN WITNESS WHEREOF, THE SIGNING PARTIES HERE TO have, as of the last signature date below, executed this Candidate Conservation Agreement with Assurances to be in effect as of the date of the last signatory to sign this agreement.

*for*  
\_\_\_\_\_  
Mary Abrams  
Director  
Department of State Lands

SEPT. 18, 2015

Date

Paul Henson  
Paul Henson, Ph.D.  
State Supervisor  
U. S. Fish and Wildlife Service

9/18/2015

Date

## References Cited

- Beck, J. L. and D. L. Mitchell. 2000. Influences of livestock grazing on sage-grouse habitat. *Wildlife Society Bulletin* 28:993–1002.
- Bui, T.D. 2009. The effects of nest and brood predation by common ravens (*Corvus corax*) on greater sage-grouse (*Centrocercus urophasianus*) in relation to land use in western Wyoming. M.S. Thesis, University of Washington. 48 pp.
- Bureau of Land Management, US Fish and Wildlife Service, US Forest Service, Oregon Department of Fish and Wildlife, and Oregon Division of State Lands. 2000. Greater sage-grouse and sagebrush-steppe ecosystem: management guidelines. August 21, 2000. 27 pp.
- Cagney, J., E. Bainter, B. Budd, T. Christiansen, V. Herren, M. Holloran, B. Rashford, M. Smith, and J. Williams. 2010. Grazing influence, objective development, and management in Wyoming's greater sage-grouse habitat with emphasis on nesting and early brood rearing. 58 pp.
- Coates, P. S. (2007). *Greater Sage-Grouse (Centrocercus urophasianus) nest predation and incubation behavior* (Doctoral dissertation, Idaho State University).
- 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.
- Coates, P. S., J.W. Connelly, & D.J. Delehanty. 2008. Predators of Greater Sage-Grouse nests identified by video monitoring. *Journal of Field Ornithology*, 79(4), 421-428.
- Connelly, J.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. Guidelines to manage sage-grouse populations and their habitats. *Wildlife Society Bulletin* 28:967-985.
- Connelly, J. W., S. T. Knick, M. A. Schroeder, and S. J. Stiver. 2004. Conservation Assessment Wildlife Agencies. Cheyenne, Wyoming, USA.
- Crawford, J. A., R. A. Olson, N. E. West, J. C. Mosley, M. A. Schroeder, T. D. Whitson, R. F. Miller, M. A. Gregg, and C. S. Boyd. 2004. Ecology and management of sage-grouse and sage-grouse habitat. *Journal of Range Management* 57:2-19.
- Dahlgren, D. K., R. Chi, T. A. Messmer. 2006. Greater sage-grouse response to sagebrush management in Utah. *Wildlife Society Bulletin* 34:975-985.
- Davies, K.W., J.D. Bates, and R.F. Miller. 2006. Vegetation characteristics across part of the Wyoming big sagebrush alliance. *Rangeland Ecology and Management* 59:567-575.
- Dinkins, J.B., M.R. Conover, C.P. Kirol, J.L. Beck. 2012. Greater Sage-Grouse select nest sites and brood sites away from avian predators. *The Auk* 129(4): 600-610.
- France, K.A., D.C. Ganskopp, and C.S. Boyd. 2008. Interspace/under canopy foraging patterns of beef cattle in sagebrush habitats. *Rangeland Ecology and Management* 61:389-393.



- Gregg, M. A., J. A. Crawford, M. S. Drut, and A. K. Delong. 1994. Vegetational cover and predation of sage-grouse nests in Oregon. *Journal of Wildlife Management* 58:162-166.
- Hagen, C. A. 2005. Greater sage-grouse conservation assessment and strategy for Oregon: a plan to maintain and enhance populations and habitat. Oregon Department of Fish and Wildlife, Salem, USA.
- Hagen, C. A. 2011. Greater sage-grouse conservation assessment and strategy for Oregon: a plan to maintain and enhance populations and habitat. Oregon Department of Fish and Wildlife, Salem, USA.
- Hagen, C.A. 2012. Predation on greater sage-grouse: Facts, process, and effects. *Studies in Avian Biology*. 21 pp.
- Hagen, C. A., J. W. Connelly, and M. A. Schroeder. 2007. A meta-analysis of Greater Sage-Grouse *Centrocercus urophasianus* nesting and brood-rearing habitats. *Wildlife Biology* (Supplement 1):42-50.
- Herrick, J. E., J. W. Van Zee, K. M. Havstad, L. M. Burkett, and W. G. Whitford. 2005. Monitoring Manual for Grassland, Shrubland, and Savanna Ecosystems. Vol. 1: Quick start. USDA-ARS Jornada Experimental Range. 36 pp. Available at [http://usda-ars.nmsu.edu/Monit\\_Assess/monitoring\\_main.php](http://usda-ars.nmsu.edu/Monit_Assess/monitoring_main.php).
- Johnson, D.D. and R. Sharp. 2012. Pace 180° and repeat photography: Monitoring methods for documenting vegetation trend in sagebrush rangelands. BEEF091. In: R. Cooke (Ed.). Oregon State University Beef Cattle Library. Oregon State University, Corvallis, OR.
- Klebenow, D.A. 1981. Livestock grazing interactions with sage-grouse. *Proceedings of the Wildlife-Livestock Relationship Symposium*. 113-123 pp.
- Kolada, E.J., M.L. Casazza, J.E. Sedinger. 2009. Ecological Factors Influencing Nest Survival of Greater Sage-Grouse in Mono County, California. *Journal of Wildlife Management* 73(8):1341-1347.
- Kolada, E.J., M.L. Casazza, J.E. Sedinger. 2009b. Nest Site Selection by Greater Sage-Grouse in Mono County, California. *Journal of Wildlife Management* 73(8): 1333-1340.
- Knick, S. T. and J. W. Connelly. 2011. Greater Sage-Grouse: ecology and conservation of a landscape species and its habitat. *Studies in Avian Biology* 38. University of California Press, Berkeley, CA.
- Mack, R. N., and J. N. Thompson 1982. Evolution in steppe with few large, hoofed mammals. *American Naturalist* 119:757-773.

- Miller, Richard F. and Lee E. Eddleman. 2000. Spatial and temporal changes of sage-grouse habitat in the sagebrush biome. Agricultural Experiment Station, Oregon State University Technical Bulletin No. 151.
- Miller, R.F., J.D. Bates, T.J. Svejcar, F.B. Pierson, and L.E. Eddleman. 2005. Biology, Ecology, and Management of Western Juniper. Oregon State University Agricultural Experiment Station, Technical Bulletin 152. 77 pp.
- Moynahan, B. J., M. S. Lindberg, J. J. Rotella, and J. W. Thomas. 2007. Factors affecting nest survival of greater sage-grouse in northcentral Montana. *Journal of Wildlife Management* 71:1773–1783.
- Nelson, J. R. 1984. Rare Plant Field Survey Guidelines. In: J.P. Smith and R. York. Inventory of rare and endangered vascular plants of California. 3<sup>rd</sup> Ed. California Native Plant Society, Berkeley. 174 pp.
- Naugle, D. E., C. L. Aldridge, B. L. Walker, T. E. Cornish, B. J. Moynahan, M. J. Holloran, K. Brown, G. D. Johnson, E. T. Schmidtman, R. T. Mayer, C. Y. Kato, M. R. Matchett, T. J. Christiansen, W. E. Cook, T. Creekmore, R. D. Falise, E. T. Rinkes, and M. S. Boyce. 2004. West Nile virus: pending crisis for greater sage-grouse. *Ecology Letters* 7:704-713.
- Olson, R. A., and T. D. Whitson. 2002. Restoring structure in late-successional sagebrush communities by thinning with tebuthiuron. *Restoration Ecology* 10:146-155.
- Schroeder, M. A., C. L. Aldridge, A. D. Apa, J. R. Bohne, C. E. Braun, S. D. Bunnell, J. W. Connelly, P. Diebert, S. C. Gardner, M. A. Hilliard, G. D. Kobriger, S. M. McAdam, C. W. McCarthy, J. J. McCarthy, D. L. Mitchell, E. V. Rickerson, and S. J. Stiver. 2004. Distribution of sage-grouse in North America. *Condor* 106:363-376.
- Sedinger, J. S., G. C. White, S. Espinosa, E. T. Partee, and C. E. Braun. 2010. Assessing compensatory versus additive harvest mortality: an example using greater sage-grouse. *Journal of Wildlife Management* 74:326-332.
- Stevens, B.S. 2011. Impacts of fences on greater sage-grouse in Idaho: collision, mitigation, and spatial ecology. M.S. Thesis, University of Idaho, Moscow, Idaho. 196 pp.
- Sveum, C.M., D.W. Edge, and J.A. Crawford. 1998. Nesting habitat selection by sage-grouse in south-central Washington. *Journal of Range Management* 51:265-269.
- Thurow, T. L., and C. A. Taylor. 1999. The role of drought in range management. *Journal of Range Management* 52:413-419.
- U. S. Fish and Wildlife Service. 2010a. 50 CFR Part 17 Endangered and threatened wildlife and plants; 12-month findings for petitions to list the greater sage-grouse (*Centrocercus urophasianus*) as threatened or endangered. Proposed Rule. 105 pp.
- USFWS. 2013. Greater sage-grouse (*Centrocercus urophasianus*) conservation objectives: final report. USFWS, Denver, Colorado.



Walters, C. 1986. Adaptive Management of Renewable Resources. Macmillian, New York. 374 pp.

Willis, M.J., G.P. Keister, Jr., D.A. Immell, D.M. Jones, R.M. Powell, K. R. Durbin. 1993. Sage-grouse in Oregon. Wildlife Research Report Number 15. Oregon Department of Fish & Wildlife, Portland, OR.

## **APPENDIX A – Conservation Measures**

**Sage-Grouse Conservation Measures:** All Conservation Measures (CMs) listed in this appendix will maintain or improve sage-grouse habitat, while contributing to the economic stability and sustainability of DSL managed lands. Leasehold Inventory (baseline) will identify any threat or threats (if any) to sage-grouse that exist on DSL managed land. This list provides possible conservation measures to be applied to address threats ownership wide directly by DSL and will serve as a menu of options to use when developing Farm Plans, Leasehold Management Plans, and Annual Operating Plans with individual lessees when such plans are deemed necessary by DSL. Each identified threat will be addressed with one or more CMs from the list below and additionally, **conservation measures not identified on this list may be developed with the approval of FWS.**

This list of threats to sage-grouse has been subdivided into habitat-related and species-specific threats. The conservation objectives for habitat-related threats are listed in the CCAA under *Section 6. Inventory and Monitoring Protocols* in Figure 2-4. Applicable objectives from these figures will be applied by DSL or included in Farm Plans, Leasehold Management Plans, and Annual Operating Plans with individual lessees when DSL directs the lessee to carry out the objectives. The conservation objectives for species-specific threats are listed in this appendix, below the specific threat.

These conservation measures have been developed, some specific and some general, based on the best available knowledge, science, and experience.

### **Habitat-Related Threats**

**Threat: Fragmentation of the landscape** -Fragmentation of the landscape causes birds to leave leks or abandon nests or important habitats (i.e., direct impact to nests and brooding hens), resulting in decreased reproductive success.

#### **Conservation Measures:**

1. **Maintain contiguous habitat by avoiding further fragmentation. The objective for this required CM is for no net loss in 1) habitat quantity (as measured in acres) and 2) habitat quality (as determined by the ecological state).** The baseline determination of habitat quality and quantity will be completed during the baseline inventory and will serve as a reference point in meeting the objective for CM 1.
2. Consolidate new roads and powerlines.
3. Consider entering into conservation easements.
4. Convert generator or windmill powered pumps (noise) to solar, when economically feasible.
5. Consider removing vertical structures (i.e. raptor perches) by burying new and existing power lines, and where possible cooperate with local utilities to retrofit powerlines to reduce raptor perches, when economically feasible.

**Threat: Wildfire**-Wildfires can remove long-lived species such as sagebrush, reducing sage-grouse habitat quality and quantity.

#### **Conservation Measures:**

6. Identify sage-grouse habitat as a high priority for protection and prevention. Map lands as



Core Area and Low Density. Consider the following proactive prevention measures:

- a. In years of high fuel load accumulation, strategically utilize livestock grazing to reduce fuel loads while maintaining suitable habitat for sage-grouse, consistent with the livestock management practices section.
  - b. Design, establish, and maintain fire breaks or green-stripping along key existing roadways to provide a fuel break and safe zone from which to fight fire. Strips would be no larger than 50ft on either side of a road, which will provide foraging habitat for sage-grouse and provide >100ft of fuel breaks. Within fuel breaks where annual grasses are prevalent, plant aggressive, fire-resistant perennial species to stabilize the site, with the long-term objective of re-establishing native species.
  - c. Identify key roads on a map that could serve as a fire break to be widened approximately 50ft on either side of the road, when wildfire actively threatens DSL managed lands. These maps will be available to the fire personnel.
  - d. Attain wildfire training certification. Where possible join Rangeland Fire Protection Associations (RFPA)<sup>8</sup>. Explore addition of agency fire suppression resources.<sup>9</sup>
  - e. Maintain a fire suppression agreement with the Bureau of Land Management.
7. Use direct attack tactics when it is safe and effective to reduce the amount of burned habitat. Direct attack supported by any available mechanized equipment (i.e. bulldozer, tractor w/blade, aerial drops) is the most efficient at reducing the overall size of rangeland fires thereby keeping habitat intact. It is most critical during initial attack before the fire gains momentum.
  8. Retain unburned areas (including interior islands and patches between roads and the fire perimeter) of sage-grouse habitat unless there is a compelling safety, resource protection, or control objectives at risk.

**Threat: Loss of sagebrush habitat due to lack of fire and associated conifer encroachment:**

High elevation plant communities are dependent upon periodic fire to maintain healthy functional plant communities. The use of prescribed fire in low elevation sagebrush communities can result in a reduction of sage-grouse habitat in quality and quantity. DSL will determine need for treatment and, if needed, the appropriate method for removal (e.g., chainsaw, heavy machinery, chemical, prescribed fire, or a combination) and slash treatment. DSL will choose methods that will minimize or prevent soil disturbance or sterilization and methods least likely to result in weed invasions.

**Conservation Measures:**

9. Utilize prescribed fire treatments which will generally occur at higher elevations, where there is little risk of invasive plant establishment post-treatment. Treatments will be conducted so there is a mosaic of sagebrush and burned areas to provide a seed source for sagebrush and native grass and forb regeneration.

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<sup>10</sup> Participation in or creation of a RFPA is proactive in protecting state and private land from fires. RFPAs are charged with providing protection for non-federal lands. DSL is a member of RFPA's in which DSL managed lands are located. BLM will only allow RFPAs or their members to assist on initial attack and firefighting on federal public lands when state and private lands are threatened. This is in accordance with current cooperative agreements.

10. Remove encroaching juniper from sagebrush communities through cutting of juniper and burning piled trees and limbs ("jack-pot burning", which involves returning to juniper piles when the ground is frozen or saturated to conduct burning). Ensure timing of these burns does not interfere with lekking or other known seasonal movements of sage-grouse (see "Threat: Juniper/Conifer Expansion" for full specifications).
11. Limit use of prescribed fires at lower elevations. Prescribed fire at these elevations will only be used when there are no other options, or a pre-burn evaluation has determined the risk of cheatgrass and other invasive weeds is minimal, and there is low risk of reducing critical sage-grouse habitat features.

**Threat: Juniper/Conifer Expansion**—Juniper/conifer encroachment can lead to a reduction of sage-grouse habitat, use, or abandonment. Slash from mechanical or chemical removals may continue to compromise habitat use.

#### **Conservation Measures:**

12. Consider removing encroaching juniper/conifer within existing riparian and transitional zones.
13. Treat/remove encroaching juniper/conifer in sage-grouse habitats.
14. For Phase I, juniper felling and leaving may be effective. Limb any branches >4 ft in height on a felled tree (i.e., lop and scatter).
15. For Phase I and Phase II, where jackpot burning is the most appropriate method of slash removal, consider a fall burn (Nov-Dec) or spring burn (Mar-Apr) when soils tend to be frozen but the moisture content of the felled trees is low. Ensure timing of these actions does not interfere with lekking or other known seasonal movements of sage-grouse.
16. Conduct broadcast burns of juniper-invaded sagebrush, judiciously taking into consideration the spatial and habitat needs of sage-grouse relative to the size of the burn.
17. Seed juniper treatment when current perennial grass community is in poor condition (<2 plants /10ft<sup>2</sup>, <1 plant/10ft<sup>2</sup> on dry and wet sites) or if exotic annual grasses are present. Broadcast seeding prior to soil disturbance or under slash may increase the chances of establishment.
18. Consider resting treated area from grazing following treatment. Length of rest will depend on understory composition at time of treatment and response of desirable vegetation following treatment. Set quantifiable objectives for post-treatment vegetation recovery based on pre-treatment monitoring data, return livestock grazing once objectives have been met.

**Threat: Unmanaged and/or Improper Grazing** -Livestock, humans, and vehicles can physically disturb and cause birds to leave leks or abandon nests (i.e., direct impact to nests and brooding hens) resulting in decreased reproductive success. However, appropriate livestock grazing regimes are compatible with or beneficial to sage-grouse habitat needs. Adaptive management may be necessary to adjust levels and season of livestock grazing with a forage supply that is ever changing in response to varying growing conditions for vegetation (e.g., interannual climate variation). Monitoring information will be used to make adjustments to grazing management to ensure a desirable vegetation trend is maintained (see *Section 6. Inventory and Monitoring Protocols*).



**Conservation Measures:**

19. Avoid placing salt, water, or mineral supplements within 0.6 miles of the perimeter of an occupied lek.
20. Reduce disruptive activities one hour after sunset to two hours after sunrise from March 1 through June 30 within 0.6 miles of the perimeter of occupied leks, unless brief occupancy is essential for routine ranch activities (e.g., herding or trailing livestock into or out of an area at the beginning or end of the grazing season). Examples of disruptive activities may include noise, human foot or vehicle traffic, or other human presence.
21. Reduce off-trail vehicular travel in nesting habitat from March 1 through June 30 unless travel is essential for routine ranch activities (including but not limited to: repairing fence, "doctoring" livestock, finding lost livestock, and irrigation activities).
22. Develop and/or use a rangeland management plan and/or annual operating plan to maintain or enhance the existing plant community to ensure a community suitable as sage-grouse habitat. If available, use approved ecological site descriptions to set realistic goals for the plant community. (Example: NRCS Oregon 2007; Conservation Practice Standard – Prescribed Grazing Code 528).
23. Change salting and watering locations to improve livestock distribution and maintain or enhance sage-grouse habitat quality.
24. Avoid alteration of winter habitat with winter feeding in occupied habitat unless it is part of a plan to improve ecological health or to create mosaics in dense sagebrush stands that are needed for optimum sage-grouse habitat, or is needed for emergency care of livestock.
25. Develop additional water sources for wildlife and livestock, to reduce impacts to riparian, wetland, playas, and wet meadow areas important to sage-grouse.
26. Spring developments should be constructed or modified to maintain their free-flowing and wet meadow characteristics.
27. Ensure wildlife accessibility to water and install escape ramps in all new and existing water troughs.
28. Avoid construction of new livestock facilities (livestock troughs, fences, corrals, handling facilities, "dusting bags," etc.) within 0.6 miles from leks or other important areas of sage-grouse habitat (i.e., known wintering and brood rearing areas) to avoid concentration of livestock, collision hazards to flying birds, or avian predator perches.
29. Refer to the model by Bryan Stevens for identification of areas that may contain fences that pose the highest threat to sage-grouse. In high risk areas, remove unnecessary fences and relocate or mark needed fences with anti-strike markers or other agreed upon visual markers (Stevens 2011).
30. Manage grazing in riparian areas to ensure bank stability, survival of deep-rooted riparian vegetation, floodplain connectivity, and stream functionality.

**Threat: Invasive Vegetation** -Establishment of plant communities that do not provide suitable habitat (e.g., introductions and monocultures of non-native, invasive plants) are reducing sage-grouse habitat quality and quantity. Prevention and early detection is needed. Invasive weeds continue to expand from borders of large infestations. Many sagebrush-steppe communities have crossed a threshold after which they are no longer recoverable by control methods.

**Conservation Measures:**

31. DSL will work with county weed experts to identify where invasives are a threat to DSL managed land, to establish weed prevention areas, and to conduct cooperative treatments.
32. Identify and implement treatments that will promote an intact and functioning sagebrush landscape.
33. Systematic and strategic detection surveys should be developed and conducted in a manner maximizing the likelihood of finding new patches before they expand. Once patches are located, seed production should be stopped and the weeds should be eradicated. The most effective tools for eradication of many weeds are herbicides and possibly bio-controls.
34. When using herbicides all best management practices and only approved herbicides listed in Appendix E will be used for coverage under the EOS Permit associated with this agreement.
35. Containment programs for large infestations should be maintained. Border spraying infestations, planting aggressive (even appropriate non-native species) plants as a barrier, establishing seed feeding biological control agents and targeted grazing to minimize seed production are all methods that could help contain large infestations.
36. Areas with an adequate understory (> 20% composition) of desired vegetation should be identified and prioritized as high for control since they have a higher likelihood of successful rehabilitation than areas where desired species are completely displaced.
37. Consider rehabilitation for areas with inadequate understory (< 20% composition) of desired vegetation. The species of choice should include perennial species that are competitive with invasive weeds. The goal should be to maximize niche occupation with desired species.
38. Record any new annual grass (e.g., cheatgrass, medusahead) infestations and take immediate action to eradicate when practical and economically feasible. DSL both records incidental sightings, and conducts specifically planned surveys. Surveys should focus primarily on medusahead infestations initially; when treatment is practical expand treatment areas to incorporate cheatgrass areas.
39. Non-native perennial species such as crested wheatgrass may be seeded to stabilize and prevent further invasion of cheatgrass and medusahead. These species should be used with the intent to stabilize the plant community and allow for long term recovery of sagebrush and other native species.
40. Aggressively treat noxious weeds and other invasive plants where they threaten quality of sage-grouse habitat and apply best management practices to prevent infestations from occurring.
41. Use certified weed-free seed mixes and mulches.
42. Manage livestock use on newly seeded/planted rangeland, allow adequate rest, generally a minimum of two growing seasons. Set quantifiable objectives for post-treatment vegetation recovery; return livestock grazing once objectives have been met.

**Threat: Vegetation Treatments** -Vegetation treatments (e.g., chemical, mechanical) can result in a reduction of sage-grouse habitat quality and quantity.

**Conservation Measures:**

43. Use brush beating in mosaic patterns as a tool to increase production of understory species and to increase diversity to benefit sage-grouse habitat. Current recommendations suggest brush beating (or other appropriate treatment) in strips (or a



mosaic pattern) 12 to 50ft wide (with untreated interspaces 3 times the width of the treated strips) in areas and with relatively high shrub cover (>25%) without an understory of annual grasses to improve herbaceous understory for brood rearing habitats, where such habitats may be limiting. Also, take into account aged sagebrush stands with minimal recruitment and high shrub decadence. Such treatments should not be conducted in known winter habitat (Dahlgren et al. 2006).

44. Evaluate the role of existing seedings that are currently composed of primarily introduced perennial grasses in and adjacent to priority sage-grouse habitats to determine if they should be restored to sagebrush or habitat of higher quality for sage-grouse. Active restoration success has been extremely limited using current technology, where it is economically and logistically feasible, consider transplanting sagebrush or using sagebrush plugs, if not economically and/or logistically feasible, allow sagebrush recruitment into perennial herbaceous dominated communities (i.e., don't mow sagebrush that is reestablishing in crested wheatgrass seedings).
45. Any vegetation treatments conducted in plant communities dominated by exotic annual species will be accompanied by rehabilitation (and if necessary, reseeding) to achieve reestablishment of perennial vegetation and allow for long term recovery of sagebrush and other native species.
46. To minimize disturbance to sage-grouse populations, do not conduct broadcast applications of herbicides during nesting and early-brood rearing periods when sage-grouse are present (March 1 – June 30, at a minimum) , unless this timeframe or target plant development stage is optimal for herbicide effectiveness.
47. The use of herbicides (primarily tebuthiuron) at low (0.1–0.3 kg ai/ha) application rates may effectively thin sagebrush cover while increasing herbaceous plant production (Olson and Whitson 2002). These treatments should be applied in strips or mosaic patterns. Site conditions must be critically evaluated prior to treatment (including fire rehabilitation, new seedings, and seeding renovations) to increase likelihood of the desired vegetation response.
48. DSL staff will determine how sagebrush treatments are part of a larger landscape plan. If sagebrush treatment is warranted after a plan is developed, DSL will utilize a mosaic pattern of treatment (as described in CM 43) rather than a large uniform block.

**Threat: Drought-** When rangeland plants are deprived of precipitation, it affects the plant's growth cycle, volume of growth, and fruition. When drought conditions exist, annual monitoring will be used to determine site specific recommendations. Drought is site specific and is typically considered to occur when two growing seasons of precipitation are below the long term average, affecting plant life cycles as described above. Prolonged drought is when the conditions described above persist for three or more growing seasons. Prolonged drought can harm plants important to sage-grouse reducing sage-grouse habitat quality and quantity (*see Section 16. Changed Circumstances* drought subsection for more information on determination of drought conditions).

**Conservation Measures:**

49. Incorporate a drought management strategy for grazing which considers the needs of sage-grouse.
50. Adjust livestock use (season of use, timing, intensity, and/or duration) to reduce the impact on perennial herbaceous cover, plant diversity, and plant vigor to enable DSL

managed lands to meet the seasonal habitat needs for sage-grouse identified for the site.

**Threat: Mechanical degradation of riparian area-**Those actions utilizing mechanical equipment that results in decreased water table stability and function.

**Conservation Measure:**

51. Consider stream system hydrology prior to development of any facility, feature, or infrastructure such as roads, dams, culverts, water crossings, bridges, ditches.

**Threat: Catastrophic Flooding-** Excessive runoff resulting from catastrophic hydrological events (e.g. rain on snow event) is associated with mass-wasting of hill slopes, damage to river banks, and downstream flooding. These events have the capability to drastically change stream hydrology and vegetative composition of riparian corridors.

**Conservation Measure:**

52. Manage livestock use (season of use, timing, intensity, and/or duration) in a manner that promotes herbaceous and deep-rooted riparian vegetation that will stabilize stream bank morphology and aid in the recovery following a catastrophic flood event.

**Species-Specific Threats**

**Threat: Recreation** -Repeated disturbance and harassment of sage-grouse could reduce mating and reproductive productivity.

**Conservation Objective:** Reduce the amount of sage-grouse disturbance and harassment, as well as direct mortality.

**Conservation Measure:**

53. Protect critical existing habitat such as high visibility leks and/or known winter concentration areas, by restricting seasonal access for recreational use, including but not limited to recreational vehicle use both on and off roads, horseback riding and other dispersed recreational activities

**Threat: Predation** – Some rangeland management activities can increase opportunities for predation of sage-grouse and sage-grouse nests. Predation may be underestimated as a limiting factor to sage-grouse population success in much of its occupied habitat. (Coates and Delehanty 2010; Coates et al. 2008; Dinkins et al. 2012; Kolada et al. 2009; Kolada et al 2009b; Moynahan et al. 2007; Willis et al. 1993). In particular the impacts of predation on sage-grouse can increase where habitat quality has been compromised by anthropogenic activities (Coates 2007, Bui 2009, Hagen 2012).

**Conservation Objective:** Minimize the effects of predation on isolated, translocated, or declining populations where predation has been identified as the limiting factor. Reduce direct mortality to individuals and broods.

**Conservation Measures:**

54. Minimize attractants for corvids, raptors, and coyotes (i.e., dump sites, bone piles, etc.).
55. Utilize predator management programs when documented as a limiting factor on sage-grouse populations. If poor habitat conditions are causing a predator problem, habitat conditions should be addressed first if possible, or jointly or shortly after predator control. Predator management includes lethal and non-lethal methods (see ODFW Strategy - Hagen 2011). Consult with ODFW or other relevant Permitting agency for



predator control.

**Threat: West Nile Virus (WNV)** - Sage-grouse immune systems lack resistance to WNV. Surface water developments may increase habitat for mosquitoes, increasing the potential for WNV exposure.

**Conservation Objective:** Reduce potential for direct mortality and/or disease transmission.

**Conservation Measures:**

56. Minimize unnecessary standing water that could be used as mosquito breeding grounds within sage-grouse habitat. Where new pond construction or water developments are proposed for rangeland management or habitat enhancement purposes, use innovative designs, when possible, to minimize the amount of mosquito habitat that could be created. Work with agency biologists on optimal locations for new water developments.

**Threat: Feral Horses and Burros** - Concentrated or overabundant feral horse and burro populations can reduce habitat quality and quantity.

**Conservation Objective:** Reduce impacts to sage-grouse habitat.

**Conservation Measures:**

57. Document and report habitat damage on DSL managed lands from feral horses and/or burros.
58. On DSL managed lands where baseline inventory, annual, or habitat monitoring indicate feral horses may affect sage-grouse habitat, ensure all findings are reported to BLM. When habitat monitoring indicates negative impacts from feral horses, DSL and FWS will provide written recommendations to BLM recommending gathering of feral horses and/or burros.
59. To maintain and or improve sage-grouse habitat on DSL managed lands with feral horses, DSL and FWS will submit recommendations in writing to BLM to manage feral horse and/or burro numbers for long term management at or below the appropriate management level.
60. When habitat monitoring indicates damage from feral horses and/or burros on DSL managed lands, DSL and FWS will submit written recommendations to the BLM to relocate feral horses and/or burros from affected land.

**Threat: Insecticide** - Grasshoppers and Mormon crickets periodically have infestations which cause significant long term damage to sagebrush. The use of insecticides is not known to pose range-wide threats to sage-grouse. However, insecticides have been documented as causing mortality to sage-grouse. Some insecticides could have detrimental effects to individual sage-grouse through direct contact, either by consumption of insects exposed to certain insecticides or by reduction of insect populations during times when insects are a crucial part of the birds' diets (see FWS March 2010 finding).

**Conservation Objective:** Maintain important sage-grouse forage base and avoid or minimize direct mortality to sage-grouse.

**Conservation Measures:**

61. If possible, contract with Animal and Plant Health Inspection Service (APHIS) and/or Oregon Department of Agriculture (ODA) for all insecticide treatments.
62. Consult with ODA, and APHIS. Avoid carbaryl/malathion; use diflubenzuron (Dimilin) if at all possible.

- 63. Work with agency specialists to plan and design control efforts to avoid harming sage-grouse and non-target species.
- 64. Avoid spraying treatment areas in May and June (or as appropriate to local circumstances) to provide insect availability for early development of sage-grouse chicks.
- 65. Use approved chemicals with the lowest toxicity to sage-grouse that still provide effective control.
- 66. When feasible and as outlined by APHIS or ODA, use Reduced Area/Agent Treatments (RAAT) to control grasshoppers, which focuses control efforts along strips to avoid spraying entire fields.



## **APPENDIX B - Parcel/Pasture Sage-grouse Habitat Assessment**

### **Sage-Grouse Habitat Assessment (SGHA)**

The Conservation Measures listed in Appendix A of the Candidate Conservation Agreement (CCAA) between DSL and USFWS will be applied where applicable on this parcel/leasehold of DSL rangelands. In the event a habitat threat is identified or a specific conservation measure needs addressed it will be identified in the Management Considerations section below.

**Date completed:**

**Forage Lease number:**

**Leasehold name/portion of leasehold:**

**County:**

**Is parcel in Core Habitat/PPH or Low density/PGH?**

**Suitability Class:**

**Ecological State:**

**Habitat Threats:**

**Specific Conservation Measures:**

**Management Considerations:**

**State and Transition**

## APPENDIX C – State & Transition Models

The **overall management goal** is to facilitate maintenance of, or transition to, a desired ecological state (state “A” or “B”) using an ecologically-based model (see state and transition diagrams for low elevation, high elevation, and riparian habitat shown in Figures 2-4) that can serve the habitat needs of sage-grouse. Once this state is achieved, additional conservation measures may be used to further increase the quality/value of sage-grouse habitat (e.g., timing of grazing in nesting habitat) or mitigate species-specific threats (e.g., raptor perches in the vicinity of critical habitat). However, focusing on species-specific conservation measures in habitat that is in or at risk of transition to a non-desired state (states “C”, “D”, or “E”) can divert resources from addressing underlying ecological issues that ultimately define the current and future value of such habitats to sage-grouse and other sagebrush obligate wildlife species. For this reason, an ecologically-based model will be used to determine inventory, monitoring, and conservation needs for each parcel or pasture during baseline inventory.

The states in the models will be determined by a combination of information including: 1) NRCS ecological site descriptions; 2) data collected during the baseline inventory; 3) best professional judgment; 4) local climatic variation; 5) site history and other information collected as outlined in *Section 6. Inventory and Monitoring Protocols*, of this CCAA. Recovery of shrub-steppe habitat is slow (varies greatly from 20 -100 years depending on pre-disturbance state) and the CCAA is a 30-year Permit, therefore the threshold for meeting the objectives in states A or B is that the vegetation on the site is trending towards the desired plant community. The restoration potential of the other states (C, D & E) depends on the degree of degradation; objectives for states C, D, & E will need to be based upon degree of degradation and probability of success of treatments.

### ***Ecological States and their relationship to sage-grouse habitat***

It is important to note that much of the knowledge base concerning vegetation composition and structure in habitats used by sage-grouse has been based on small (patch) scale measurements that reflect the immediate vicinity of the location of radio-marked or flushed birds (e.g., Gregg et al. 1994; Sveum et al. 1998; for detailed information on sage-grouse habitat at the patch scale see Connelly et al. 2000 and Hagen et al. 2011). This is significant because large-scale monitoring efforts (including procedures described in this document) are most feasible at the plant community scale or larger and current knowledge of successional change in the sagebrush steppe is firmly based on relationships described at the plant community scale. This discrepancy in scale can lead to problems when plant composition at the plant community scale is expected to conform to idealized vegetation attributes based on smaller scale measurements. For example, working at the community scale, Davies et al. (2006) examined over 100 “late-seral” Wyoming big sagebrush communities and reported that: “No sites met the nesting or optimum brood-rearing habitat vegetation cover values suggested by Bureau of Land Management (2000). Mesic and arid breeding vegetation cover values suggested by Connelly et al. (2000) were met by 0% and 18% of the sites, respectively”. Additionally, in a meta-analysis of sage-grouse nesting and brood rearing habitats Hagen et al. (2007) determined that sagebrush cover, grass cover and grass height was greater at nest sites than at random points and vegetation at brood areas contained less sagebrush, taller grasses and greater grass and forb cover than random sites. Understanding the optimum mix and spatial arrangement of these communities and their effects



on demographic rates in a landscape could substantially enhance sage-grouse management. Furthermore, in the 2010 Warranted but Precluded Finding USFWS identified threats contributing to sage-grouse habitat fragmentation and loss that occur at the plant community and larger scales. The Finding went on to suggest that local regulatory mechanisms be developed/strengthened to address known threats to sage-grouse. Such mechanisms will logically occur at scales consistent with the identified problems. It thus follows that assessment of habitat and monitoring of the effectiveness of implemented conservation measures will be conducted at a scale consistent with the identified threats and the conservation measures designed to address those threats. Therefore, the focus in this document is at the scale of the plant community and the monitoring procedures reflect that scale-specific focus. Thus, the intent is to use best available knowledge to promote a sustainable composition of plants (termed “states” in these models) that provides elements necessary for sage-grouse habitat at the plant community scale.

The use of a color-coding system to label habitats as year-around (green), seasonal (yellow), or non-habitat (red) is based on the presumption of the presence or absence of specific vegetation components that comprise different elements of sage-grouse habitat. Those presumptions are based on characterizations of sage-grouse habitat elements as described by Crawford et al. (2004). Focusing on the low and high elevation models, different habitat needs with different vegetation states can be associated, and the sum of those associations can be used to broadly characterize habitat as year-around, seasonal, or non-habitat. However, just because a state may be suitable for, for example, nesting habitat, that doesn’t mean that it is currently being used or will be used in the future for nesting purposes. That said, in both the *low middle and high elevation models*, *states A and B* have the potential to support *nesting activities*, although the suitability of state B for this purpose could be limited by sagebrush abundance in some cases. *Brood-rearing habitat* could occur in either *state A or B*, *although riparian areas in other states* have potential to provide late season brood-rearing habitat. For the *low elevation model*, *winter habitat* will be associated primarily with states *A and B*. For the *mid elevation model*, *winter habitat* will be associated primarily with states *A and B*, and in the *high elevation model* *winter habitat* would be mainly in *state A*.

#### ***Breeding Habitat:***

- 1) During the spring lekking period, sage-grouse use areas of low-statured vegetation (both shrubs and herbaceous) for purposes of display and breeding. There is strong fidelity to particular lekking sites and this habitat type is rarely limited on a landscape basis. Nesting habitat can be thought of as being comprised of two distinct time elements.
- 2) During the pre-laying period, which is the month prior to actual nesting, female sage-grouse continue to eat sagebrush but focus a growing portion of their diet on protein-rich forbs, which are thought to increase the nutritional status of the birds prior to the upcoming nesting period.
- 3) Sage-grouse typically nest under mature sagebrush, or in some cases other shrubs, and during the nesting period rely on perennial bunchgrasses in the immediate vicinity of the nest to provide screening cover from nest predators. Potential cover and height values for perennial grasses will vary strongly based on both ecological site and yearly conditions. Nests are often located near (e.g., < 3 km) lekking sites, but hens may move large distances from leks for nesting purposes. Mature sagebrush with umbrella-shaped

canopies may provide increased screening cover of nests and this canopy shape also helps to decrease grazing of under-shrub screening cover by cattle (France et al. 2008).

### ***Brood Rearing Habitat:***

1. As with nesting, the brood-rearing period can be broken into distinct time phases. During **early brood-rearing**, the diet of chicks is focused on forbs and insects (chicks are actually obligate insectivores for roughly the first two weeks of life). From a vegetation standpoint, these habitats are often represented by areas of reduced sagebrush canopy cover, with increased herbaceous expression. As the growing season progresses, broods move into **late brood rearing habitat**, which is determined largely by the presence of succulent vegetation; primarily forbs, although some sagebrush is consumed. This succulent vegetation is often associated with riparian areas or seeps, however, broods may also migrate up in elevation, effectively staying ahead of the advancing desiccation.

### ***Winter Habitat***

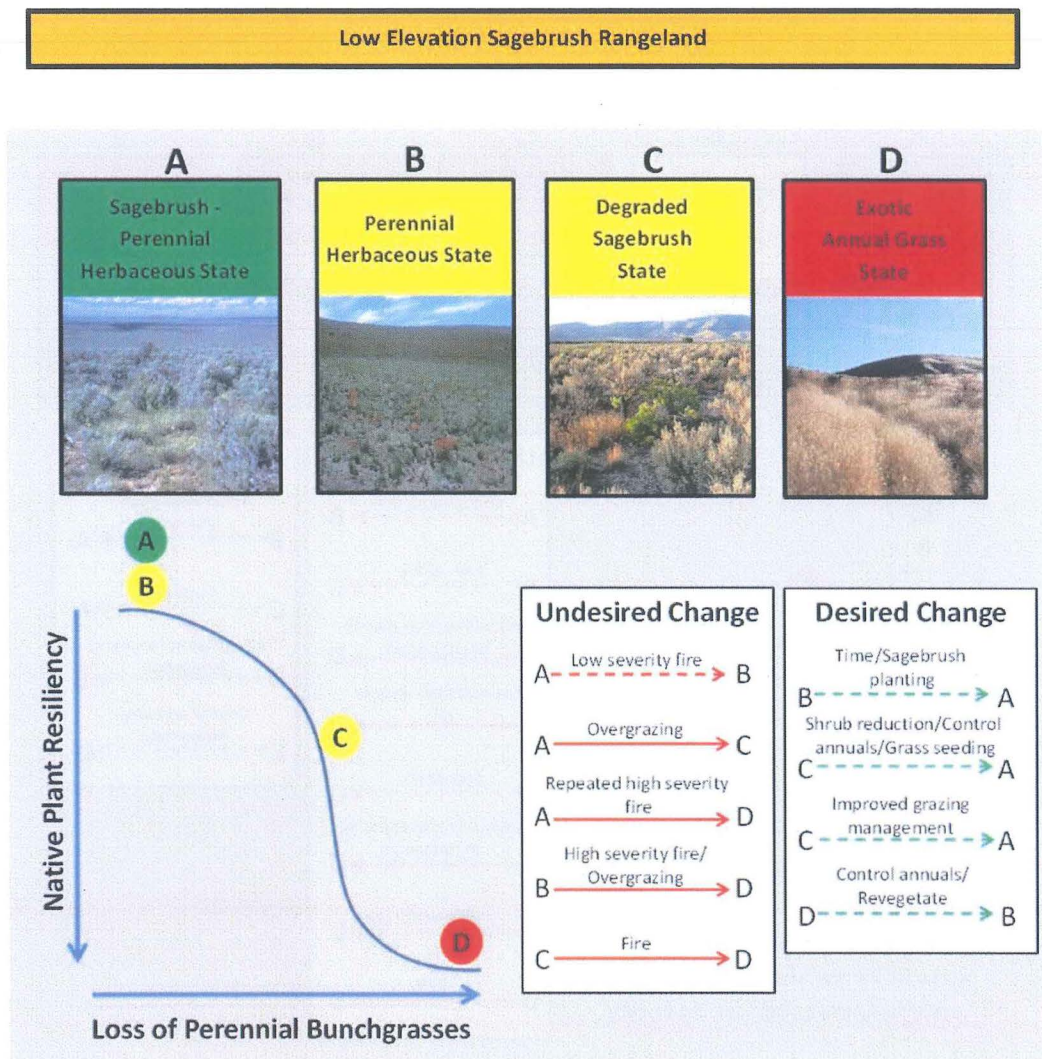
- The critical vegetation component during the **winter period** is sagebrush, given that winter diets are comprised almost entirely of sagebrush. Shrub height may or may not be important, depending on context. On sites with deep snow, a certain height is obviously necessary to ensure food availability and mature big sagebrush (*Artemisia tridentata* Nutt. ssp.) is of high importance, however, sage-grouse have also been reported to use smaller-statured low sagebrush (*Artemisia arbuscula* Nutt.) on wind-swept ridges with minimal snow cover.

### ***Interpretation***

While state and transition models are typically viewed as being site specific, it is critical to recognize the consequences of spatial connectivity between vegetation states across the larger landscape. For example, a low elevation vegetation community in state “A” provides for year-around sage-grouse habitat. However, if a given community in this state is set within a larger landscape comprised mainly of low elevation state “C” (i.e., annual grass-dominated), then fire risk to state “A” will increase dramatically, suggesting that conservation measures to reduce annual grass abundance in the larger landscape will have significant implications to the security of State A. This example illustrates that conservation measures may have value to sustaining existing sage-grouse habitat, even if these measures are applied in locations that are currently non-habitat, and reinforces the importance of considering spatial connectivity between vegetation communities across the landscape when defining threats and associated conservation measures. This same concept can also be applied over time. For example, during wet years fuel accumulations across the landscape may be high enough to create high fire danger for most vegetation communities, regardless of what “state” they are in. In such cases, conservation measures to reduce fuel loading could be applied generally, regardless of vegetation state, to reduce risk of wildfire. This example illustrates that conservation needs vary over time and that application of conservation measures must take place within the framework of adaptive management.

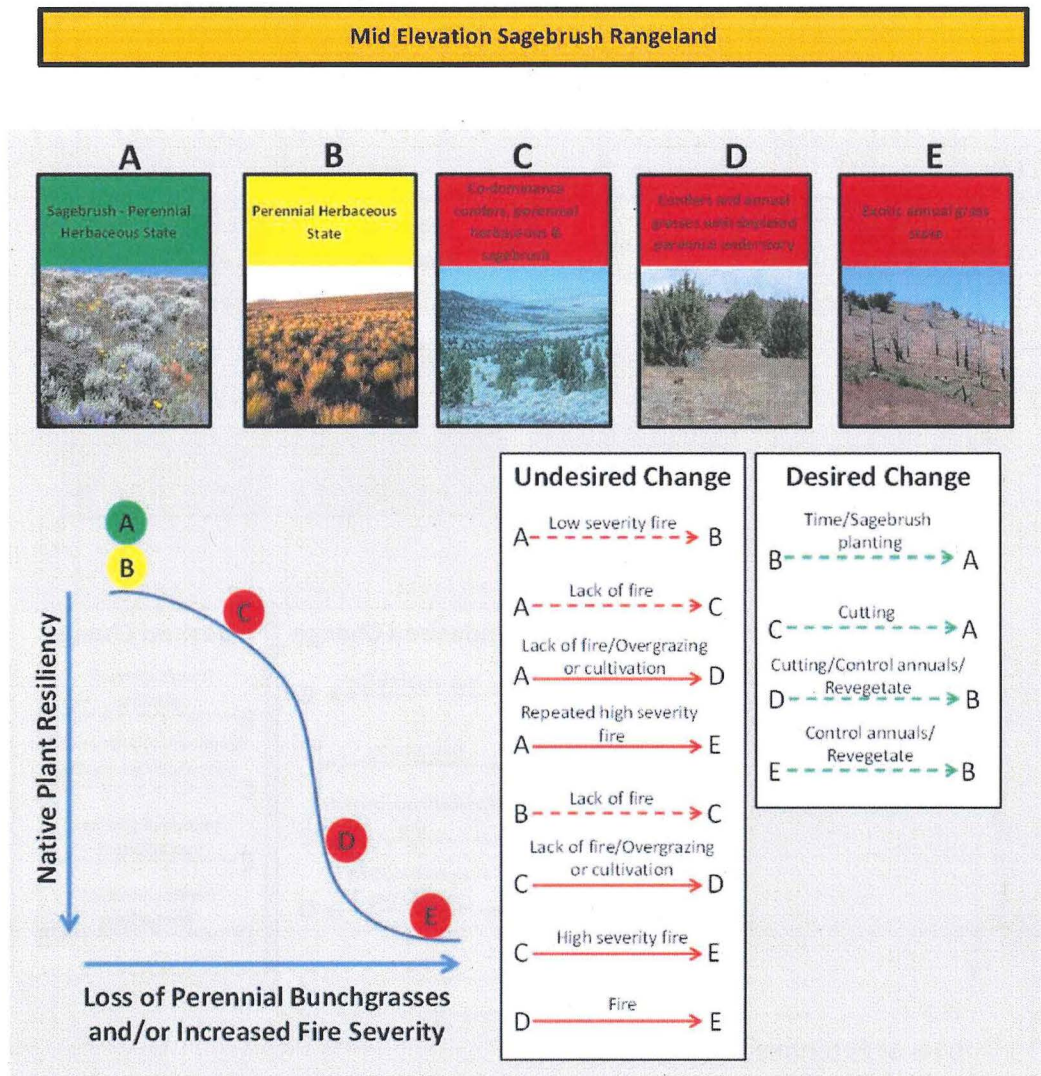


**Figure 7: Low elevation state and transition model.**



Conceptual ecological framework for managing sage-grouse habitat using a generalized state-and-transition model for **low elevation sagebrush plant communities in Oregon with warm and dry or cool and dry soil temperature/moisture regimes** (Miller et al. 2013). Resiliency will be lower for communities on warm and dry sites. States (top) shaded in green indicate potential year-round habitat suitability for sage-grouse. States in shaded yellow and red indicate potential seasonal habitat and non-habitat, respectively. "Native plant resiliency" (lower left) indicates the relative likelihood of a plant community to recover to a native plant-dominated state following disturbance and decreases with loss of large perennial bunchgrasses. Persistent transitions (lower right) between states are depicted with solid arrows, while non-persistent transitions are arrows with dotted lines.

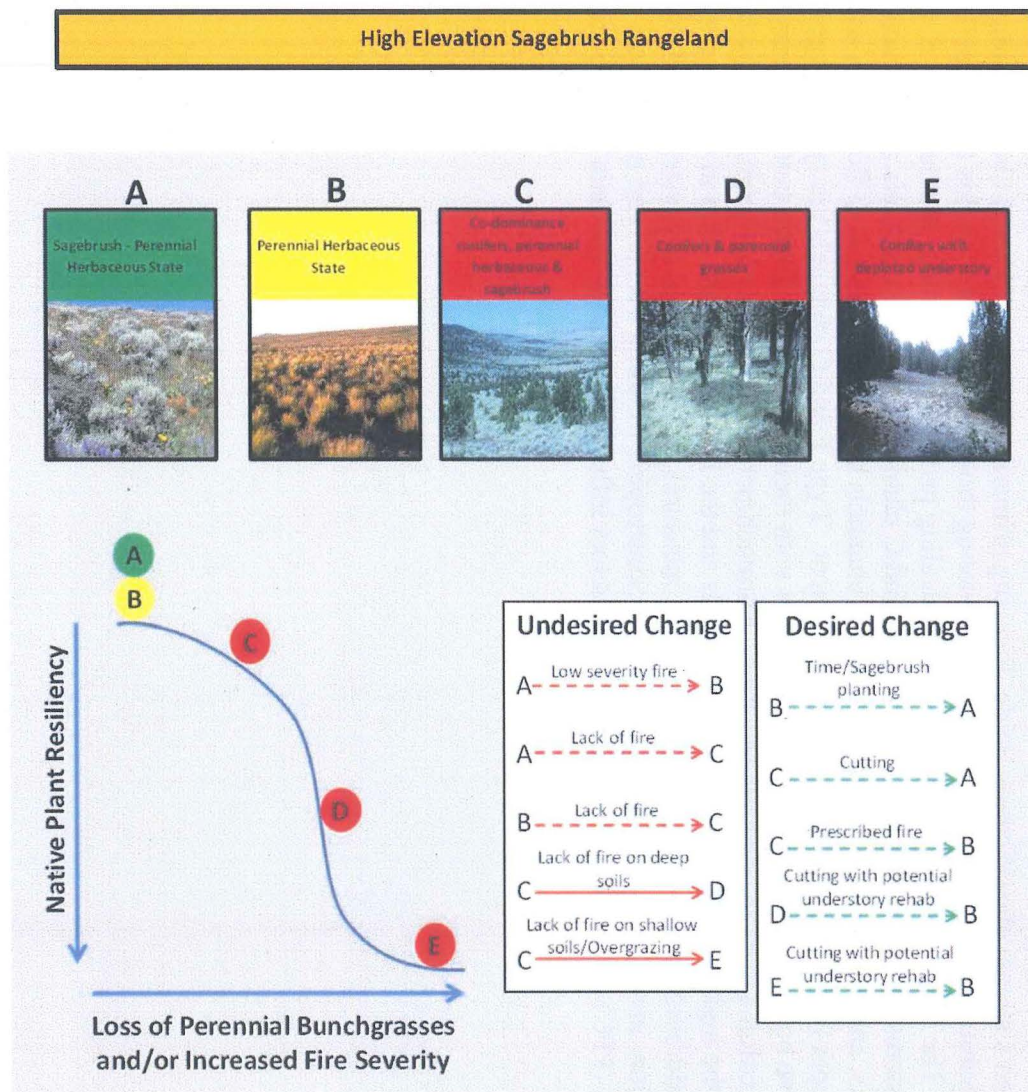
**Figure 8: Mid elevation sagebrush state and transition.**



Conceptual ecological framework for managing sage-grouse habitat using a generalized state-and-transition model for **mid to high elevation sagebrush plant communities in Oregon with a warm and moist soil temperature/moisture regime** (Miller et al. 2013) in Oregon. States (top) shaded in green indicate potential year-round habitat suitability for sage-grouse. States in shaded yellow and red indicate potential seasonal habitat and non-habitat, respectively. "Native plant resiliency" (lower left) indicates the relative likelihood of a plant community to recover to a native plant-dominated state following disturbance and decreases with loss of large perennial bunchgrasses and increasing fire severity. States with increased woody plant fuel loading (e.g. D) can be less likely to burn due to decreased fine fuel loading, but more likely to experience higher severity fire when they do burn (Miller et al. 2008). Persistent transitions (lower right) between states are depicted with solid arrows, while non-persistent transitions are arrows with dotted lines. Warm and dry sites often occur at the same elevation as cool and moist conditions, with differences being driving largely by aspect or other abiotic factors. Prescribed fire is depicted as a management option for reducing conifers on cool and moist sites, but not warm and dry sites, due to the potential for transition to annual grass dominance with fire in the latter.



**Figure 9: High Elevation Sagebrush Rangeland**



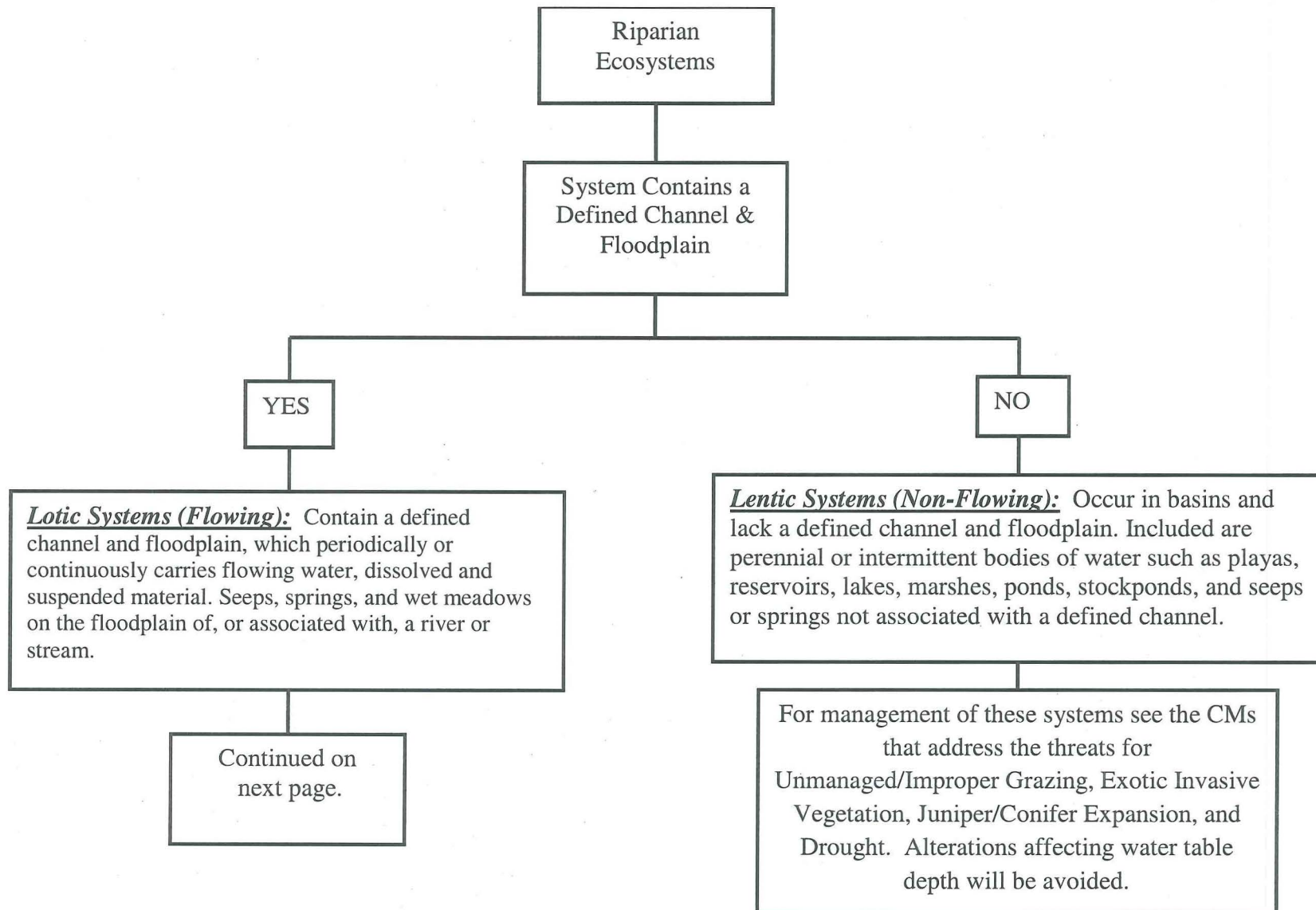
Conceptual ecological framework for managing sage-grouse habitat using a generalized state-and-transition model for **high elevation sagebrush plant communities in Oregon with a warm/cool and moist soil temperature/moisture regime** (Miller et al. 2013) in Oregon. States (top) shaded in green indicate potential year-round habitat suitability for sage-grouse. States in shaded yellow and red indicate potential seasonal habitat and non-habitat, respectively. "Native plant resiliency" (lower left) indicates the relative likelihood of a plant community to recover to a native plant-dominated state following disturbance and decreases with loss of large perennial bunchgrasses and increasing fire severity. States with increased woody plant fuel loading (e.g. D and E) can be less likely to burn due to decreased fine fuel loading, but more likely to experience higher severity fire when they do burn (Miller et al. 2008). Persistent transitions (lower right) between states are depicted with solid arrows, while non-persistent transitions are arrows with dotted lines.

### Figure 10: Riparian state and transition model

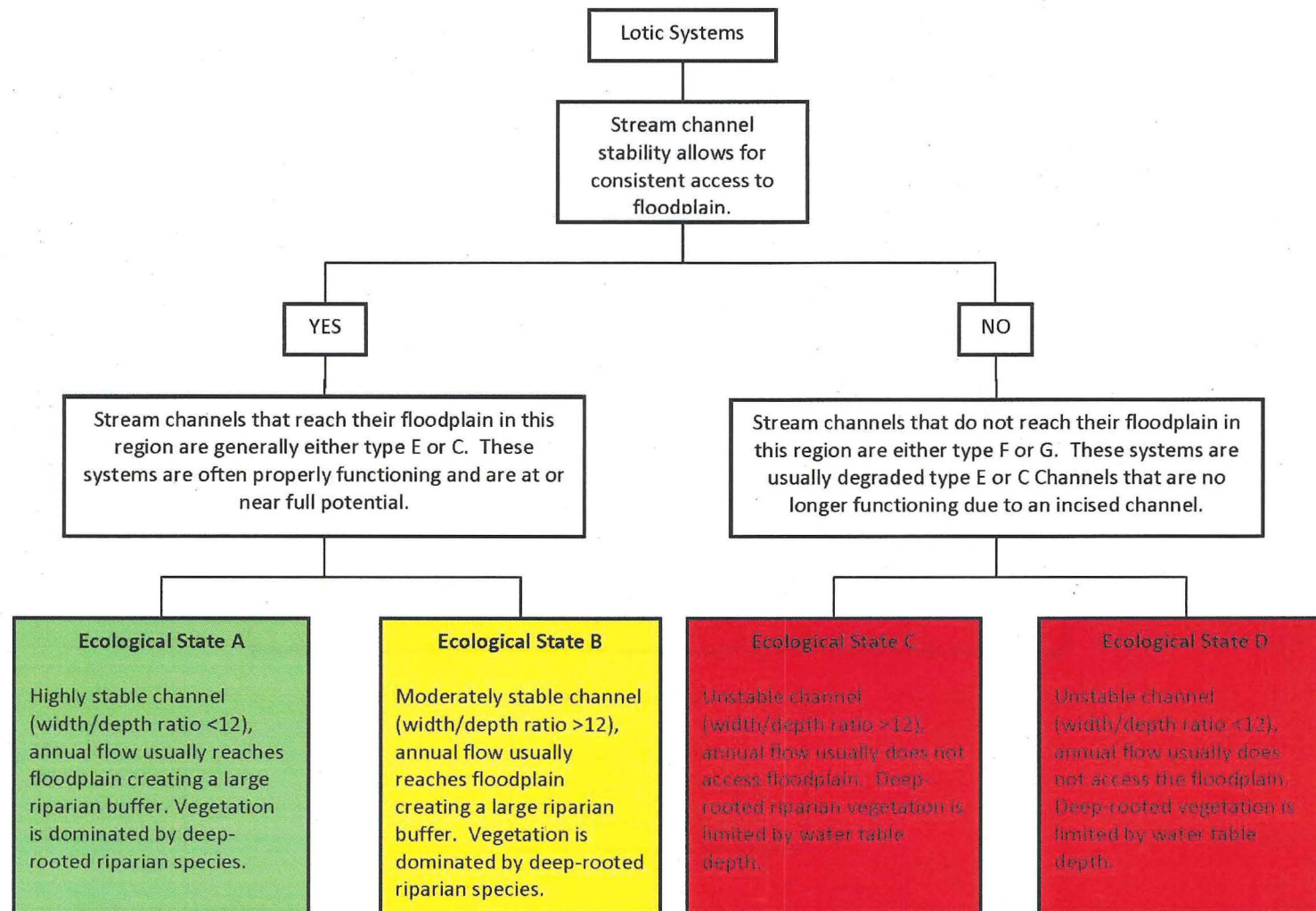
The **management goal** is to facilitate maintenance of, or transition to, a desired riparian state using a hydrology-based model. These states will be determined using Rosgen's stream classification guide, focusing primarily on stream channel classifications that can serve or have the potential to serve the habitat needs of sage-grouse and exclude/ing those not applicable to this area (type D) or too high gradient (type A and B channels). The Southeast Oregon region will be dealing primarily with lower gradient type E, C, F, and G channels. The functional riparian systems will be characterized by type E and C channels. E shape channels are characterized by their high sinuosity, well-vegetated banks, and low width/depth ratio. C shape channels have similar access to floodplain and well-vegetated banks, but have a higher width/depth ratio and possible slight entrenchment. Type F and G channels are typically going to be degraded C or E channel streams that have been incised and lost regular contact with their flood plain. Down cutting lowers the water table and prevents riparian bank vegetation access to adequate moisture. Entrenchment is the major characteristic of both F and G channel shapes. The major difference is the high width/depth ratio of F channels and the low width/depth ratio in G channels. Transitions between riparian states can be addressed through various conservation measures, which address ecosystem threats such as unmanaged grazing, juniper/conifer expansion, invasive vegetation management, catastrophic flooding events, and mechanical degradation. Proper Functioning Condition (PFC) can be utilized to identify the factors influencing change between riparian states and direct future conservation strategies.



Figure 10: Riparian State and Transition Model



**Figure 11: Lotic Systems State and Transition Model**





## **APPENDIX D – Inventory & Monitoring**

DSL utilizes multiple techniques for inventorying and monitoring rangelands. This CCAA provides DSL with the flexibility to employ the most efficient, generally accepted rangeland monitoring methodologies to measure change in ecological states as related to specific objectives.

### **Upland Monitoring**

- Leasehold Inventory (baseline) (Appendix D-1): Through the 2013-14 forage lease expiration/renewal process, all DSL forage leases set to expire in 2015, will be inventoried and mapped. Information including ecological state is being gathered which will provide baseline data for establishing apparent trend to meet the requirements of this CCAA. Documenting site conditions, inventorying improvements, determining range condition, and determining ecological state and habitat threats is the primary objective. General dated photos are taken of leaseholds to display ecological sites and documenting existing improvements. By completing this form, establishing a basic ecological state can be achieved to establish an apparent trend which can then be compared to future visits to determine trend.
- Annual Monitoring: The basic methods for upland trend monitoring used in this CCAA are the Rangeland Monitoring Report and/or the Utilization/Pace 180° with ocular utilization and cover estimates with transect photos.
  - a. The Rangeland Monitoring Report form (Appendix D-2) is a qualitative procedure for documenting various attributes and observations while visiting a leasehold or parcel. This form is completed on all site visits in combination with the Utilization/Pace 180°. The exception is through the range assessment/inventory process where this form would not be completed. Some of the data summarized pertains primarily to visit objectives, rangeland comments, wildlife observed, weather comments, range condition and various questions on livestock grazing practices. General landscape photos of parcel would be associated with this form in addition to any photos taken to compliment objectives of site visit.
  - b. The Utilization/Pace 180° (Appendix D-3) is a quantitative process for monitoring utilization and ground cover. The protocol to measure the utilization and cover estimates is to choose a transect location; stop every ten steps and record ocular estimates for utilization and cover. This method provides an estimate of ground cover (bare ground, litter, rock, perennial vegetation, annual vegetation, moss, and biological soil crusts), canopy cover of perennial herbaceous plants (grasses and grass-like plants and forbs), woody species (trees and shrubs), and perennial plant composition (see Johnson & Sharp, 2012). In addition; range condition, sagebrush classification (ODFW), percent decadent shrubs, current ecological state and habitat threats are also evaluated.
- Long-term Monitoring: Rangeland Analysis involves establishing apparent trend on both blocked leaseholds and isolated parcels where core habitat exists. This process is accomplished through a process developed from the NRCS protocols in the National Range and Pasture Handbook and initiated in in 2001 to inventory/assess rangeland health.

- The Rangeland Analysis process is done annually on approximately 30,000 acres of blocked leaseholds. This process essentially gathers basic vegetation data including plant identification, plant composition, canopy and basal cover, and determines stocking rates per particular Response Unit or ecological site. A copy of the analysis form is attached in Appendix D-4. Baseline vegetative data that is gathered in this process establishes apparent trend for each Response Unit or ecological site future monitoring will determine trend on these sites.
- Repeat Photo Monitoring: Repeat photo monitoring involves establishing a permanent photo plot and periodically taking both ground level and landscape or transect view photographs. Comparing pictures of the same site taken over a period of years provides visual evidence of vegetation and soil trend. A properly located permanent photo point allows observation of changes in important rangeland attributes including plant species composition, total plant cover, perennial plant density, litter, spatial pattern of plants, plant vigor, and soil erosion.

### **Riparian Inventory and Monitoring**

DSL will utilize previously established permanent riparian monitoring areas. The permanent monitoring areas are the locations between established photo points at the beginning and end of a section or reach of riparian area. A Proper Functioning Condition (PFC) (Appendix D-5) report is completed on the section between the two photo points. Additional photo points will be established as necessary to accurately capture any changes or areas of concern in each riparian area section.

If the ocular assessment indicates an unstable stream state (i.e. *riparian ecological states C or D*) then it may require further assessment and conservation measures. If the stream is shown to be “functional-at risk” or “nonfunctional” according to PFC classifications, or requires change in management, a quantitative monitoring technique should be used to evaluate long-term trend.



### Appendix D-1 Department State Lands Leasehold Inventory Sheet

Lease # FL-_____	Reviewer/s: _____	Date: _____
Lessee: _____ Sub-Lessee: _____		

**1) Land Status-**

	Within leasehold boundary	Acreage	%	in AUM's Carry capacity	AUM's Reported
1.	State	_____	_____	_____	_____
2.	BLM	_____	_____	_____	_____
3.	Lessee private lands	_____	_____	_____	_____
4.	Other private lands	_____	_____	_____	_____
5.	<b>TOTALS</b>	_____	<b>100 %</b>	_____	_____

- 2) Does Lessee own adjacent lands used in conjunction with this Leasehold?** \_\_\_\_\_
- 3) Does Lessee use adjacent Federal lands in conjunction with this Leasehold?** \_\_\_\_\_

**4) Leasehold pasture summary (acres-ownership-range condition):**

Pasture name	State acres	Private acres	Fed acres	Total acres	*condition

Identify those acres by ownership landlocked within state pasture boundaries \*refer to section 16

**5) Structural Improvements (in miles/number for Blocked Leaseholds only):**

Type	Miles/#	Condition	Year const	Total
Boundary fence				
Division fence				
Cattle guard				

**6) Non-structural improvements (acres):**

Type	#acres	Condition	Year const	Total
Seeding				
Juniper thinning				
Brush control-spray				
Brush control-mow				
Fire rehab				
Weed treatment				

**7) Water Features used in conjunction with mgmt. of state lands (unit or miles):**

Type: _____	State	Federal	Private	Condition	Total
-------------	-------	---------	---------	-----------	-------

Reservoirs \_\_\_\_\_

Stock ponds \_\_\_\_\_

Stock tanks \_\_\_\_\_  
 Dug outs \_\_\_\_\_  
 Wells \_\_\_\_\_  
 Springs \_\_\_\_\_  
 Developed springs \_\_\_\_\_  
 Waterlines \_\_\_\_\_  
 Perennial streams \_\_\_\_\_  
 Other \_\_\_\_\_

**TOTALS**

**8) Acts of God (acres):**

Type	State	Federal	Private	Year	Rehab	Total
Wildfire						
Insect infestation						
Other						
<b>TOTALS</b>						

**9) Monitoring summary:**

Photo Stations present \_\_\_\_\_ how many? \_\_\_\_\_ Last year taken \_\_\_\_\_  
 Are additional photo stations needed? \_\_\_\_\_  
 Actual Use Record (last 15 years):  
     Number year's reported \_\_\_\_\_ Average AUM's leasehold \_\_\_\_\_  
     Monitoring reports; year's completed \_\_\_\_\_  
     Trend Monitoring; year's completed \_\_\_\_\_ Ave apparent Trend \_\_\_\_\_  
     Utilization monitoring; years completed \_\_\_\_\_ Ave utilization level \_\_\_\_\_

**10) Plant/animal species of interest (T&E species, candidate species etc.):**

Plants:  
 Species \_\_\_\_\_ Field verified \_\_\_\_\_ ORBIC \_\_\_\_\_ Year \_\_\_\_\_  
 Protection considerations \_\_\_\_\_

Fish & Wildlife:  
 Species \_\_\_\_\_ Field verified \_\_\_\_\_ ORBIC \_\_\_\_\_ Year \_\_\_\_\_  
 Protection considerations \_\_\_\_\_

Specific wildlife designations present? \_\_\_\_\_ describe: \_\_\_\_\_

Sage-grouse habitat: \_\_\_\_\_ acres in Core Habitat \_\_\_\_\_ Low Density \_\_\_\_\_  
 Are sage-grouse present on leasehold? \_\_\_\_\_ pastures \_\_\_\_\_ season \_\_\_\_\_

**11) Geologic Resources**

Present: \_\_\_\_\_ Type \_\_\_\_\_  
 Describe- \_\_\_\_\_

**12) Historical/archeological resources**

Present \_\_\_\_\_ Type \_\_\_\_\_ Location \_\_\_\_\_



Describe \_\_\_\_\_  
\_\_\_\_\_

**13) Recreational Uses:**

Hunting: \_\_\_\_\_

Big Game: \_\_\_\_\_

Upland Birds \_\_\_\_\_

Waterfowl \_\_\_\_\_

Fishing: Lake/Reservoir \_\_\_\_\_ Stream/River \_\_\_\_\_

Camping \_\_\_\_\_ #established campsites \_\_\_\_\_

ATV/OHV \_\_\_\_\_ Degree of use: Extensive \_\_\_\_\_, Mod \_\_\_\_\_, slight \_\_\_\_\_

**14) ATV/OHV/camping**

Use causing resource damage? \_\_\_\_\_ Rate: Extensive \_\_\_\_\_ Mod \_\_\_\_\_, slight \_\_\_\_\_

Use in local area associated with camping areas? \_\_\_\_\_

**15) Special designations/attractions:**

describe: \_\_\_\_\_  
\_\_\_\_\_

**16) RANGE CONDITION:**

Summarize and rate entire leasehold based on State and Transition range condition (EXC=75-100% potential native plant community; GOOD= 50-75%; FAIR= 25-50%; POOR= <25%)

Entire leasehold Exc \_\_\_\_\_ Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Site at full potential? YES \_\_\_\_\_ NO \_\_\_\_\_

**17) Management Considerations:**

Current grazing season: Spring \_\_\_\_\_ Summer \_\_\_\_\_ Fall \_\_\_\_\_ Winter \_\_\_\_\_

Management Plan: \_\_\_\_\_ Management consistent with current Plan \_\_\_\_\_ (describe)  
\_\_\_\_\_  
\_\_\_\_\_

Riparian concerns? \_\_\_\_\_

Is there specific plant communities that need special management considerations? \_\_\_\_\_

(Describe) \_\_\_\_\_  
\_\_\_\_\_

Current management consistent with other agencies land use plans? (TMDL, AWQMP, etc.) \_\_\_\_\_

Identify specific plan/s \_\_\_\_\_  
\_\_\_\_\_

**18) Ecological State:**

Sagebrush Species Present: \_\_\_\_\_  
\_\_\_\_\_

% Cover:

\_\_\_\_ > 10% \_\_\_\_ < 10% Est. total sagebrush cover \_\_\_\_\_ Est. % Decadent Sagebrush \_\_\_\_\_

\_\_\_\_ High Elevation Ecological State: A B C D E % Conifer cover \_\_\_\_\_

\_\_\_\_ Low Elevation Ecological State: A B C D E % Conifer cover \_\_\_\_\_

\_\_\_\_ Mid Elevation Ecological State: A B C D E % Conifer cover \_\_\_\_\_

Existing Suitable \_\_\_\_ Potentially Suitable \_\_\_\_ Unsuitable (non-habitat)

\_\_\_\_ Crested Wheatgrass Seeding \_\_\_\_ Greasewood/Saltgrass \_\_\_\_ Playa/lakebed

Describe Plant Community (list dominant species): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

19) **Habitat Threats:** ☐ Fragmentation ☐ Wildfire ☐ Recreation ☐ Invasive Species  
☐ Conifer Encroachment ☐ Juniper/Conifer Expansion  
☐ Vegetation Treatments ☐ Catastrophic Flooding  
☐ Improper Livestock Use ☐ Feral Horses/Burros ☐ Other: \_\_\_\_\_

Type of Improvement	Units	Estimated Cost
---------------------	-------	----------------

**21) Provide weather comments including temperature on day of field visit-annual weather patterns prior to field visit, including annual/growing season precipitation.**

- 22) **On back page or separate sheet of paper summarize above resources including any inputs that may be needed to improve leasehold/lease area. Provide any additional comments.**

Oregon Greater Sage-grouse Candidate Conservation Agreement with Assurances



**For leaseholds with multiple pastures or ecological areas**

**RANGE CONDITION:**

Summarize and rate individual pastures or ecological areas based on State and Transition range condition (EXC=75-100% potential native plant community; GOOD= 50-75%; FAIR= 25-50%; POOR= <25%)

**Pasture/ Area name:** \_\_\_\_\_

**Range condition:** Exc \_\_\_\_\_ Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

**Ecological State:**

Sagebrush species present: \_\_\_\_\_

**% Cover:**

\_\_\_\_ > 10% \_\_\_\_ < 10% Est. total sagebrush cover \_\_\_\_\_ Est. % Decadent Sagebrush \_\_\_\_\_

\_\_\_\_ High Elevation Ecological State: A B C D E % Conifer cover \_\_\_\_\_

\_\_\_\_ Low Elevation Ecological State: A B C D % Conifer cover \_\_\_\_\_

\_\_\_\_ Mid Elevation Ecological State A B C D E % Conifer cover \_\_\_\_\_

\_\_\_\_ Existing Suitable \_\_\_\_ Potentially Suitable \_\_\_\_ Unsuitable (non-habitat)

\_\_\_\_ Crested Wheatgrass Seeding \_\_\_\_ Greasewood/Saltgrass \_\_\_\_ Playa/lakebed

Describe Plant Community (list dominant species): \_\_\_\_\_

**Habitat Threats:** \_\_\_\_ Fragmentation \_\_\_\_ Wildfire \_\_\_\_ Recreation \_\_\_\_ Invasive Species  
\_\_\_\_ Conifer Encroachment \_\_\_\_ Juniper/Conifer Expansion  
\_\_\_\_ Vegetation Treatments \_\_\_\_ Catastrophic Flooding  
\_\_\_\_ Improper Livestock Use \_\_\_\_ Feral Horses/Burros \_\_\_\_ Other: \_\_\_\_

**Pasture/ Area name:** \_\_\_\_\_

**Range condition:** Exc \_\_\_\_\_ Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

**Ecological State:**

Sagebrush species present: \_\_\_\_\_

**% Cover:**

\_\_\_\_ > 10% \_\_\_\_ < 10% Est. total sagebrush cover \_\_\_\_\_ Est. % Decadent Sagebrush \_\_\_\_\_

\_\_\_\_ High Elevation Ecological State: A B C D E % Conifer cover \_\_\_\_\_

\_\_\_\_ Low Elevation Ecological State: A B C D % Conifer cover \_\_\_\_\_

\_\_\_\_ Mid Elevation Ecological State A B C D E % Conifer cover \_\_\_\_\_

Existing Suitable \_\_\_\_ Potentially Suitable \_\_\_\_ Unsuitable (non-habitat)

\_\_\_\_ Crested Wheatgrass Seeding \_\_\_\_ Greasewood/Saltgrass \_\_\_\_ Playa/lakebed

Describe Plant Community (list dominant species): \_\_\_\_\_

**Habitat Threats:** \_\_\_\_ Fragmentation \_\_\_\_ Wildfire \_\_\_\_ Recreation \_\_\_\_ Invasive Species  
\_\_\_\_ Conifer Encroachment \_\_\_\_ Juniper/Conifer Expansion  
\_\_\_\_ Vegetation Treatments \_\_\_\_ Catastrophic Flooding  
\_\_\_\_ Improper Livestock Use \_\_\_\_ Feral Horses/Burros \_\_\_\_ Other: \_\_\_\_

**Pasture/ Area name:** \_\_\_\_\_

**Range condition:** Exc \_\_\_\_\_ Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

**Ecological State:**

Sagebrush species present: \_\_\_\_\_

**% Cover:**

☐ > 10% ☐ < 10% Est. total sagebrush cover \_\_\_\_\_ Est. % Decadent Sagebrush \_\_\_\_\_  
☐ High Elevation Ecological State: A B C D E % Conifer cover \_\_\_\_\_  
☐ Low Elevation Ecological State: A B C D % Conifer cover \_\_\_\_\_  
☐ Existing Suitable ☐ Potentially Suitable ☐ Unsuitable (non-habitat)  
☐ Crested Wheatgrass Seeding ☐ Greasewood/Saltgrass ☐ Playa/lakebed  
Describe Plant Community (list dominant species): \_\_\_\_\_

**Habitat Threats:** ☐ Fragmentation ☐ Wildfire ☐ Recreation ☐ Invasive Species  
☐ Conifer Encroachment ☐ Juniper/Conifer Expansion  
☐ Vegetation Treatments ☐ Catastrophic Flooding  
☐ Improper Livestock Use ☐ Feral Horses/Burros ☐ Other: \_\_\_\_\_

**Pasture/ Area name:** \_\_\_\_\_

**Range condition:** Exc \_\_\_\_\_ Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

**Ecological State:**

Sagebrush species present: \_\_\_\_\_

**% Cover:**

☐ > 10% ☐ < 10% Est. total sagebrush cover \_\_\_\_\_ Est. % Decadent Sagebrush \_\_\_\_\_  
☐ High Elevation Ecological State: A B C D E % Conifer cover \_\_\_\_\_  
☐ Low Elevation Ecological State: A B C D % Conifer cover \_\_\_\_\_  
☐ Mid Elevation Ecological State: A B C D E % Conifer cover \_\_\_\_\_  
☐ Existing Suitable ☐ Potentially Suitable ☐ Unsuitable (non-habitat)  
☐ Crested Wheatgrass Seeding ☐ Greasewood/Saltgrass ☐ Playa/lakebed  
Describe Plant Community (list dominant species): \_\_\_\_\_

**Habitat Threats:** ☐ Fragmentation ☐ Wildfire ☐ Recreation ☐ Invasive Species  
☐ Conifer Encroachment ☐ Juniper/Conifer Expansion  
☐ Vegetation Treatments ☐ Catastrophic Flooding  
☐ Improper Livestock Use ☐ Feral Horses/Burros ☐ Other: \_\_\_\_\_



**Appendix D-2 OREGON DEPARTMENT OF STATE LANDS**

**Rangeland Monitoring Report**

**Leasehold:** \_\_\_\_\_ **Inspector:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Pasture(s):** \_\_\_\_\_

**Individuals Present:** \_\_\_\_\_

**Objective of Visit:** \_\_\_\_\_

**Rangeland Comments:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Wildlife Observed (where and type):** \_\_\_\_\_

\_\_\_\_\_

**Weather Comments:** \_\_\_\_\_

**Growing Season PPT (Below ave, Ave, Above Ave):** \_\_\_\_\_

**Effective late season PPT:** \_\_\_\_\_

**Range Condition: (% potential native plant community):**

\_\_\_ **Excellent (75-100%)** \_\_\_ **Good (50-75%)** \_\_\_ **Fair (25-50%)** \_\_\_ **Poor (<25%)**

**Resource conditions: (Vegetative conditions, wolfy plants/decadent shrubs, weeds):** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Photo Stations: Number Retaken** \_\_\_\_\_ **Number Established** \_\_\_\_\_

**Evaluation:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Livestock Present (where, number, brand):** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Grazing use (% utilization, distribution, season of use, etc.):** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Additional Comments:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Identified threats: (Circle those that apply)**

Fragmentation of Landscape	Wildfire	Exotic invasive species
Conifer encroachment-causing loss of sagebrush		Unmanaged and/or improper livestock grazing

**Indicate Suitability Group**

- Existing suitable
  - Low elevation A,B,D
  - Mid elevation A, B
  - High elevation A,B
  - Lotic riparian (consistent access to floodplain)
- Potentially suitable:
  - Low elevation C, E
  - Mid elevation C, D, E
  - High elevation C,D,E
  - Lotic riparian without consistent access to floodplain
- Persistently unsuitable
  - Permanently non-habitat





# Appendix D-3 Department of State Lands Utilization/Pace 180° Transect

Utilization/Pace 180 Form															
Leasehold															
Date															
Planner															
Transect Location:				Conifer cover		plant community									
growing season moisture		% decadent shrubs		Conifer phase											
Range Condition		Ecological State Low elevation		Suitability Group		Site at full potential									
Sagebrush classification		Ecological State High elevation		Identified threats											

Stop	Utilization estimates % grazed				Canopy Cover estimates					Basal Cover estimates						
	Species A % use	Species B % use	Species C % use	Species D % use	perennial grasses	annual grasses	shrubs	forbs	litter	TOTAL cover	bare ground	litter	rock gravel	bio crusts	TOTAL cover	
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																
17																
18																
19																
20																
average in %	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	-
species A=	species C=				species =											
	species B=		species D=		species =		species =									
Remarks																



# Appendix D-4 Department of State Lands Rangeland Analysis Form (5 pages)

GENERAL INFORMATION			GROWTH CURVE			STOCKING RATES							
LESSEE			Month	%Growth	%Cum	Lbs/Acre	% Used	Useable	Use Cum	H.E	AUMs/Ac	AUM Cum	
Pasture			Jan		0	0.0	100	0.0	0.0	25	0.00	0.00	
Date			Feb		0	0.0	100	0.0	0.0	25	0.00	0.00	
Range plot #			Mar		0	0.0	100	0.0	0.0	25	0.00	0.00	
Site name			Apr		0	0.0	100	0.0	0.0	25	0.00	0.00	
Site number			May		0	0.0	100	0.0	0.0	25	0.00	0.00	
Pasture type			Jun		0	0.0	100	0.0	0.0	25	0.00	0.00	
Township			Jul		0	0.0	100	0.0	0.0	25	0.00	0.00	
Range			Aug		0	0.0	100	0.0	0.0	25	0.00	0.00	
Section			Sep		0	0.0	100	0.0	0.0	25	0.00	0.00	
Latitude			Oct		0	0.0	100	0.0	0.0	25	0.00	0.00	
Longitude			Nov		0	0.0	100	0.0	0.0	25	0.00	0.00	
Elevation			Dec		0	0.0	100	0.0	0.0	25	0.00	0.00	
Veg state			COVER ESTIMATES										
Technician/s			Type	Grass/Gl	Forbs	Shrubs	Trees	*Litter	Crusts	Bare G	Gravel	Rocks	Total
CLIPPING DATA			Basal										
Grams Clipped			Canopy							N/A	N/A	N/A	
Conversion Factor	10.0												
Subtotal	0.0												
% Clipped			* % cover decedent sage: separate from total litter										
Green Wt	0.0												
Reconstituted Wt	0.0		growth form of sagebrush:										
			spreading form, few dead branches										
SIMILARITY INDEX			mix spreading/columnar growth										
Annual Production			tall columnar growth/dead branches										
Lbs Allowable	0.0		avg herbaceous grass/forb height										
Similarity Index	0.0		>8"	5-7"	<5"								

Soils pit description:

## NOTES:

ie/ variations in site, approx location, weather-current/recent, uniqueness, condition of area, grazing-lvst/wildlife, utilization levels

PLANT LIST / SIMILARITY INDEX											
Species Name scientific-	Clipped spp	%Comp	Green Weight	%Dry Weight	% Un- grazed	%Growth Done	% of Normal	Recon Factor	Recon Weight	Ref Lbs	Lbs Allowed
<b>GRASSES</b>											
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
<b>FORBS</b>											
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
<b>SHRUBS</b>											
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
<b>Trees</b>											
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
			0.0		1.00		1.00	0.00	0.0	0.0	0.0
<b>TOTAL</b>			0.0	0.0					0.0	0.0	0.0
Estimated comp/plant group	% clipped	% comp	NOTES: variations in species, species richness, uniqueness, inclusions, etc								
GRASSES											
FORBS											
SHRUBS											
TREES											
plant community description											



TREND DETERMINATION					
Attribute	Enter "1"				
Vigor	Good		Fair		Poor
Seedlings	Many		Some		None
Decadant Plants	None		Some		Many
Litter/residue	More		OK		Less
Invasive Plants	None		Some		Many
Soil Erosion	Slight		Mod		Severe
Soil Crusting	Slight		Mod		Severe
Soil Compaction	Slight		Mod		Severe
Bare Ground	Less		OK		More
Gullies/Rills	None		Few		Many
Soil Degradation	Slight		Mod		Severe

SUMMARY			
	Toward	N/A	Away
Trend	0	0	0
Check:	0		!!!!

<b>NOTES:</b>	uniqueness, observation of condition

HEALTH ASSESSMENT		Enter "1" Attributes						
Indicator	Ex	M-E	Mod	S-M	N-S	Soil	Hyd	Bio
1 Rills						S	H	
2 Water Flow						S	H	
3 Peds/Terr						S	H	
4 Bare Ground						S	H	
5 Gullies						S	H	
6 Wind Scour						S		
7 Litter Movement							H	
8 Soil Resistance						S	H	B
9 Soil Loss						S	H	B
10 Infil & Runoff							H	
11 Compaction						S	H	B
12 F/S Groups								B
13 Mortality								B
14 Litter Amount							H	B
15 Annual Prod								B
16 Invasive Plants								B
17 Reproduction								B

ATTRIBUTE SUMMARY					
Attribute	Ex	M-E	Mod	S-M	N-S
SSS	0	0	0	0	0
HF	0	0	0	0	0
BI	0	0	0	0	0
Check:	0				!!!!

SSS = Soil Site Stability  
 HF = Hydrologic Functioning  
 BI = Biotic Integrity

Ex = Extreme  
 M-E = Moderate to Extreme  
 Mod = Moderate  
 S-M = Slight to Moderate  
 N-S = None to Slight





WILDLIFE HABITAT VALUE RATING				
Inventory	Present		Future	Criteria
A-Ecological Condition				Excellent or Good=4, Fair=3, Poor=1
B-Grazing System				Proper use=4, moderate=2, improper=1
C-Plant Community				All Functional Groups=4, Most or some FG=2, Few FG=1
D-Human Disturbance				> 1 mile=4, w/in 1/2 mile=2, w/in 1/4 mile=1
E-Wildlife Drinking Water				< 1/4 mile=4, 1/4 to 1/2 mile=2, 1/2 to 1 mile=1 (- 1 point for disturbance w/in 50 feet of water source)
F-Natural Water				< 1/2 mile=4, < 1 mile (perennial) or Avg <1/2 mile (intermittent)=2, Avg < 1 mile=1 (- 2 point for disturbance w/in 75 feet of water source)
Subtotal E & F	0			
Subtotal A - F	0			
HABITAT VALUE (E)	0.0%			Score of A through E/(16+ score from E)
HABITAT VALUE (F)	0.0%			Score of A through D + F/(16+ score from F)
HABITAT VALUE (E&F)	0.0%			Score of A through F/(16+ score from E+F)
NOTES:	wildlife present-present or sign, arroga moth- impresions of site for wildlife			

Utilization:			
Spp grazed	% plant grazed	% all plants grazed	Comments

**Appendix D-4**  
**Proper Functioning Condition**  
**Standard Checklist**

Name of Riparian-Wetland area: \_\_\_\_\_

Date: \_\_\_\_\_ Segment/Reach ID: \_\_\_\_\_

Miles: \_\_\_\_\_ Acres: \_\_\_\_\_

Individuals Present \_\_\_\_\_

YES	NO	N/A	HYDROLOGY
			1) Floodplain above bankfull is inundated in "relatively frequent" events
			2) Where beaver dams are present they are active and stable
			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
			4) Riparian-Wetland area is widening or has achieved potential extent
			5) Upland watershed is not contributing to riparian-wetland degradation

YES	NO	N/A	VEGETATION
			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
			7) There is diverse composition or riparian-wetland vegetation (for maintenance/recovery)
			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high-streamflow events
			10) Riparian Wetland plants exhibit high vigor
			11) Adequate riparian-wetland vegetative cover is present to protect banks and dissipate energy during high flows
			12) Plant communities are an adequate source of coarse and/or large woody material (for maintenance/recovery)

YES	NO	N/A	EROSION/DEPOSITION
			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
			14) Point bars are revegetating with riparian-wetland vegetation
			15) Lateral stream movement is associated with natural sinuosity
			16) System is vertically stable
			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)



## REMARKS

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## SUMMARY DETERMINATION

### Functional Rating:

Proper Functioning Condition \_\_\_\_\_  
Functional—At Risk \_\_\_\_\_  
Nonfunctional \_\_\_\_\_  
Unknown \_\_\_\_\_

**Trend for Functional—At Risk:** Upward \_\_\_\_\_ Downward \_\_\_\_\_ Not Apparent \_\_\_\_\_

**Are factors contributing to unacceptable conditions outside the control of the manager?**  
\_\_\_\_\_ YES \_\_\_\_\_ NO

### If yes, what are those factors?

\_\_\_\_\_ Flow Regulations \_\_\_\_\_ Mining activities \_\_\_\_\_ Upstream channel conditions  
\_\_\_\_\_ Channelization \_\_\_\_\_ Road encroachment \_\_\_\_\_ Oil field water discharge  
\_\_\_\_\_ Augmented flows \_\_\_\_\_ Other (Specify) \_\_\_\_\_

## Ecological State Assessment

**Lentic System:** \_\_\_\_\_ Yes \_\_\_\_\_ No

**Lotic System:** \_\_\_\_\_ High gradient (>2% Slope) \_\_\_\_\_ Low gradient (<2% slope)

### Ecological State:

- \_\_\_\_\_ **A** Highly stable channel (width/depth ratio <12), annual flow usually reaches floodplain creating a large riparian buffer. Vegetation is deep-rooted riparian species.
- \_\_\_\_\_ **B** Moderately stable channel (width/depth ratio >12), annual flow usually reaches floodplain creating a large riparian buffer. Vegetation is dominated by deep-rooted riparian species
- \_\_\_\_\_ **C** Unstable channel (width/depth ratio >12), annual flow usually does not access floodplain. Deep rooted riparian vegetation is limited by water table depth.
- \_\_\_\_\_ **D** Unstable channel (width/depth ratio <12), Annual flow does usually does not access floodplain. Deep-rooted riparian vegetation is limited by water table depth.

## Appendix E – Herbicides & Best Management Practices

A major threat to sage-grouse within the CCAA area is the loss of habitat quality and quantity due to the increase of exotic invasive plant species (noxious weeds) replacing native sagebrush plant communities.

### Herbicide use

Herbicide application used alone or in combination with other methods may be used where appropriate to provide a feasible and effective strategy for controlling invasive species and preparing sites for desirable sage-grouse habitat restoration. Specific herbicides anticipated for restoration and management of sage-grouse habitat or potential habitat are described in further detail below. They were chosen for maximum effectiveness against wildland weeds and least environmental and non-target species' risks.

### Background

This herbicide list for the CCAA includes 19 herbicides. Seventeen of those tier to the *Vegetation Treatments Using Herbicides on BLM Lands in Oregon FEIS July 2010* (FEIS). This July 2010 Oregon Final Environmental Impact Statement tiers to the *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (PEIS) and related Record of Decision completed in 2007, by the BLM Washington Office Rangelands Resources Division; this set of documents made 17 herbicides available for a full range of vegetation treatments in 17 western states, including Oregon. The additional two herbicides are aminopyralid and rimsulfuron. The BLM intends to prepare an Environmental Impact Statement (EIS) to evaluate the use of these two herbicides in its vegetation treatment programs on public lands in 17 Western States (Federal Register, Volume 77, Number 246, Dec. 21, 2012). The risk assessment for these two chemicals (aminopyralid and rimsulfuron) have been completed and no additional best management practices will be required than those identified in the July 2010 FEIS that this document is tiered towards and are outlined below. (BLM 2014 e-mail communication)

### Sage-grouse Consideration

Both the *Sage-grouse Conservation Assessment* (Connelly et. al 2004) and *Ecology and Conservation of Greater Sage-grouse: A Landscape Species and Its Habitats* (USGS 2009) were reviewed and considered in preparation of the Oregon EIS. Invasive plant treatments in infested sage-grouse habitats would be part of restoration projects carefully designed to benefit sage-grouse.

### Consistency with Labels and Laws

The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) establishes procedures for the registration, classification, and regulation of all herbicides. Before any herbicide may be sold legally, the EPA must register it. The EPA may classify an herbicide for general use if it determines that the herbicide is not likely to cause unreasonable adverse effects to applicators or the environment, or it may be classified for restricted use if the herbicide must be applied by a certified applicator and in accordance with other restrictions. The herbicide label is a legal document. Federal, State, and local law, and all herbicide label requirements will be adhered to. Herbicides may be used only for the objectives and type of vegetation for which they are registered, as displayed on the herbicide label.

### Best Management Practices

1. All manufacturer's label requirements and restrictions will be followed and recommendations will be used as appropriate.



2. To minimize risks to terrestrial wildlife, do not exceed typical application rates for applications of dicamba, diuron, glyphosate, hexazinone, tebuthiuron, or triclopyr, where feasible.
3. Conduct a pretreatment survey. This may include, but is not limited to, flagging areas for treatment, determining what noxious or invasive species are within the area, defining the extent of area, and completing a thorough overview of the area before applying herbicides.
4. Minimize the size of application area and use spot applications or low boom broadcast where possible to limit the probability of contaminating non-target food and water sources, when feasible.
5. Where practical, limit glyphosate and hexazinone to spot applications in grazing land and wildlife habitat areas to avoid contamination of wildlife food items.
6. Clean Off Highway Vehicles (OHVs) to remove plant material and herbicide residue to minimize impact to non-target sites.
7. Sprayers will be set to minimize drift (e.g., with low nozzle pressure, large droplet size, low nozzle height) to the extent practical and feasible.
8. Dyes may be used for herbicide application to ensure complete and uniform treatment of invasive plants as well as to immediately indicate drift issues.
9. Do not use adjuvant R-11.
10. Either avoid using glyphosate formulations containing POEA, or seek to use formulations with the least amount of POEA, to reduce risk to amphibians.
11. Do not use bromacil or diuron in rangelands and use appropriate buffer zones.
12. To minimize disturbance to sage-grouse populations, do not conduct aerial or ground broadcast applications of herbicides during nesting and early-brood rearing periods when sage-grouse are present (March 1 – June 30, at a minimum), unless this timeframe or target plant development stage is optimal for herbicide effectiveness.
13. Most activities covered under this CCAA will occur on uplands, however, if herbicide treatments are planned in ephemeral or perennial watercourses where listed fish may occur additional coordination with the Service should occur.

#### Herbicides

It is also noted that during the 30-year life of this agreement many technological changes for control of invasives such as biological agents and herbicides will be developed for use on rangelands and maybe applied to improve sage-grouse habitat. As such herbicides and biological control agents are approved by Environmental Protection Agency (EPA) and Oregon Department of Agriculture (ODA) for use on rangelands, they will be incorporated for use under this umbrella document to improve sage-grouse habitat. As previously noted, this document lists 19 specific herbicides, however if other herbicides are anticipated to be applied on enrolled rangelands, agricultural and crop lands, an analysis will be conducted by DSL. This analysis will assess the risk associated with application of proposed chemicals, and if needed, additional Best Management Practice(s) will be developed (e.g., a different timing recommendation for herbicide application). For Permit coverage, use of herbicides other than the following 19 listed will require a modification consistent with *Section 19.Modification of CCAA*.

Herbicides can be categorized as selective or nonselective. Selective herbicides kill only a specific type of plant. For example, an herbicide selective for broadleaved plants can be used to manage such species while maintaining desirable grass species in rangeland communities. Non-selective herbicides kill all types of plants, and thus should only be applied only to the target species. Herbicides can be used selectively to control specific types of vegetation (e.g., killing invasive weeds), or non-selectively to

clear all vegetation on a particular area (e.g., keeping a roadway clear of vegetation). Some herbicides are post-emergent, which means they can be used to kill existing vegetation; others are pre-emergent, which stops vegetation before it grows (e.g., prohibiting seeds from germinating).

### **List**

#### **2, 4-D**

*Product(s):* Many, including Amine, Hardball, Unison, Saber, Salvo, Aqua-Kleen, and Platoon

*Common Targets:* Annual and biennial broadleaf weeds. *Kochia, whitetop, perennial pepperweed, Russian thistle and knapweed, sagebrush, rabbitbrush.* Selective to broadleaf.

*Application:* Post-emergent

*Point of application:* foliar

#### **Bromacil**

*Product(s):* Hyvar

*Common Targets:* Annual grasses and broadleaf weeds. *Cheatgrass, puncturevine, ragweed, wild oat, dandelion, quackgrass, wildcarrot.* Nonselective.

*Application:* Pre- and post-emergent

*Point of application:* soil

#### **Chlorsulfuron**

*Product(s):* Telar

*Common targets:* *Thistles, wild carrot, giant horsetail, poison hemlock, Russian knapweed, marestalk, perennial pepperweed, puncturevine, tansy ragwort, common tansy, common teasel, dalmation toadflax, yellow toadflax, whitetop, dyers woad.* Selective to broadleaf.

*Application:* Pre- and early post-emergent

*Point of application:* soil & foliar

#### **Clopyralid**

*Product(s):* Transline, Stinger, Spur

*Common targets:* *Thistles, common burdock, knapweeds, yellow starthistle, oxeye daisy, hawkweeds, prickly lettuce, dandelion, cutleaf teasel, kudzu, buffalobur.* Selective to broadleaf.

*Application:* Post-emergent

*Point of application:* foliar

#### **Dicamba**

*Product(s):* Vanquish, Banvel, Diablo, Vision, Clarity

*Common targets:* *Knapweeds, kochia, and thistles.* Selective to broadleaf and woody plants.

*Application:* Pre- and post-emergent

*Point of application:* foliar

#### **Diflufenzopyr + Dicamba**

*Product(s):* Overdrive, Distinct

*Common targets:* *Knapweeds, kochia, and thistles.* Selective to broadleaf.

*Application:* Post-emergent

*Point of application:* foliar



**Diflufenzopyr**

*Product(s):*

*Common targets:* Knapweeds, kochia, and thistles. Selective to broadleaf.

*Application:* Post-emergent

*Point of application:* foliar

**Diuron**

*Product(s):* Direx, Karmex

*Common targets:* Annual grasses. (including bluegrass) and broadleaf weeds. Lambsquarters, kochia and Russian thistle. Selective to annual weeds, some perennials.

*Application:* Pre-emergent

*Point of application:* soil

**Fluridone**

*Product(s):* Avast!, Sonar

*Common targets:* Hydrilla and watermilfoils. Selective to submersed plants.

*Application:* Post-emergent

*Point of application:* aquatic

**Glyphosate**

*Product(s):* Many, including Rodeo, Mirage, Roundup Pro, and Honcho

*Common targets:* Grasses (including Italian ryegrass), sedges, broadleaf weeds, and woody shrubs. Nonselective.

*Application:* Post-emergent

*Point of application:* soil or foliar

**Hexazinone**

*Product(s):* Velpar

*Common targets:* Annual and perennial grasses and broadleaf weeds, brush, and trees. Selective to grasses, broadleaf, woody plants.

*Application:* Pre- and post-emergent

*Point of application:* soil or foliar

**Impazapic**

*Product(s):* Plateau, Panoramic

*Common targets:* Cheatgrass, leafy spurge, medusahead, whitetop, dalmatian toadflax and Russian knapweed. Selective to some broadleaf and grasses.

*Application:* Pre- and post-emergent

*Point of application:* soil

**Imazapyr**

*Products:* Arsenal, Habitat

*Common targets:* Whitetop, cheatgrass, common knotweed, north Africa grass, Russian olive

*Application:* Pre- and post-emergent

*Point of application:* soil or foliar

### **Metsulfuron methyl**

*Product(s):* Escort, Patriot, PureStand

*Common targets:* Whitetop, perennial pepperweed, and other mustards and biennial thistles. Selective to some broadleaf and grasses.

*Application:* Post-emergent

*Point of application:* soil or foliar

### **Picloram**

*Product(s):* Triumph, OutPost, Tordon

*Common targets:* Perennial and woody species. Knapweeds, starthistle, thistle, bindweed, leafy spurge, rabbitbrush, rush skeletonweed, and poison oak. Selective to broadleaf and woody plants.

*Application:* Pre- and post-emergent

*Point of application:* foliar

### **Sulfometuron methyl**

*Product(s):* Oust, Spyder

*Common targets:* Cheatgrass, annual and perennial mustards, and medusahead. Nonselective.

*Application:* Pre- and post-emergent

*Point of application:* Soil or foliar

### **Tebuthiuron**

*Product(s):* Spike

*Common targets:* Sagebrush (thinning). Selective to broadleaf and woody plants.

*Application:* Pre- and post-emergent

*Point of application:* soil

### **Triclopyr**

*Product(s):* Garlon, Renovate, Element

*Common targets:* Saltcedar, purple loosestrife, Canada thistle, tanoak, Himalayan blackberry. Selective to broadleaf and woody plants.

*Application:* Post-emergent

*Point of application:* foliar

### **Aminopyralid**

*Product(s):* Milestone

*Common targets:* thistles, knapweed, some broadleaf weeds. Selective to broadleaf plants.

*Application:* Post-emergent

*Point of application:* soil or foliar

### **Rimsulfuron**

*Product(s):* Matrix, Resolve DF, Bais



*Common targets:* Used to control weeds in potato crops. Some use on annual grass medusahead rye  
Selective.

*Application:* Pre and post-emergent

*Point of application:* soil or foliar

## APPENDIX F – Information Used to Calculate Take

### Sage-grouse Density Calculation:

The density of sage-grouse in the covered area was calculated as follows. There are an estimated 24,515 sage-grouse in Oregon based on a 10-year (2004-2013) average of the statewide total spring population (ODFW unpublished data 2013). According to Hagen (2011) 90% of sage-grouse occupy PPH (core), which is estimated at 6.57 million acres in Oregon. The assumption was made that the remaining 10% of the sage-grouse population lie within PGH (habitats outside of PPH/Core, which is estimated at 8.26 million acres in Oregon (Hagen 2011). Using the 10-year minimum breeding population average, sage-grouse densities in PPH are estimated at 0.0034 birds per acre (90% of 24,515 = 22,064 sage-grouse divided by 6.57 million acres of PPH). Average sage-grouse densities in PGH are estimated at 0.0003 birds per acre (10% of 24,515 = 2,452 divided by 8.26 million acres) (Table 2, below). These statewide average densities were then multiplied by the number of acres of PPH (153,107 ac x 0.0034 birds per ac) and PGH (380,705 ac x 0.0003 birds per ac) covered under this CCAA (see Table 1 in *Section 13. Covered Area*) to come up with an estimated 10-year minimum population average of 636 sage-grouse for the covered area.

**Table 2: Estimated Number and Density of Sage-Grouse within Covered Area**

Distribution of Birds by Habitat Type	Number of Birds	Acres of habitat in OR	Birds per Acre
10% of Birds in PGH	2452	8,257,373	0.0003/PGH
90% of Birds in PPH	22064	6,567,011	0.0034/PPH
<b>Total: 2004-2013 Statewide Minimum Spring Breeding Population Average</b>	<b>24515</b>	<b>14,824,384</b>	
Habitat Type	Acres of Habitat in CCAA area	Birds by Habitat Type	
PGH (0.0003 birds/ac)	380,705	115	Birds in PGH
PPH (0.0034 birds/ac)	153,107	521	Birds in PPH
<b>Totals</b>	<b>533,812</b>	<b>636</b>	

### Information used to calculate take percentages:

- **Rangeland Treatments:** When determining the level of take associated with Rangeland Treatments we used nest abandonment from livestock as a surrogate. We assumed that the types of disturbances that would occur as part of the activities described as “Rangeland Treatments” would have similar impacts to sage-grouse in the area being treated as those associated with repeated disturbance that cause hens to abandon their nests (see livestock management section below). We estimated that no more than 5% of the covered area (all acres PPH and PGH) would be treated in any one year. We felt this estimate was likely an overestimate because many rangeland treatments will occur in unsuitable habitats (juniper encroached areas, degraded sagebrush habitats etc.). Additionally, as described in the conservation measures under rangeland treatments, minimization measures (timing etc.) will be employed when treatments occur to lessen the impacts to the covered area.



- **Livestock Management:** We were able to calculate levels of take associated with nest abandonment and trampling of nests from livestock grazing in occupied sage-grouse habitats. Three studies, identified nest abandonment due to disturbance from livestock grazing resulting in a total of 8 out of 223 or 3.59% of nests being abandoned. (Rasmussen and Griner 1938 ((n=5/161 nests research conducted in Utah), Danvir 2002 (n=2/36, research conducted in Utah), and Holloran 2003 (n=1/26 research conducted in Wyoming)). Two studies containing a total of 450 nests with five nests documented as destroyed or trampled by livestock resulting in a take percentage of 1.11%. (Rasmussen & Griner (n=2/161), Severson in progress unpublished (n=3/289)). According to ODFW 60% of the population are females (ODFW 2014 email), we further assumed all females initiate nests and would be exposed to these threats. We placed 95% of females in PPH and 5% of females in PGH, we based this assumption on the information provided in the 2011 ODFW Strategy that states 95% of nesting occurs in core habitats which is equivalent to PPH, so we assumed the additional 5% of nesting occurs on lands outside core or PGH.
- **Farm Operations:** The acres impacted in the covered area were identified by DSL as all acres within the covered area that are currently in agricultural production. The resulting acres (1652 acres of PGH and 0 acres of PPH) are the acres we identified that interactions between sage-grouse and farm equipment are most likely to occur. Very little data exists documenting direct take from farm operations, one unpublished study by Davis in Oregon documented one sage-grouse being killed during haying out of 105 collared birds, resulting in a take percentage of .95% (n=1/105). Additionally, when Farm Plans are developed minimization measures (either those currently in place or new measures) related to haying/farming will be identified.
- **Development:** Fences are currently present throughout much of the covered area and some new fences may be needed to protect sensitive areas of sage-grouse habitat or to evenly distribute livestock within the covered area. Fences pose a strike risk to sage-grouse. A Utah study concluded that 18% of documented mortalities to sage-grouse were from fence strikes. (Danvir 2002) The overall mortality rate for this population was 53%, making the relative risk of a sage-grouse hitting an unmarked fence at 9.54%. In 2011-2013, Stevens published 3 papers examining the relative risk of hitting fences and identifying key factors present in the habitat that would make a fence "high risk", these factors led to the development of a lek based model taking into account distance from leks, slope, roughness and other factors, Stevens concluded that if high risk fences were marked with anti-strike markers or reflectors it would reduce mortalities by 83%, which would reduce overall fence strike mortality rate down to 1.62%. For our calculations we assumed 100% of all birds in the covered area would be exposed to fence strikes annually, we also assumed all high risk fences that are enrolled will be marked.

#### **Allowance of Additional 0.5% Take within covered area:**

There may be additional take associated with both the direct and indirect aspects of rangeland management, however there have been very few cause and effect studies quantifying this. (Rowland 2004). We are providing an allowance of up to 0.5% as a result of these types of activities across all covered lands and affecting all birds.

*Examples might include:*

- Striking a sage-grouse with a vehicle while landowners or their agents are performing covered activities, implementing conservation measures or recreating.
- Small amounts of take from fence strikes to lower risk unmarked fences.
- Non-commercial recreational activities.
- Drowning in stock tanks fitted with escape ramps.