

**Draft
Environmental Assessment
for
A Greater Sage-Grouse Candidate Conservation Agreement with Assurances
for the Oregon Department of State Lands in Baker, Crook, Deschutes,
Grant, Harney, Lake, Malheur, and southern Union Counties, Oregon**

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Acronyms and Abbreviations used throughout this document

AFO Animal Feeding Operation
AOP Annual Operating Plan
BLM Bureau of Land Management
CAFO Confined Animal Feeding Operation
CCAA Candidate Conservation Agreement with Assurances
CFR Code of Federal Regulations
CM Conservation Measure
CWA Clean Water Act
DEQ Oregon Department of Environmental Quality
DSL Oregon Department of State Lands
EA Environmental Assessment
ESA Endangered Species Act of 1973
FR Federal Register
FWS Fish and Wildlife Service
IPCC Intergovernmental Panel on Climate Change
LIT Local Implementation Team
LMP Leasehold Management Plan
NEPA National Environmental Policy Act
NHPA National Historic Preservation Act
NRCS Natural Resources Conservation Service
NWI National Wetland Inventory
ODFW Oregon Department of Fish & Wildlife
OHV Off Highway Vehicle

OWEB Oregon Watershed Enhancement Board
PGH Preliminary General Habitat
PPH Preliminary Priority Habitat
RMP Resource Management Plan
SGHA Sage Grouse Habitat Assessment
SGI Sage Grouse Initiative
SHPO State Historic Preservation Office
SSP Site Specific Plan
SWCD Soil and Water Conservation District
TMDL Total Maximum Daily Load
TNC The Nature Conservancy
USC United States Code
USFS United States Forest Service
WNV West Nile Virus

1. Introduction

This environmental assessment (EA) has been prepared to address the impacts of the Candidate Conservation Agreement with Assurances (CCAA) with the Oregon Land Board, Oregon Department of State Lands (DSL) in Harney, Baker, Crook, Deschutes, Grant, Lake, Malheur and southern Union Counties, and to issue a section 10(a)(1)(A) permit under the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 et seq.), for the potential incidental take of the greater sage-grouse (*Centrocercus urophasianus*) that may occur during implementation of the CCAA. The area addressed by the CCAA consists of non-federal, state-owned lands within the range of the greater sage-grouse in Harney, Baker, Crook, Deschutes, Grant, Lake, Malheur, and southern Union Counties, Oregon (hereafter referred to as the Counties). DSL lands throughout the Counties are primarily used for livestock production through grazing leases with individual lessees. The US Fish and Wildlife Service (FWS) proposes to enter into the CCAA with DSL and issue a section 10(a)(1)(A) permit to DSL that will provide incidental take coverage for their covered activities. On all DSL administered parcels in the covered area, the DSL will conduct a baseline inventory, assess the ecological state of the parcels, and identify threats to sage-grouse and their habitats. Most parcels have an existing Leasehold Management Plan (LMP) and Annual Operating Plan (AOP) but under the CCAA, all parcels will also have a sage-grouse habitat assessment (SGHA) containing conservation measures (CMs) selected from the CCAA that address the identified threats to greater sage-grouse on the parcel. The SGHAs are akin to the Site Specific Plans (SSPs) typically developed for enrolled lands in other CCAAs.

Greater sage-grouse (hereafter referred to as sage-grouse) are native birds closely tied to landscapes dominated by sagebrush (*Artemisia spp.*) in the western United States (U.S.) and Canada. The species originally occurred in 13 states (Arizona, California, Colorado, Idaho, Montana, Nebraska, Nevada, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming) and 3 Canadian provinces (Alberta, British Columbia, and Saskatchewan), but have been extirpated from Arizona, Nebraska, and British Columbia (Schroeder et al. 2004). Sage-grouse range contraction is due primarily to alteration or elimination of sagebrush (Aldridge et al. 2008). Range-wide, sage-grouse currently occupy approximately 56% of their pre-European distribution (Schroeder et al. 2004), and overall abundance has decreased by as much as 93% from presumed historical levels (Braun 2006).

On March 23, 2010 (75 FR 13910; March 23, 2010), the U.S. Fish and Wildlife Service (FWS) determined that listing the sage-grouse was “warranted, but precluded” under the ESA. This designation means that the species is warranted for listing under ESA, but precluded by other higher priority listing actions. Based on this decision, the sage-grouse is now a Federal candidate species and its status will be reviewed annually by the FWS. In its findings, the FWS identified habitat fragmentation as the primary threat to the species. Energy development and infrastructure, invasive species and the associated changes in fire cycles, and conversion of habitat for crop production are the three main factors contributing to fragmentation. Several other factors contributing to habitat fragmentation are also identified, including livestock management. Other threats, including predation, disease, and climate change also contributed to the decision. In an effort to conserve sage-grouse and attempt to avoid listing, DSL has taken steps to reduce impacts to the species and maintain its habitat, including development of a CCAA for all of their lease lands in the range of sage-grouse in Oregon.

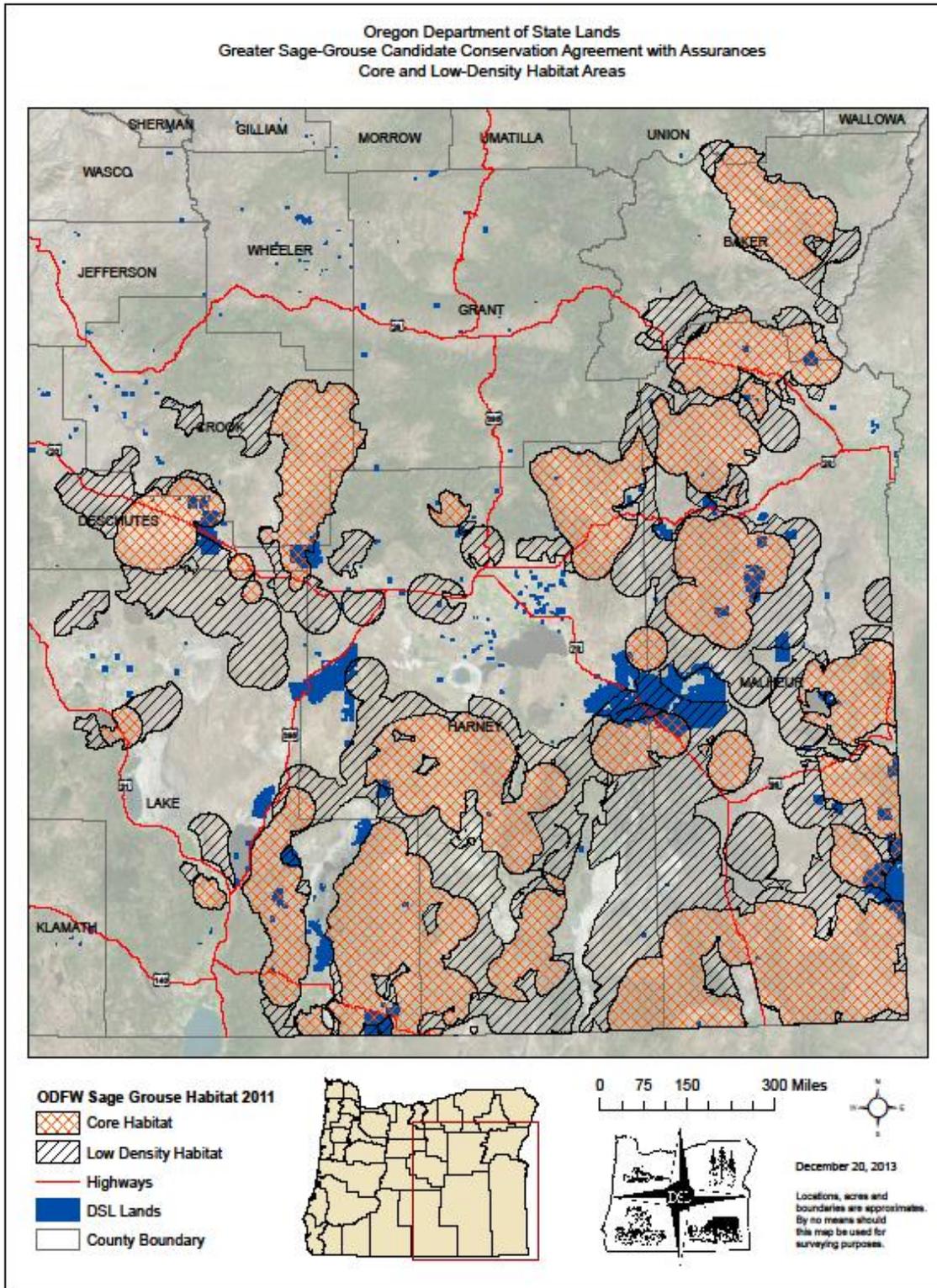
This EA was prepared in accordance with the National Environmental Policy Act (NEPA; 42, U.S.C. §4321 et. seq.) and in compliance with all applicable regulations and laws passed subsequently, including Council on Environmental Quality regulations (40 CFR, Parts 1500-1508) and U.S. Department of Interior requirements (Department Manual 516, Environmental Quality). NEPA compliance is required for this CCAA because issuance of an ESA section 10 permit by the FWS is a Federal action.

2. Purpose and Need for Action

The purpose of the CCAA is to provide a framework for DSL to conserve sage-grouse and their habitats on suitable DSL range lands. The conservation of sage-grouse and their habitats can be accomplished through the implementation of CMs in the CCAA, which are intended to minimize impacts of on-going activities and to maintain or improve habitat conditions. Under the CCAA, DSL will receive coverage for incidental take for sage-grouse through the enhancement of survival permit under section 10(a)(1)(A), which will become effective if the sage-grouse becomes listed. The area covered by the CCAA consists of non-federal, state-owned lands containing preliminary priority habitat (PPH) and preliminary general sage-grouse habitat (PGH) throughout Harney, Baker, Crook, Deschutes, Grant, Lake, Malheur, and southern Union Counties, Oregon (see Figure 1, below).

- Preliminary Priority Habitat (PPH): Areas that have been identified as having the highest conservation value to maintaining sustainable sage-grouse populations. These areas correspond to Core Area Habitat in the Oregon Department of Fish and Wildlife (ODFW) Sage-grouse Conservation Assessment and Strategy for Oregon (2011), which includes known breeding, late brood-rearing, and known winter concentration areas.
- Preliminary General Habitat (PGH): Areas of occupied seasonal or year-round habitat outside of PPH. These areas include Low Density Habitat, as described in the ODFW Sage-grouse Conservation Assessment and Strategy for Oregon (2011), as well as additional areas of occupied suitable sagebrush habitat.

Figure 1. Covered Area Map for DSL lands under the CCAA



The CCAA is needed to improve conservation of the sage-grouse. Sage-grouse habitat and populations have declined throughout their range over the past several decades, which prompted the status as a Federal candidate species under the ESA. The CCAA will provide incentives for conservation of the sage-grouse on DSL lands by providing assurances that no additional CMs or land, water, or resource use restrictions beyond those voluntarily agreed to by DSL will be required for sage-grouse, should it be listed in the future. The CCAA will also facilitate habitat management efforts by providing a streamlined process for selecting appropriate CMs and best management practices for each parcel. A complete list and description of the CMs can be found in appendix A of the CCAA.

This EA evaluates the effects of two alternatives for responding to DSL's application for ESA section 10(a)(1)(A) enhancement of survival permit and request for the CCAA. Our evaluation of the two alternatives will consider:

- The collective impacts of the FWS issuing assurances in an ESA section 10(a)(1)(A) enhancement of survival permit to DSL for all parcels in the Counties.
- The collective impacts of DSL implementing CMs from the CCAA on their parcels.

Generally speaking, under a CCAA, non-federal property owners voluntarily commit to implementing specific CMs on non-federal lands for species covered by the CCAA. In exchange, they receive assurances from the FWS that, if the species is listed in the future, additional CMs will not be required and additional land, water, or resource use restrictions under the ESA will not be imposed on them, provided the CCAA is being properly implemented. These assurances provide considerable certainty to participating property owners regarding their activities on non-Federal lands covered by a CCAA. Sections 2, 7, and 10 of the ESA allow the FWS to enter into a CCAA. Section 2 of the ESA encourages interested parties, through Federal financial assistance and a system of incentives, to develop and maintain conservation programs key to safeguarding the Nation's heritage in fish, wildlife, and plants. Section 7 of the ESA requires the FWS to review programs that we administer and to utilize such programs in furtherance of the purposes of the ESA. Lastly, section 10(a)(1)(A) of the ESA authorizes the issuance of enhancement of survival permits for a species through participation in a CCAA. Policy (64 FR 32726; June 17, 1999) and regulations (69 FR 24084; May 3, 2004) provide specific direction on implementation of the CCAA program.

The FWS Region 1 Deputy Regional Director is the responsible official who will determine whether or not to approve the CCAA and issue the enhancement of survival permit, in accordance with section 10 of the ESA. To approve an enhancement of survival permit, FWS must find that:

- Any take of sage-grouse due to grazing and livestock management activities will be incidental to otherwise lawful activities and in accordance with terms of the CCAA;
- The CCAA complies with the requirements of the Candidate Conservation Agreement with Assurances final policy (64 FR 32726; June 17, 1999);
- The probable direct and indirect effects of any authorized take will not appreciably reduce the likelihood of survival and recovery in the wild of any Federally listed endangered, threatened, proposed, or candidate species; Implementation of the terms of the CCAA are consistent with applicable Federal, State, and tribal laws and regulations;

- Implementation of the terms of the CCAA will not be in conflict with any ongoing conservation programs for species covered by the CCAA; and
- The signatories have shown capability for, and commitment to, implementing all of the terms of the CCAA.

3. Description of Alternatives

We are evaluating two alternatives in this EA: (1) a No Action Alternative, and (2) the Proposed Action Alternative. Under both alternatives, if sage-grouse become listed, landowners, including the DSL, who have not enrolled in either an individual CCAA or other programmatic CCAAs may need to apply for an incidental take permit to cover ranch land management activities that could potentially take sage-grouse.

3.1 No Action Alternative

The no action alternative represents the current management situation and provides the baseline for comparing the environmental effects of all other alternatives. Under the no action alternative, the FWS would neither enter into a CCAA for sage-grouse with DSL, nor issue an ESA section 10(a)(1)(A) enhancement of survival permit. As a result, efforts to reduce threats to sage-grouse by providing regulatory assurances to DSL through an ESA section 10(a)(1)(A) permit and its implementing regulations, policy, and guidance for CCAA would not be available. DSL would continue to lease parcels throughout the covered area, under the existing LMPs and AOPs, with no application of CMs in a SGHA to address the threats to sage-grouse or their habitats potentially present on any of parcels.

Sage-grouse are not considered a migratory bird species; therefore, they are not covered by the provisions of the Migratory Bird Treaty Act (16 U.S.C. 703-712). However, several agencies have other legal authorities and requirements for managing the species and its habitat. These authorities are described in the following paragraphs, and would be expected to continue under the no action alternative:

The **ODFW** is the primary entity responsible for sage-grouse management currently in Oregon. In April 2011, they released the *Greater Sage-Grouse Conservation Assessment and Strategy for Oregon: A Plan to Maintain and Enhance Populations and Habitat* (Strategy) (Hagen 2011). The goal of the Strategy is to promote the voluntary conservation of sage-grouse and intact functioning sagebrush communities in Oregon. As part of the Strategy, they designated core and low density habitats for sage-grouse in Oregon. Core habitats were designated because they contain 90% of Oregon's breeding population of sage-grouse, encompassing 84% of occupied leks on 33% of the species range. Low density habitat generally hosts the remaining leks, seasonal use habitats, and important connectivity corridors. The Strategy identified five Local Implementation Teams (LITs) based on BLM land distribution with the primary directive to ensure that sage-grouse and sagebrush habitat conservation decisions (at a minimum those actions identified in the Strategy) occur at the local level. The LIT teams include at a minimum: ODFW, DSL (where applicable), Soil and Water Conservation District (SWCD) (two private land owners), BLM (one biologist and one rangeland technician, USFS (where applicable; one biologist and one rangeland conservationist), County Government Representatives, and FWS Refuge staff (where applicable). DSL participates in four of the five LITs; the exception

being in the Baker subunit where DSL does not have significant ownership. These groups facilitate and identify management priorities and actions to address priorities, in an effort to achieve population and habitat objectives. Priorities and projects are to be first identified based on the biological needs of sage-grouse or habitat rehabilitation. To date the LITs have identified action areas within core and low density areas and identified the threats present within each action area.

The **NRCS Sage Grouse Initiative (SGI)** began in March, 2010, to conserve sage-grouse and sustain working ranches throughout the range of the species (including Harney, Baker, Crook, Deschutes, Grant, Lake, Malheur, and Union Counties, Oregon). This initiative provides funding through existing conservation programs such as the Environmental Quality Incentives Program and the Wildlife Habitat Incentive Program. In Oregon, SGI has focused on removal of juniper that has encroached on sage-grouse habitat. Since 2010, 101,760 acres of sage-grouse habitat has been treated in the covered area and an additional 60,934 acres are scheduled for treatment through 2016. SGI funds have also been used to (1) mark 12.5 miles of fence to reduce the risk of sage-grouse striking fences with an additional 2.3 miles of fence scheduled for marking by 2016; (2) install 18 water trough escape ramps with an additional 6 escape ramps planned by 2015; (3) treat 1,220 acres of medusahead/annual grass with an additional 730.6 acres of treatment planned by 2016; and (4) discontinue livestock grazing on 6,625 acres of land for 12-15 months with an additional 3,245 acres planned by 2016. NRCS – SGI funds are not directly available to DSL, but participation on DSL parcels is available indirectly through lessees in conjunction with their projects on adjacent private land. The local NRCS office expects to enroll more individuals in SGI so these numbers will likely rise over time (NRCS and SWCD 2014).

The **Oregon Watershed Enhancement Board (OWEB)** provides capacity funding to watershed councils and SWCDs and they provide grant funding for watershed restoration; monitoring; watershed assessment and action planning; watershed outreach; and land and water acquisition. Since 2010, OWEB has provided \$511,573 in technical assistance funding, \$39,700 for education and outreach, \$40,279 in monitoring funds and just over \$2.2 million for sage-grouse habitat restoration projects (OWEB 2014). Since 2010, the SWCDs have also been working with private landowners to improve sage-grouse habitat. The SWCDs have used funds (other than SGI) to (1) treat 24,468 acres of juniper that has encroached on sage-grouse habitat; (2) mark 4 miles of fence to reduce the risk of sage-grouse striking fences with an additional 3 miles of fence scheduled for marking by 2016; (3) install 60 water trough escape ramps with an additional 13 escape ramps planned by 2016; (4) treat 21,165 acres of medusahead/annual grass with an additional 730.6 acres of treatment planned by 2016; (5) discontinue livestock grazing on 1,257 acres of land for 12-15 months with an additional 300 acres planned by 2016; (6) develop 61 springs for stock water; (7) install 12.5 miles of new riparian fencing as well as 7 hardened crossings; (8) seed 2,225 acres of native vegetation; and (9) implement grazing systems on more than 15,000 acres of private land.

The **BLM** manages the majority of sage-grouse habitat across the species' range (Stiver et al. 2006). The agency would continue to incorporate habitat CMs for sage-grouse into Resource Management Plans (RMPs) developed for lands it manages throughout the current range of the species. In Oregon, a *Greater Sage-Grouse Programmatic Candidate Conservation Agreement*

(CCA) for *Rangeland Management Practices on BLM Lands in Oregon* was signed May 30, 2013, which allows grazing permit holders to enter into a voluntary agreement with BLM to provide additional protections for sage-grouse on their BLM grazing allotments. This CCA contains many of the same CMs as the DSL CCAA associated with this EA.

The **U.S. Forest Service** also manages sage-grouse habitat on its lands across the species' range. The agency has designated the sage-grouse as a sensitive species on USFS lands range wide. Sensitive species require special consideration during land use planning and activity implementation.

The Governor of Oregon has created a task force known as the **Sage-Grouse Conservation Partnership (SageCon)** which is composed of a diverse group of stakeholders including: County and Local officials, State agency personnel (ODFW, Oregon Department of Forestry, Oregon Department of State Lands, Oregon Department of Geology and Mineral Industries, and others), Federal Agencies (BLM, FWS, NRCS, US Forest Service (USFS)), Non-Governmental Organizations (Audubon, Oregon Natural Desert Association, Defenders of Wildlife, others). SageCon is working to develop an "all lands, all threats" plan to sage-grouse conservation to both address FWS's sage-grouse listing decision in 2015 and to support community sustainability in central and eastern Oregon into the future. By addressing identified threats to sagebrush habitat, SageCon will ensure species protection for sage-grouse and also work with traditional ranching and farming communities as well as emerging industries such as mining and renewable energy (SageCon 2013). There are a number of sub-groups meeting to address issues related to sage-grouse conservation, including Fire and Invasives, Energy and Utilities, Habitat Fragmentation, and Mitigation. The plan will include an assessment of all the efforts (e.g., RMPs, CCAAs, CCAs) that are being made to protect sage-grouse as well as developing a new regulatory framework to fill in the blanks that other efforts are not addressing. For a complete list of partners and objectives visit: <http://orsolutions.org/osproject/sagecon>.

3.2 Proposed Action Alternative

The proposed action alternative is the preferred alternative. Under this alternative, all existing protections described under the no action alternative would continue. Under this alternative, the FWS and DSL would enter into a CCAA for all of the DSL administered parcels in the covered area. DSL would complete the baseline inventory, and develop a SGHA with the required CM 1 and any additional CMs as necessary to address the threats to sage-grouse on each parcel. The CMs included in each SGHA would only be those necessary to address the threats to sage-grouse on any individual parcel. The proposed action alternative would provide additional protections beyond the no action alternative because the CCAA with DSL creates the opportunity to implement CMs on all DSL lands. It also provides flexibility to DSL to perform the CMs most appropriate for each parcel.

DSL represents one non-federal landowner with parcels in eight counties throughout southeast Oregon. Under this alternative, we anticipate 100% of the DSL parcel in the covered area would become enrolled under the CCAA; this represents 148 individual parcels, which comprise in aggregate approximately 633,000 acres. Upon completion of the agreement and issuance of the EOS permit, all of these parcels would be enrolled in the CCAA. Application of the CMs through the SGHAs would be specific to address the threats to sage-grouse on each

individual parcel. This approach is consistent with the development of individual SSPs in related CCAAs, and is consistent with the Candidate Conservation Agreement with Assurances Final Policy (64 FR 32726; June 17, 1999) and the regulations implementing the policy (69 FR 24084; May 3, 2004).

The CCAA would be in effect for 30 years following its approval and signing by the FWS and DSL. The associated ESA section 10(a)(1)(A) enhancement of survival permit authorizing take of sage-grouse would also have a term of 30 years from the date the permit is issued. While the sage-grouse remains unlisted, the FWS may renew the CCAA and associated SGHAs based upon a re-evaluation of the CCAA's ability to continue to meet the CCAA standard. DSL may choose to un-enroll individual parcels in the CCAA, and those parcels would lose incidental take coverage at that time, should sage-grouse become listed.

To ensure that the individual parcel SGHAs are working and the CMs are adequate, DSL must undertake or allow the following measures to continue (taken from Section 9 *Landowner Responsibilities* of the CCAA):

- Continue current management practices that conserve sage-grouse and its habitats;
- Manage rangelands within current range of sage-grouse to protect and where possible, enhance habitat;
- Develop Farm Plans, LMPs and AOPs as needed to facilitate the accomplishment of appropriate CMs on individual leases;
- Provide SGHAs to FWS for review, with a minimum of 25% of the covered area being reviewed per year for the first three years to ensure that 100% (25% will be reviewed prior to permit issuance) of the SGHAs have been reviewed for compliance and have met the CCAA standard;
- Work collaboratively with FWS to address FWS comments on SGHAs to insure 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 LMPs, AOPs, and SGHAs from time to time covering forage leases on all blocked ownership and on isolated parcels which include core habitat:
 1. Ensure SGHAs incorporate applicable conservation strategies and other provisions consistent with this CCAA;
 2. Provide the FWS notice and opportunity to participate in parcel management plan development and to comment during public review process if one is required. Notice will be sent to the FWS's Oregon Fish and Wildlife Office at 2600 SE 98th Avenue, Suite 100, Portland, Oregon 97266;
- Work with lessees to ensure appropriate implementation of applicable CMs consistent with this CCAA.

Each individual SGHA must include the following conservation measure (known as CM 1 in the CCAA): ***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). This required measure is the foundation of each SGHA for preventing and/or reducing habitat fragmentation, the primary threat to sage-grouse.

Other threats within DSL control that have been identified on a parcel must also be addressed through the selection of one or more appropriate CMs listed in the CCAA or developed with the approval of the FWS. The process for identifying threats and corresponding CMs includes non-Federal landowners working with the FWS and other participating agencies on identified properties, recognizing that each property is unique and site-dependent. The following are potential threats to sage-grouse that could be addressed if identified as an issue on an individual parcel and DSL has control over the threat:

- Habitat fragmentation;
- Infrastructure (e.g., power lines, roads) that decreases habitat quality;
- Disturbed, degraded, or fragmented habitat that is not restored or reclaimed;
- Establishment of non-native monocultures;
- Invasive and non-native plant species;
- Wildfire;
- Sagebrush management (prescribed fire, chemical, or mechanical);
- Grazing management practices;
- Livestock concentration;
- Juniper encroachment;
- Livestock, vehicle, and human activities that physically disturb sage-grouse;
- Design and placement of water developments (including ponds and springs);
- Predation;
- Insecticide use;
- Prolonged drought;
- Catastrophic flooding;
- Watering tanks and troughs that can cause entrapment and drowning, and
- Placement of fences.

While the CMs in the CCAA should apply across any lands with an SGHA, there may be circumstances where site-specific modifications or conditions warrant changes to the standard prescriptions. Changes to CMs will occur in consultation with local agency specialists (e.g., biologists, range management specialists) and will be noted by DSL on the SGHAs, including the rationale or justification for any modifications.

3.3 Other Alternatives Considered but not fully Analyzed

Additional alternatives were considered during the development of this EA. Under one of these, the *Additional Requirements Alternative*, all existing protections described under the no action alternative would continue. DSL would enter into a CCAA and the FWS would issue an enhancement of survival permit to DSL. Upon issuance of the permit, DSL would immediately implement CM 1 to maintain contiguous habitat by avoiding further fragmentation and DSL would also immediately implement all of the CMs for addressing the threat from unmanaged and/or improper grazing (CMs 19 through 30, see Appendix A of the CCAA) regardless of the extent to

which specific threats are present. The objective for CM 1 is for no net loss in habitat quantity and habitat quality, while the goal for CMs 19-30 is to remove inappropriate livestock grazing regimes. Following implementation of the required CMs, DSL would then complete the initial baseline inventory of each parcel in the covered area and develop SGHAs, which would contain additional CMs to address threats on a given parcel.

Under this alternative, the existing ecological state on each parcel, as determined during the baseline inventory, would not inform the selection of only the necessary CMs needed to move the parcel towards a desired ecological state; nor would only the CMs needed to address specific threats from improper or unmanaged grazing present on the parcel be applied. Rather, CM 1 as well as all of CMs 19-30 would be arbitrarily required on all of the parcels. The primary disadvantages of the additional requirement alternative are that 1) immediate implementation of CMs would be done without a SGHA and therefore, would not include biological information on the existing ecological state and 2) the lack of allocated financial resources from the state of Oregon would prohibit proceeding with these CMs to protect sage-grouse in a timely and effective fashion. This alternative is not analyzed further.

Another alternative, the *No Grazing Alternative*, would remove livestock grazing entirely from the DSL parcels throughout the covered area. Provisions of the Oregon State Constitution as well as the Admission Act Mandate require DSL administered lands to be managed not only in a manner consistent with the state's constitutional requirements, but also to obtain full market value from its sale, rental or other use (See Section 7: Authorities in the CCAA). 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. Livestock grazing through leases with private ranches has been the dominant and maximum revenue-generating use of the DSL lands in the covered area for decades. Removal of livestock grazing from DSL lands in the covered area would be contradictory to DSLs responsibilities, as no other long term land use explored by DSL for the parcels has the potential to generate revenue equivalent to or greater than that generated by livestock grazing. Further, by not implementing the CMs associated with livestock grazing, the enrolled lands would not receive the conservation benefit from the CMs. This alternative is not analyzed further.

4. Affected Environment

This section describes in general terms the resources that could be affected if the FWS approves the CCAA.

4.1 Covered area

The covered area encompasses all sage-grouse habitat on non-Federal, state-owned DSL lands in Oregon. The enrolled lands comprise in aggregate approximately 633,000 acres of rangeland. Of this total about 560,000 acres is in blocked ownership and the remaining acreage is in parcels of generally less than 1,000 acres, located within the current distribution of sage-grouse and areas that may be occupied by the species in the future. Portions of the sage-grouse habitat on DSL lands in the project area are designated as PPH (153,107 acres) or PGH (380,705 acres) (Table 1). However, DSL lands within the project area

that are not currently designated as PPH or PGH, but have the characteristics of sage-grouse habitat or have known sage-grouse occupancy may also be included under the CCAA. For purposes of analysis, FWS used the PPH and PGH designations as representing the best current estimate of sage-grouse habitat quality.

Table 1. Covered area acres of PPH and PGH for DSL lands across Oregon

County	PPH (acres)	PGH (acres)	Total (acres)
Baker	2,885	49	2,934
Crook	4,369	448	4,817
Deschutes	22,583	15,060	37,643
Grant	0	29	29
Harney	10,749	150,639	161,388
Lake	22,356	28,151	50,507
Malheur	90,165	186,329	276,494
Union	0	0	0
Total	153,107	380,705	533,812

4.2 Sagebrush Habitat

This section summarizes the vegetation and wildlife found in the covered area, including special status species.

Sagebrush habitats are essential for sage-grouse survival. Suitable sage-grouse habitat consists of plant communities dominated by sagebrush with a diverse native grass and forb (flowering herbaceous plants) understory. The composition of shrubs, grasses, and forbs varies with the season, the subspecies of sagebrush, the condition of the habitat at any given location, soil type, moisture regime, and site potential. In addition to sagebrush and herbaceous plants, habitat requirements during late brood-rearing (mid-July through September) may also include riparian sites.

Across all ownerships, sage-grouse habitat in the covered area is mostly unfragmented and intact, with exceptions in the Baker County and Prineville, Crook County areas. The current quantity of sage-grouse habitat is estimated at 69% of the historic range, corresponding to almost 9.7 million acres of PPH and PGH in the Counties across all ownerships. The quality of sagebrush habitat in the covered area has declined compared to historic conditions. The primary factors contributing to the declines in sagebrush habitat quality are: (1) juniper encroachment, primarily in the upper elevation mountain big sagebrush (*Artemisia tridentate vaseyana*) communities; and (2) annual grass infestations, mainly cheatgrass (*Bromus tectorum*) and medusahead rye (*Taeniatherum canput-medusae*), primarily in the lower elevation Wyoming big sagebrush (*Artemisia tridentate wyomingensis*) communities. Western juniper (*Juniperus occidentalis*) decrease perennial grass and sagebrush canopy cover and negatively impact sage-grouse distribution and habitat use because raptors, a predator of sage-grouse, tend to perch in juniper. The annual grass infested rangelands are more susceptible to wildfires that can result in conversion to rangelands dominated by annual grasses lacking the sagebrush that is essential for sage-grouse survival and persistence.

4.2.1 Sage-Grouse

Information in this section is primarily based on Connelly et al. (2004) and the *Greater Sage-Grouse Conservation Assessment and Strategy for Oregon: A Plan to Maintain and Enhance Populations and Habitat* (Strategy) (Hagen 2011).

In Oregon, sage-grouse were once found in most grassland 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 2010). The state of Oregon has a population management goal of 30,000 sage-grouse; 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).

Sage-grouse use habitat according to their seasonal needs. Seasonal habitats include breeding habitat (leks) in early spring, nesting habitat in late spring, early brood-rearing habitat from June to mid-July, late brood-rearing habitat from mid-July through September, and winter habitat. Each of these habitats is described briefly below. A more complete description of local habitat can be found in the Strategy.

4.2.1.1 Breeding Habitat (Leks) in Early Spring

Leks are aggregations of males on small territories used for mating. Sage-grouse leks are generally situated on sites with minimal sagebrush, broad ridge-tops, grassy openings, and have often undergone disturbance. Sage-grouse select areas as lek sites that have lower plant heights and less shrub cover than surrounding areas.

4.2.1.2 Nesting Habitat in Late Spring

Sage-grouse nest in a variety of cover types, but most nests are under sagebrush. Other shrubs used for nesting cover include bitterbrush (*Purshia tridentata*), greasewood (*Sarcobatus vermiculatus*), horsebrush (*Tetradymia* spp.), mountain mahogany (*Cercocarpus* spp.), rabbitbrush (*Chrysothamnus* spp. and *Ericameria* spp.), shadscale saltbush (*Atriplex confertifolia*), snowberry (*Symphoricarpos* spp.), and western juniper (*Juniperus occidentalis*). Nests also have been found on bare ground devoid of cover under basin wildrye (*Leymus cinereus*). The most suitable nesting habitat includes a mosaic of sagebrush with horizontal and vertical structural diversity. A healthy understory of native grasses and forbs provides 1) cover for concealment of the nest and female from predators, 2) herbaceous forage for pre-laying and nesting females, and 3) insects as prey for chicks and females (Hagen 2011).

According to Hagen (2011), vegetative cover near nesting areas in Oregon is comparable to other nesting areas throughout sage-grouse range. Specifically in Oregon, mid-sized shrubs (40-80 cm) generally comprised >13% canopy cover with the exception of low sagebrush stands. Low sagebrush stands had shrub canopy cover >25% but were lower in stature (<40 cm). Combined grass and forb cover were >16% and in most cases >19%; however, the vertical structure of

herbaceous cover was not measured in most studies. (Hagen 2011). Mountain big sagebrush communities tended to have greater mid-shrub and herbaceous cover than low sage or Wyoming big sagebrush stands. On average, 80% of nests are within 6.2 km (4 mi) of the lek; however, some females may nest more than 20 km (12 mi) from the lek on which they were captured (Autenrieth 1982, Wakkinen et al. 1992, Fischer 1994, Doherty et al. 2011).

4.2.1.3 Early Brood Rearing Habitat from June to mid-July

Females with broods may use sagebrush habitats that have less canopy cover than that provided in optimum nesting habitat, and typically seek early brood rearing habitats with a canopy cover of at least 15% of grasses and forbs (Sveum et al. 1998). Early brood-rearing generally occurs relatively close to nest sites; however, movements of individual broods may be highly variable. Low sagebrush community types (e.g., *A. longiloba*, *A. nova*, and *A. arbuscula*) are drier sites with shallow clay soils that green-up early and can provide a rich forb component during early-brood rearing. Chick diets include forbs and invertebrates. Thus, insects, especially ants, beetles, and caterpillars are an important component of early brood-rearing habitat (Johnson and Boyce 1990, Drut et al. 1994, Fischer et al. 1996b, Gregg and Crawford 2009). Brood-rearing habitats having a wide diversity of plant species tend to provide an equivalent diversity of insects that are important chick foods (Hagen 2011).

4.2.1.4 Late Brood-Rearing Habitat from mid-July to mid-September

As sagebrush habitats become dry and herbaceous plants mature, females usually move their broods to more moist sites where vegetation with higher nutrient content is located. Where available, alfalfa fields and other farmlands or irrigated areas adjacent to sagebrush habitats are also used by sage-grouse; however, these habitat types are not uniformly distributed throughout the range of sage-grouse in Oregon. Additionally, flood irrigated alfalfa and hay fields may expose sage-grouse to mosquitoes carrying West Nile virus (WNV) and to pesticides, which are frequently applied to such fields. (Hagen 2011).

4.2.1.5 Winter Habitat

As fall progresses into winter, sage-grouse move toward their winter ranges and shift their diets from insects, forage crops, and sagebrush to sagebrush leaves and buds. Exact timing of movement to winter ranges varies depending on the sage-grouse population, geographic area, overall weather conditions, and snow depth. Winter habitats for sage-grouse are relatively similar throughout most of their range. Because winter diet consists almost exclusively of sagebrush, winter habitats must provide adequate amounts of sagebrush. Sagebrush canopy can be highly variable (Patterson 1952, Eng and Schaldweiler 1972, Wallestad et al. 1975, Beck 1977, Robertson 1991). Sage-grouse tend to select areas with both high canopy and taller stature sagebrush plants (e.g., Wyoming big sagebrush (*A. t. ssp. wyomingensis*)), and they will feed on plants which are highest in protein content. It is critical that sagebrush be exposed at least 25–30 cm (10–12 in) above snow level because this provides both food and cover for wintering sage-grouse (Hupp and Braun 1989). Sage-grouse are known to burrow in snow for thermoregulation and predator avoidance. If snow covers the sagebrush, sage-grouse may move to areas where sagebrush is exposed. Alternatively, low sagebrush may provide adequate winter habitat where snow depths are low or windswept slopes keep the sagebrush clear of snow (Hagen 2011).

4.2.2 Other Wildlife

Although the focus of the CCAA is sage-grouse, numerous other wildlife species also inhabit sagebrush ecosystems in the Counties and could be affected if the CCAA is approved and implemented. These other species are discussed in this section.

The mix of shrubs and herbaceous plants found in sagebrush and associated communities in the Counties provides habitat for a large number of other vertebrates. Table 2 lists the vertebrate species associated with sagebrush ecosystems and their status in Oregon.

Table 2. Terrestrial vertebrate species associated with sagebrush ecosystems and status in Oregon (Taken from ODFW 2010)

Common Name	Scientific Name	ODFW Status ^b
Birds:		
Ferruginous hawk	<i>Buteo regalis</i>	SC
Burrowing owl	<i>Athene cunicularia</i>	SV
Short-eared owl	<i>Asio flammeus</i>	NL ^c
Vesper sparrow	<i>Pooecetes gramineus</i>	SC ^d
Lark sparrow	<i>Chondestes grammacus</i>	NL
Brewer's sparrow	<i>Spizella breweri</i>	NL
Black-throated sparrow	<i>Amphispiza bilineata</i>	SP
Sage sparrow	<i>Amphispiza belli</i>	SC ^e
Grasshopper sparrow	<i>Ammodramus savannarum</i>	SV
Western meadowlark	<i>Sturnella neglecta</i>	SC ^e
Greater sage-grouse	<i>Centrocercus urophasianus</i>	SV ^f
Sage thrasher	<i>Oreoscoptes montanus</i>	NL
Loggerhead shrike	<i>Lanius ludovicianus</i>	NL
Mammals:		
Preble's shrew	<i>Sorex preblei</i>	NL
Pygmy rabbit	<i>Brachylagus idahoensis</i>	SV
Sagebrush vole	<i>Lemmiscus curtatus</i>	NL
Black-tailed Jackrabbit	<i>Lepus californicus</i>	SV ^e
White-tailed Jackrabbit	<i>Lepus townsendii</i>	SV
Kit fox	<i>Vulpes macrotis</i>	LT
Pronghorn	<i>Antilocapra americana</i>	NL
Mule Deer	<i>Odocoileus hemionus</i>	
Reptiles:		
Northern Sagebrush Lizard	<i>Sceloporus graciosus graciosus</i>	SV ^e
Mojave black-collared lizard	<i>Crotaphytus bicinctores</i>	NL
Longnose leopard lizard	<i>Gambelia wislizenii</i>	NL
Striped whipsnake	<i>Masticophis taeniatus</i>	NL
Ground snake	<i>Sonora semiannulata</i>	NL

- a. Criteria for identifying species of concern included habitat conditions resulting in increased likelihood of population isolation, a global ranking of 1 or 2 by The Nature Conservancy, and species whose habitats were projected to increase or decrease significantly under a land management alternative as part of the Interior Columbia Basin Ecosystem Management Project. Further details in Volume I, Wisdom et al. (2000).
- b. Status as of 2008. Sensitive species are those defined as "naturally reproducing native vertebrates which are likely to become threatened or endangered throughout all or a significant portion of their range in Oregon." Sensitive species codes begin with "S"

and are further defined as follows: SC = critical; SP = peripherally or naturally rare; SU = undetermined status; and SV = vulnerable (Oregon Natural Heritage Program 2001). LE = listed as endangered and LT = listed threatened.

- c. NL Denotes a species not listed as sensitive by Oregon Department of Fish & Wildlife.
- d. status reported for Oregon subspecies only (*P. g. affinis*).
- e. Status applies to only 1 ecoregion, in the state, not the species entire range in the state.
- f. Status applies only to populations in the Blue Mountains, Columbia Plateau, and East Cascade Foothills ecoregions.

4.2.2.1 Birds

Twenty-two species of birds use sagebrush as a key element in their life history requirements. The list of species that are considered obligates or near-obligates of sagebrush usually includes sage sparrow, Brewer's sparrow, vesper sparrow, black-throated sparrow, lark sparrow, loggerhead shrike, green-tailed towhee, and sage thrasher, all of which occur in the covered area. Executive Order 13186 (66 FR 3853, January 2001) requires federal agencies to consider migratory birds and birds of conservation concern when conducting agency actions. The sage thrasher is the only sagebrush obligate species on the birds of conservation concern list for the Great Basin Region which occurs in the covered area. Oregon junco (*Junco hyemalis*) and chipping sparrow (*Spizella passerina*) occur throughout the covered area and often use sagebrush habitats that are associated with juniper encroachment.

4.2.2.2 Mammals

Because there are no standardized surveys for mammal populations, there is little information available on long-term mammal population trends in sagebrush communities. The list of mammals considered obligate or near obligates species includes the sagebrush vole, pygmy rabbit, Townsend's ground squirrel (*Urocyon townsendii*), kit fox, and pronghorn. Sagebrush voles are usually found in sagebrush but may occur in areas lacking a sagebrush over-story if grass understories are thick enough. Pygmy rabbits are not very common in the covered area and are found primarily in areas dominated by tall, dense stands of sagebrush on deep soils that allow them to construct burrows to live in. Pronghorns are the only large herbivore that have a strong association for sagebrush and are most successful where sagebrush is available for winter forage (Hagen 2011), though Mule deer and elk (*Cervus canadensis*) do occur in the covered area and may seasonally utilize sagebrush habitats.

4.2.2.3 Amphibians

Because of dry climatic conditions and lack of open water, species richness and density of amphibians in shrub steppe communities is low. Nine species of amphibians are generally associated with shrub steppe habitats, but none are closely associated with these habitats. Only two species of salamander occur in sagebrush habitat communities in Oregon: long-toed salamander (*Ambystoma macrodactylum*), and tiger salamander (*Ambystoma tigrinum*). Seven of eleven species of native toads and frogs occur in shrub steppe habitat, of which the Great Basin spadefoot toad (*Spea intermontana*), western toad (*Anaxyrus boreas*), and Woodhouse's toad (*Bufo woodhousii*) are the species most likely to be found in the covered area. Columbia spotted frogs (*Rana luteiventris*) and northern leopard frogs (*Rana pipiens*) are found in shrub steppe communities but usually in close association with standing water, and thus are not likely to be in the covered area (Hagen 2011).

4.2.2.4 Reptiles

In contrast to amphibians, species richness and density of reptiles is relatively high in shrub-steppe communities because of the warm and dry climatic conditions. Twenty species of reptiles are generally associated with shrub steppe habitats in Oregon. Lizards are the group of reptiles most closely associated with shrub steppe. The Mojave black-collared lizard (*Crotaphytus bicinctores*), long-nosed leopard lizard (*Gambelia wislizenii*), and desert horned lizard (*Phrynosoma platyrhinos*) occur only in shrub steppe, dwarf shrub steppe, and desert playa/salt scrub shrublands. Ten of 15 snake species in Oregon occur in shrub steppe communities or related shrub communities. The ground snake (*Sonora semiannulata*), longnose snake (*Rhinocheilus lecontei*), and striped whipsnake (*Masticophis taeniatus*) are associated with shrub steppe habitats, and six other species (racer (*Coluber constrictor*), gopher snake (*Pituophis catenifer*), western rattlesnake (*Crotalus viridis*), rubber boa (*Charina bottae*), western terrestrial garter snake (*Thamnophis elegans*), and common garter snake (*Thamnophis sirtalis*)) occur in a variety of habitats including shrub steppe (Vander Haegen et al. 2001).

4.2.3 Threatened, Endangered, Proposed, and Candidate Species

There are no listed or candidate species in the Counties, other than sage-grouse, that are a sagebrush obligate species. However, some of the listed and candidate species may be found incidentally in or near sagebrush habitats.

4.2.3.1 Listed Species

In the Counties, ten species are listed as threatened or endangered under the ESA. Of those ten species, only six are found within or immediately adjacent to sagebrush habitat.

Bull trout (*Salvelinus confluentus*), a threatened species, are found only in very cold water. Bull trout require stable stream channels, clean spawning gravel, complex and diverse cover, and unblocked migration routes. Sagebrush habitats may be found adjacent to bull trout streams.

The threatened Lahontan cutthroat trout (LCT, *Onchorynchus clarki-henshawi*) occupy numerous streams in southeastern Oregon such as Willow Creek, Whitehorse Creek, Little Whitehorse Creek, Doolittle Creek, Fifteen Mile Creek (from the Coyote Lake Basin) and Indian, Sage, and Line Canyon Creeks, tributaries of McDermitt Creek in the Quinn River Basin (Nevada). Surrounding habitats include sagebrush habitat.

Hutton tui chub (*Gila bicolor ssp.*) only occurs in Hutton Spring, Lake County, Oregon. The spring is in a grassy area bordered to the north and west by occupied sage-grouse habitat, and to the east and south by Alkali Lake.

Currently, the only known population of Foskett speckled dace (*Rhinichthys osculus ssp.*) is found in Foskett Spring in the Warner Basin and is located on public land managed by the Lakeview District of the BLM. The habitat is fenced from cattle use and is in stable condition. The spring itself is not within PPH or PGH habitats, but it is entirely surrounded by PPH and PGH habitats.

Warner sucker (*Catostomus warnerensis*) occupies the main Warner lakes (Hart, Crump, and Pelican), ephemeral lakes, sloughs, and lower-gradient streams, and stream resident populations

are found in Honey and Twentymile creeks, and in Deep Creek below Deep Creek Falls in Lake County, Oregon. Much of the occupied Warner sucker habitat is within designated PPH and PGH sage-grouse habitats.

Historically, the gray wolf (*Canis lupis*) was wide-ranging in Oregon, including sagebrush habitats, but is now mostly limited to mountainous areas of northeastern Oregon. It is anticipated throughout the life of the agreement that wolves will likely travel through sage-grouse habitat and will likely inhabit areas where there are significant elk populations.

4.2.3.2 Proposed Species

Currently, there are no species that are proposed for listing as either threatened or endangered under the ESA in the covered area.

4.2.3.3 Candidate Species

In addition to sage-grouse, there is one other candidate species found in the Counties. Columbia spotted frogs (*Rana luteiventris*) are found in wetland habitats throughout much of the sage-grouse range in Oregon.

4.3 Water Resources

This section summarizes the water resources found in the covered area. There are portions of eight river basins in the covered area, including the Grande Ronde, Powder, John Day, Malheur, Owyhee, Middle Snake/Boise, Deschutes Basins, and nearly all of the Oregon Closed Basin. The major rivers in the project area include the Silvies River, Donner und Blitzen River, Powder River, Grande Ronde River, John Day River, Deschutes River, Owyhee River, and Malheur River. Nearly all of these river basins are dominated by sagebrush habitat uplands, with higher elevations and headwaters containing forested landscapes and steeper slopes. Most of the precipitation in the project area falls during the winter as snow, and all of these basins are fed by snowmelt. Snowpack-fed stream flows are an important source of water for irrigation, fish, wildlife, livestock, domestic water supply and other uses (Oregon Department of Agriculture 2011).

4.3.1 Water Quality

The Oregon Department of Environmental Quality, Water Quality Division (DEQ), is the primary agency responsible for enforcing Federal and State water quality regulations. Oregon's waters support many uses, and water quality standards are established to protect the beneficial uses of the state's waters as defined in OAR 304-041-0002(17). Beneficial uses include public and private domestic water supply, industrial water supply, irrigation, livestock watering, fish and aquatic life, wildlife and hunting, fishing, boating, water recreation, and aesthetics (Oregon Department of Agriculture 2013). DEQ is required by the Federal Clean Water Act (CWA) of 1972 to assess water quality throughout the state every two years. Section 303(d) of the CWA requires DEQ to identify waters that do not meet water quality standards, placing those waters on the 303(d) list, and triggering the development a Total Maximum Daily Load (TMDL) for those waters. In many cases, TMDLs apply to entire basins or subbasins, and not just to individual water bodies on the 303(d) list. TMDLs specify the daily amount of pollution that a water body can receive and still meet water quality standards. Through the TMDL process, point sources are assigned "waste load allocations" and nonpoint sources are

assigned “load allocations”. Point sources are features such as return flow from industrial withdraws, large Animal Feeding Operations/Confined Animal Feeding Operations (AFO/CAFO), etc. Nonpoint sources include general classifications such as agriculture, forestry and urban (Oregon Department of Agriculture, 2013).

Most of the landscape is similar throughout the project area, with agriculture being the primary land use in all of southeast Oregon. Farming, ranching, and livestock operations are the main agricultural enterprises. Timber harvest, mining, energy development, urbanization, and many other activities impact the state’s waters. Generally, agricultural impacts have been identified as the main source of water quality impairments in the TMDLs for the basins throughout the project area. Water bodies in the project area that have been identified as water quality impaired are generally listed for the following reasons: dissolved oxygen, pH, sediment, temperature, bacteria, aquatic habitat modification, and flow modification. In some localized waters in smaller portions of specific basins, additional impairments are identified including algae and chlorophyll a, and the metals mercury and arsenic (Oregon Department of Agriculture, 2014).

For a complete list of water quality impaired streams in each basin of the project area, the current 303(d) list can be found at: <http://www.deq.state.or.us/WQ/TMDLs/basinlist.htm>. The individual basin water quality management area plans, which outline the efforts to address specific TMDLs, can be found at: http://www.oregon.gov/ODA/NRD/Pages/water_agplans.aspx.

4.3.2 Wetlands

According to the ODFW 2006 Conservation Strategy, wetlands provide important habitat for migrating and breeding waterfowl, shorebirds, water-birds, songbirds, mammals, amphibians and reptiles. In addition to being critical for birds and many kinds of wildlife, floodplain wetlands and backwater sloughs and swamps are important rearing habitats for juvenile salmon. Wetlands have direct value for people because they improve water quality by trapping sediments and toxins, recharging aquifers, storing water, and reducing the severity of floods. Restoration and careful management of wet meadow systems and other wetlands can increase sustainable production of forage for livestock and increase late-season stream flows. (ODFW 2006)

Within the covered area there are over 27,947 acres of wetland (Table 3). As previously noted in Section 4.2.1.4, wetlands are particularly important to sage-grouse during late brood-rearing. Donnelly (2013) analyzed the density of leks in relationship to wetland habitats and found that the highest density leks were situated closer to potential brood rearing habitats.

Table 3: Wetland Acreages in Covered Area

CCAA Covered Area (by County)	NWI 2013 Acres
Baker	16
Crook	10
Deschutes	243
Grant	6
Harney	2,346
Lake	25,258

Malheur	3,062
Union	0
Totals	27,947

4.4 Land Use and Ownership

At present, there are almost 15 million acres of sage-grouse habitat in the Counties across all ownership; approximately 70% is BLM-owned, 24% is privately-owned, and the remaining 9% is split among State lands, Forest Service, Bureau of Indian Affairs, Bureau of Reclamation, U.S. Fish and Wildlife Service, and the U.S. Department of Agriculture. DSL lands fall within that 9% split. Within the covered area, livestock production is the dominant land use. Much of that production occurs in sagebrush habitat, and associated meadow and riparian habitats.

DSL managed rangelands 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 the lessees, or direct lessee actions as appropriate under the terms of the lease contracts. Livestock production is the primary use of DSL’s rangelands in the covered area.

4.5 Socioeconomics and Environmental Justice

The eight counties within the covered area of the CCAA make up the majority of the southeastern Oregon landscape. This area of the state is often referred to as the “high desert” and is typically an arid to semi-temperate region. The landscape is dominated by sagebrush and rolling grasslands, high mountain peaks and river valleys. Portions of Lake and adjacent counties are also known as “the Oregon Outback”. Much of the area was originally settled as gold and other precious metals were discovered and small-scale mining does continue in isolated places today. Timber harvest also contributes to the local economic base. Currently, the entire area’s economy is mostly agriculturally based, with some farming of wheat, fruit, vegetables and grass seeds, but primarily livestock ranching. Tourism provides some economic base for many of the southeastern Oregon counties, with visitors drawn to the area for hunting, fishing, skiing, and other outdoor activities.

Harney County is the largest county in Oregon covering 10,226 square miles with a total population of 7,422 (U.S. Census 2010). It is a rural county with one of the lowest population densities in the state and according to U.S. Census data between 2000 and 2010, the population of Harney County decreased by 2.8%. Countywide, the majority of the population (88.8%) is white. The minority characteristics of Harney County’s population is 4.5% Hispanic or Latino, 3.5% American Indian, 0.4% Black or African American, 0.5% Asian, and less than 0.1% Native Hawaiian and Other Pacific Islander (2012 census.gov). Overall, minorities tend to make up a smaller percentage of the population of Harney County than the statewide average.

The median household income in 2007-2011 was \$38,702, with 20.5% of Harney County’s population living below the poverty level (2012 census.gov). The median household income is lower than the statewide average and there is a higher percentage of households below the poverty line than the statewide average. The un-employment rate in Harney County in February

of 2013 was 13.1% fluctuating from a high in February 2010 of 20.3% and a low in September of 2012 to 9.8%.

Baker county is the tenth largest county in Oregon, covering 3,068 square miles with a total population of 16,138 (US Census 2012). It is a rural county with approximately 5.3 persons per square mile, and the county population fell by 0.7% between 2010 and 2013 (US Census 2014). Countywide, the majority of the population (95%) is white. The minority characteristics of Baker County's population is 3.7% Hispanic or Latino, 1.3% native American, 0.4% Black or African American, 0.6% Asian, and less than 0.1% Native Hawaiian and Other Pacific Islander (US Census 2014). Overall, minorities tend to make up a smaller percentage of Baker County than the statewide average.

The median household income in Baker County from 2008 – 2012 was \$40,348, with 19.6% of the county population living below the poverty level (US Census 2014). The median household income is lower than the statewide average, and there is a higher percentage of households below the poverty line than the statewide average. The unemployment rate in Baker County in 8.6% in June 2014, with a high of 10.8% in April 2009 and a low of 5.6% in February 2007 (Oregon Employment Department 2014).

Crook County is the twelfth largest county in Oregon covering 2,979 square miles and a total population of 20,815 (US Census 2012). According to US Census data between 2010 and 2013, the population decreased by 0.8%. Countywide, the majority of the population is white (95.6%). The minority characteristics of Crook County's population are approximately 7.4% Hispanic or Latino, 1.4% American Indian, 0.3% Black or African American, 0.7% Asian, and less than 0.1% Native Hawaiian and Other Pacific Islander. Overall, minorities tend to make up a smaller percentage of the population of Crook County than the statewide average (US Census 2012).

The median household income in Crook County 2008 – 2012 was \$40,263, with 17.4% of the county's population living below the poverty level (US Census 2012). The median household income is lower than the state average and there is a higher percentage of households below the poverty line than the statewide average. The unemployment rate in Crook County was 10.3% in June 2014, with a high of 19.3% in June 2009 and a low of 5.7% in August 2006 (Oregon Labor Market Information System 2014).

Deschutes County is the eleventh largest county in Oregon, covering 3,018 square miles and hosting a total population of 163,954 (US Census 2012). According to US Census data between 2010 and 2013, the county population grew by 5.2%. Countywide, the majority of the population (94.8%) is white. The minority characteristics of Deschutes County's population are 7.7% Hispanic or Latino, 1.1% American Indian, 0.5% Black or African American, 1.0% Asian, and 0.2% Hawaiian or Other Pacific Islander. Overall, minorities tend to make up a smaller percentage of the population of Deschutes County than the statewide average.

The median household income in Deschutes County 2008 – 2012 was \$51,468, with 13.1% of the population living below the poverty level (US Census 2012). The median household include is slightly higher than the statewide average, and there is a slightly lower percentage of the population living below the poverty line than the state average. The unemployment rate in

Deschutes County (Bend MSA) was 8.1% in June 2014, with a high of 15.5% in June 2009 and a low of 4.4% in November 2006 (Oregon Labor Market Information System 2014).

Grant County is the seventh largest county in Oregon, covering 4,528 square miles with a total population of 7,283 and a density of 1.6 persons per square mile (US Census 2012). Population has decreased in Grant County by 2.2% between 2010 and 2013. Countywide, the majority of the population is white (95.0%). The minority characteristics of the county's population are 3.5% Hispanic or Latino, 1.5% American Indian, 0.5% Asian, 0.3% Black or African American, and 0.1% Native Hawaiian or Other Pacific Islander (US Census 2012). Overall, minorities tend to make up a smaller percentage of the county population than the statewide average.

The median household income in Grant County 2008 – 2012 was \$34,337, with 15.7% of the county population living below the poverty level (US Census 2012). The median household income was below the statewide average and the percentage of people living below the poverty level was almost the same as the statewide average. The unemployment rate in Grant County was 10.5% in June 2014, with a high of 14.2% in September 2010 and a low of 7.6% in March 2007 (Oregon Labor Market Information System 2014).

Lake County is Oregon's third largest county, covering 8,138 square miles with a population of 7,820 and a density of approximately 1.0 person per square mile (US Census 2012). The population declined by 0.9% between 2010 and 2013. Countywide, the majority of the population is white (92.6%). The minority characteristics of Lake County's population is approximately 7.7% Hispanic or Latino, 2.3% American Indian, 1.0% Asian, 0.5% Black or African American, and 0.1% Native Hawaiian or Other Pacific Islander. Overall, minorities tend to make up a smaller population than the statewide average, with the exception of American Indians, due to the proximity of the Klamath tribe (US Census 2012).

The median household income in Lake County 2008 – 2012 was \$40,049, with 17.2% of the county population living below the poverty level (US Census 2012). The median household income was below the statewide average, and the percentage of people living below the poverty level was slightly higher than the statewide average. The unemployment rate in Lake County was 9.7% in June 2014, with a high of 13.9% in September 2010 and a low of 6.9% in October 2006. (Oregon Labor Market Information System 2014).

Malheur County is the second largest county in Oregon, covering 9,887 square miles and supporting a total population of 30,479 (US Census 2013). It is a rural county with approximately 3.2 persons per square mile, and the county population fell by 2.7% between 2010 and 2013 (US Census 2014). Countywide, the majority of the population is white (62.1%). The minority characteristics of Malheur County's population include 32.8% Hispanic or Latino, 2.0% American Indian, 1.8% Asian, 1.4% Black or African American, and 0.2% Native Hawaiian or Other Pacific Islander. Overall, minorities tend to make up a smaller percentage of the overall population than the state average, with the exception of the Hispanics or Latinos, due to the many farming operations that employ Hispanic or Latino workers in the county.

The median household income in Malheur County from 2008 – 2012 was \$37,191, with 25.0% of the county's population living below the poverty level (US Census 2014). The median

household income is lower than the statewide average. The unemployment rate in Malheur County was 7.9% in June 2014, with a high of 11.1% in May 2009 and a low of 5.2% in August 2007 (Oregon Labor Market Information System 2014).

Union County is the sixteenth largest county in Oregon, covering 2,036 square miles with a total population of 25,652 and a density of roughly 12.6 persons per square mile (US Census 2013). The county population fell approximately 0.4% between 2010 and 2013. County wide, the majority of the population is white (93.5%). The minority characteristics of Union County's population include 1.3% American Indian, 1.2% Native Hawaiian or Other Pacific Islander, 1.1% Asian, and 0.6% Black or African American. Overall, minorities tend to make up a smaller percentage of the county population than the statewide average (US Census 2014).

The median household income in Union County from 2008 – 2012 was \$41,784, with 17.2% of the county living below the poverty level (US Census 2014). The median household income is lower than the statewide average. The unemployment rate in Union County was 7.1% in June 2014, with a high of 12.1% in February 2009 and a low of 5.2% in May 2007 (Oregon Labor Market Information System 2014).

4.6 Recreation

Recreation is not a primary land use in most of the covered area. However, hunting of sage-grouse and other wildlife as well as other recreational activities such as off-road vehicle use, camping, fishing, and wildlife viewing (including sage-grouse leks) may occur on private lands with landowner permission, as well as State and Federal lands in sagebrush habitat. The growing human population in Oregon may result in some increases in recreational use, particularly on public lands. DSL manages their lands in a manner that provides a net benefit to sage-grouse, and will apply CMs to address specific threats to sage-grouse and their habitats, including recreation, where those threats are identified.

The ODFW authorizes a hunting season on sage-grouse within the covered area. ODFW's policy is to not harvest more than 5% of the projected fall population in the hunted areas, though actual harvest is closer to 2.5 - 3.0% (ODFW 2014 pers comm). In 2013, the hunt was for 9 days (September 7 – 15). The daily bag and the possession limit are two sage-grouse. In 2013, the most recent harvest report available, the total harvest was 360 sage-grouse, approximately 2.1% of the estimated fall 2013 population (ODFW 2014).

4.7 Cultural and Historic Resources

The Service's decision regarding approval of the CCAA is considered an "undertaking" covered by the Advisory Council on Historic Preservation; therefore, the FWS must comply with section 106 of the National Historic Preservation Act (NHPA) (36 CFR 800). Cultural resources represent the full temporal range of human occupation and use from the continent's first peoples' arrival and settlement in Oregon over 14,000 years ago and subsequent tribal groups expansion and use throughout all of the Oregon sub-region and other parts of the west to more recent fur trappers, homesteaders, miners and ranchers of the last 200 years. Cultural resources can include buried artifacts and cultural features made and left by human activity in archaeological sites; items built by past cultures (e.g., houses/house remains and activity

areas); and places associated with traditional cultural uses (e.g., collection of native plant foods) (BLM 2013).

In the covered area, there are living descendants of each of the indigenous groups that have organized themselves into modern Indian tribes such as the Klamath, Modoc, Warm Springs, Paiute, and Shoshone. The tribes and their ancestors have occupied the area for thousands of years utilizing all the areas natural resources. It was not until the late 1800's and early 1900's that Euro-Americans began to arrive in southeast Oregon, beginning with trappers and explorers followed by traders, miners, soldiers, cattlemen, farmers and other settlers. Cultural and historic sites in the covered area typically highlight homesteading, ranching or farming properties, or Native American settlement sites.

5. Environmental Consequences of the Alternatives

5.1 Sagebrush Habitat

5.1.1 Sage-Grouse

5.1.1.1 No Action Alternative

Under the no action alternative, which represents current management, none (0%) of the DSL parcels covered area would be enrolled in CCAA for sage-grouse and CMs would not be implemented on any these lands. Ongoing voluntary sage-grouse conservation activities as described in Section 3.1, *No Action Alternative*, could still occur on these and adjacent lands, however, the regulatory assurances associated with an enhancement of survival permit would not be available if the species becomes listed. In the absence of a CCAA, it is anticipated that some sagebrush habitat would continue to be converted for other uses thereby increasing fragmentation of existing sage-grouse habitats. Changes in vegetative cover and species composition would continue to be shaped by fire and human actions such as surface water development, pesticide use, and grazing management. Plant species would be affected by ground disturbing activities that can directly harm plants or alter their habitat, such as off-road vehicle use and fence construction. The use of native plant species to restore disturbed sites would be less likely to occur, and exotic plant species would expand, further reducing sage-grouse habitat quality and quantity. However, due to the rural character and the predominance of ranching activities in the Counties, sagebrush habitats are likely to continue to be well represented in the covered area.

Under the no action alternative, sage-grouse populations would likely continue to persist in the Counties due to the presence of sagebrush habitat, the rural landscape, and ongoing conservation actions by other entities. Sage-grouse population numbers, however, may gradually decline with 0% of the DSL parcels in the covered area enrolled in a CCAA to address specific threats from ranching activities to sage-grouse and their habitat.

5.1.1.2 Proposed Action Alternative

We anticipate 100% of the DSL parcels in the covered area would be enrolled in the CCAA. DSL would first complete the baseline inventory to develop a SGHA with the required CM 1 and then determine if any additional CMs are necessary to address specific threats to sage-grouse on

each parcel. This alternative recognizes that each parcel is unique and CMs will be site-dependent. Therefore, CMs selected or developed beyond the required CM 1 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.

Under the proposed action alternative, sage-grouse populations would likely continue to persist in the Counties, and their populations may improve with implementation of the CMs. On DSL lands, the CMs detailed in the individual SGHAs would benefit sage-grouse as necessary by:

- Reducing habitat fragmentation;
- Reducing impacts from recreation;
- Reducing disruptions to sage-grouse activities;
- Maintaining or improving habitat quality and quantity;
- Reducing vulnerability to predation;
- Reducing mortality due to collision with fences and other infrastructure;
- Reducing spread of noxious weeds;
- Reducing likelihood of wildfires and subsequent impacts from fire;
- Reducing mortality from disease;
- Targeting herbicide treatments to improve sagebrush habitat using BMPs to minimize and avoid impacts to sage-grouse and other wildlife;
- Minimizing adverse impacts from grazing; and
- Maintaining insects as a seasonally important food item.

In general, the potential for, and magnitude of, negative effects to sage-grouse are anticipated to be less under the proposed action alternative compared to the no action alternative because implementing the CMs following a SGHA means that the CMs would be the most appropriate CMs given the current threats on the parcel; and the current ecological state.

The CCAA estimates that a small level of incidental take 5.17% will occur from covered activities, and describes a formula for calculating anticipated take using statewide estimates of sage-grouse and sagebrush, the number of acres enrolled, and an anticipated take of about 5% from covered activities (see Sections 10-12 of the CCAAs for a complete description of all activities covered and the estimated take for each activity, as well as Appendix F of the CCAA for information used to calculate take). This is applicable to the no action alternative as well. Incidental take associated with ranching activities is expected to be more than offset on the parcels that are also implementing CMs under the CCAA. Under this alternative, it is anticipated that in combination with other ongoing efforts there may be an improvement in the population of sage-grouse in the Counties.

5.1.2 Other Wildlife

5.1.2.1 No Action Alternative

Current land uses would continue, existing threats to sagebrush habitat would not be addressed, and wildlife management would be through existing regulatory mechanisms and other voluntary programs (see Section 3.1 *No Action Alternative*). It is anticipated that existing threats would continue for other wildlife species that utilize sagebrush habitat, including sensitive species, sagebrush obligate species, and species of greatest conservation need.

Existing threats to other wildlife include:

- Fragmentation of existing native sagebrush habitat;
- Conversion of sagebrush habitat for other uses;
- Decline in habitat quality from the threats described in Appendix A of the CCAA.

5.1.2.2 Proposed Action Alternative

Under the proposed action alternative, we anticipate 100% of the DSL lands in the covered area would be enrolled under the CCAA for sage-grouse. Benefits to other wildlife associated with implementation of CMs in the CCAA would be similar to benefits for sage-grouse. This alternative recognizes that each parcel is unique and CMs will be site-dependent. Therefore, CMs selected or developed beyond the required CM 1 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. These benefits would also translate to benefits for other wildlife species that utilize sagebrush.

Under this alternative, the CMs detailed in the CCAA would benefit other wildlife by:

- Reducing habitat fragmentation;
- Reducing disruptions to feeding, nesting, and other activities of wildlife utilizing sagebrush habitat;
- Reducing wildlife mortality from collisions with fences and other infrastructure;
- Maintaining or improving sagebrush habitat quality and quantity;
- Reducing vulnerability of susceptible wildlife to predation;
- Reducing spread of noxious weeds;
- Reducing likelihood of wildfires and subsequent impacts from fire;
- Reducing mortality from disease;
- Minimizing adverse impacts from grazing;
- Maintaining insects as a food item for other wildlife species; and
- Targeting herbicide treatments to improve sagebrush habitat using BMP's designed to minimize and avoid impacts wildlife.

In general, the potential for, and magnitude of, negative effects to other wildlife are anticipated to be less under the proposed action alternative compared to the no action alternative because implementing the CMs following a SGHA means that the CMs would be the most appropriate CMs given the current threats on the parcel and the current ecological state. It also avoids implementing CMs that could be considered arbitrary or capricious.

We anticipate that impacts under the proposed action alternative would result in long-term benefits to other wildlife species that utilize sagebrush habitats, potentially increasing their population numbers and distribution. Section 4.2.2, *Other Wildlife*, identifies many of the other species which use sagebrush habitat for at least part of their life cycles. These species will benefit from the strategic implementation of specific CMs that directly improve habitat conditions on each parcel, such as those which combat invasive species, reduce the impact from wildfire, and protect habitat from disturbance or fragmentation.

5.1.3 Threatened, Endangered, Proposed and Candidate Species

There are no listed or candidate species in the Counties, other than sage-grouse, that are sagebrush obligate species. However, six of the ten species listed and one candidate species in the Counties may be found incidentally in or near sagebrush habitats. Similarly, while there are resident gray wolves currently within the covered area, they occupy habitats well outside the range of sage-grouse, and there are no anticipated effects to this species under any alternative.

5.1.3.1 No Action Alternative

With none of the covered area enrolled in a CCAA, implementation of CMs would not occur and there would be no benefits from minor improvements in water quality and quantity to bull trout, Lahontan cutthroat trout, Hutton tui chub, Foskett speckled dace, Warner sucker or Columbia spotted frog.

5.1.3.2 Proposed Action Alternative

Bull trout, Lahontan cutthroat trout, Columbia spotted frogs, Hutton tui chub, Foskett speckled dace, and Warner sucker that may occur in the covered area will benefit from some of the required CMs such as developing additional water sources to move them outside of riparian areas, designing spring developments to maintain natural characteristics, and managing grazing to ensure stream functionality.

These species will also benefit from other CMs addressing riverine, riparian habitats, and wetlands, such as that may be implemented once SGHAs are completed. These include:

- Improving placement of stock tanks and other water development features to minimize erosion and sediment into water bodies.
- Fencing riparian habitat from livestock to encourage establishment of riparian species that stabilize soil and stream banks.
- Reducing water diversions to help maintain water quantity and aid in the dilution of existing contaminants.
- Applying herbicides (as described in Appendix E of the CCAAs) and placing food supplements (e.g., mineral and salt supplements) at a suitable distance from water resources to minimize input of those pollutants into water bodies.

5.2 Water Resources

5.2.1 No Action Alternative

Because CMs associated with a CCAA for sage-grouse would not be implemented, no beneficial effects to water resources would occur under the no action alternative. Current land management practices would continue, and management of water resources would be at the discretion of DSL and through existing regulatory mechanisms. Implementation of basin plans for the covered areas in their respective basins would continue provided adequate funding is available. Links to the respective plans for activities planned in 2012-2015 are provided here:

Burnt River Plan link:

http://www.oregon.gov/ODA/NRD/docs/pdf/plans/burnt_river_2014_plan.pdf

Crooked River Plan link:

http://www.oregon.gov/ODA/NRD/docs/pdf/plans/crooked_river_2014_plan.pdf

Deschutes River Plan link:

http://www.oregon.gov/ODA/NRD/docs/pdf/plans/deschutes_upper_2013_plan.pdf

Goose and Summer Lakes Basin Plan link:

http://www.oregon.gov/ODA/NRD/docs/pdf/plans/goose_summer_lakes_2011_plan.pdf

Harney Basin Plan link:

http://www.oregon.gov/ODA/NRD/docs/pdf/plans/harney_2013_plan.pdf

Malheur Basin Plan link:

http://www.oregon.gov/ODA/NRD/docs/pdf/plans/malheur_plan_2011.pdf

Owyhee Basin Plan link:

http://www.oregon.gov/ODA/NRD/docs/pdf/plans/owyhee_2011_plan.pdf

Powder and Brownlee Area Plan link:

http://www.oregon.gov/ODA/NRD/docs/pdf/plans/powder_brownlee_2013_plan.pdf

Upper Mainstem and South Fork John Day River Plan link:

http://www.oregon.gov/ODA/NRD/docs/pdf/plans/john_day_upper_2011_plan.pdf

We anticipate that impacts from existing land management practices under the no action alternative could contribute to long-term, moderate declines in the quality of water resources.

5.2.2 Proposed Action Alternative

Water resources under the proposed action alternative will benefit from on-going management plans, as well as application of the CMs in SGHAs. Water resources will benefit from the implementation of CMs by developing additional water sources to move them outside of riparian areas, designing spring developments to maintain natural characteristics, and managing grazing to ensure stream functionality. Once individual SGHAs are created, water resources would also benefit from reduced erosion due to habitat restoration, wildfire prevention, and the following CMs likely to be included:

- Improving placement of stock tanks and other water development features to minimize erosion into water bodies.
 - Fencing riparian habitat from livestock to encourage establishment of riparian species that stabilize soil and stream banks.
- Applying herbicides using the prescribed BMPs outlined in Appendix E in the CCAA and placing food supplements at a suitable distance from water resources to minimize input of pollutants into water bodies.

5.3 Land Use and Ownership

Currently, land values and demand in the covered area are not high enough for large scale sell-offs and development to occur. Development is also limited by zoning and land use restrictions. Therefore, we do not anticipate large-scale changes in land ownership or in land use from one type to another as a result of any alternative.

5.3.1 No Action Alternative

The lack of availability of regulatory assurances under this alternative, if sage-grouse are listed under the ESA, may be a disincentive to continue land uses (e.g. ranching) that help maintain sagebrush habitat.

5.3.2 Proposed Action Alternative

The assurances provided to DSL may help to encourage continued ranching activities and maintenance of sagebrush habitat because they would not be impacted by additional regulations over the term of their CCAA if sage-grouse are listed. Therefore, we anticipate that this will provide some incentive to maintain ranching as a major land use on DSL administered lands in the Counties.

5.4 Socioeconomics and Environmental Justice

U.S. Executive Order 12898 directs Federal agencies to “make...achieving environmental justice part of its mission” and to identify and address “disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations.” Participation by DSL in a CCAA and implementation of CMs as part of existing ranching activities (e.g. grazing practices, fuels management, and invasive species control) on state lands is not expected to cause adverse human health or other environmental effects. No low income or minority populations would be displaced or negatively affected by implementation of a CCAA for sage-grouse. We therefore anticipate no adverse impacts to minority or low-income populations under any alternative.

5.4.1 No Action Alternative

If sage-grouse are listed under the ESA, DSL may have to modify their land use practices to avoid harming the sage-grouse or its habitat. However, we anticipate little or no long-term changes in socioeconomic impacts under the No Action Alternative.

5.4.2 Proposed Action Alternative

The FWS and other participating agencies (NRCS, SWCD, etc.) will provide technical assistance to aid DSL in implementing CMs including: assistance in developing or revising grazing management or conservation plans; assistance with monitoring; providing mediation, facilitation, or other dispute resolution processes; and locating and applying for financial assistance for implementation of CMs. This assistance, along with more time to find funding to implement CMs, could provide a minor economic benefit to DSL.

5.5 Recreation

5.5.1 No action alternative

As a result of a growing human population in Oregon and other socioeconomic factors, the current low levels of recreational activities, such as OHV use and hunting, may increase somewhat in the Counties. This increase in recreation would likely occur largely on public lands because hunting on private lands would continue to be through landowner permission only. However, opportunities and success rates for hunting of sage-grouse and other game species, such

as pronghorn and mule deer that use sagebrush habitat, may decline as a result of the anticipated gradual decline in the quantity and quality of sagebrush habitat in the absence of CCAAs that specifically address threats to this habitat type.

5.5.2 Proposed Action Alternative

Under the proposed action alternative, only one CM addresses recreation specifically. It restricts off-trail vehicular travel in nesting habitat during the sage-grouse breeding season. Additional CMs that may be implemented following the creation of a SGHA contain seasonal access restrictions in order to minimize negative impacts to sage-grouse during breeding and brood-rearing. These restrictions are not anticipated to affect hunting opportunities, because little to no overlap exists between permitted hunting seasons (upland birds, waterfowl and big game hunting) and the time of the year that seasonal restrictions are likely to be in place, primarily early spring to early summer. However, seasonal restrictions may limit other recreational opportunities (e.g., OHV use, camping) during these times. Implementation of CMs to improve sagebrush habitat may enhance recreational opportunities (e.g. hunting and wildlife viewing) that depend on wildlife associated with this habitat (e.g. sage-grouse, pronghorn antelope, and mule deer).

Overall, we expect minimal effects to recreational opportunities under this alternative because seasonal restrictions under the CCAAs only pertain to property where access for recreational activities is already subject to landowner permission and enhancement of sagebrush habitat may not be enough to appreciably improve wildlife-dependent recreational opportunities.

5.6 Cultural and Historic Resources

5.6.1 No Action Alternative

In the absence of the CCAAs, associated CMs would not be implemented, and there would be no changes to impacts to cultural and historic resources. There would be slightly less potential to identify as yet undiscovered historic properties and implement protections for them under this alternative because in the absence of CCAAs there would not be a federal action to trigger a National Historic Preservation Act compliance review.

5.6.2 Proposed Action Alternatives

As part of the CCAA application process, the FWS must determine if implementation of any CM would directly or indirectly change the character or use of historic properties included in, or eligible for, inclusion in the National Register of Historic Places, and make a reasonable effort to identify undiscovered historic properties. The FWS must consult with the State Historic Preservation Officer (SHPO), affected Tribes, and other interested parties concerning cultural and historic resources, and consider their comments during project planning. Because of established procedures and FWS policies to consult with the Advisory Council on Historic Preservation, the SHPO, affected Tribes and other interested parties, we do not anticipate any impacts to cultural or historic properties as a result of these alternatives. However, should the FWS determine that impacts might occur from additional measures in an application for a CCAA, steps would be taken to avoid or minimize those impacts. In addition, DSL employs their own archaeologist to survey for cultural resources before any ground disturbing actions take place, and to monitor during actions where needed.

6. Cumulative Effects

Cumulative impacts can result from individually minor, but collectively significant activities taking place over a period of time (40 CFR 1508.7). The FWS must determine whether the impacts of the proposed action, when taken together with other ongoing activities, would result in a significant environmental impact.

This analysis of cumulative effects also includes consideration of ongoing and projected changes in climate. The terms “climate” and “climate change” are defined by the Intergovernmental Panel on Climate Change (IPCC). “Climate” refers to the mean and variability of different types of weather conditions over time, with 30 years being a typical period for such measurements, although shorter or longer periods also may be used (IPCC 2007). The term “climate change” refers to a change in the mean or variability of one or more measures of climate, such as temperature or precipitation, that persists for an extended period, typically decades or longer, whether due to natural variability, human activity, or both (IPCC 2007). Various types of changes in climate can have direct or indirect effects on species. These effects may be positive, neutral, or negative, and they may change over time, depending on the species and other relevant considerations, such as the effects of interactions of climate with other variables (IPCC 2007). Some of the threats to sage-grouse identified in the CCAA (e.g., drought, invasive plants species, wildfires, overgrazing, and loss of riparian habitat) may be exacerbated by climate change. The CMs in Appendix A of the CCAA that address these potential threats will help to ameliorate these adverse effects.

It is also reasonable to conclude that ongoing activities and disturbances within the covered area such as improper livestock grazing, agricultural conversion, wildfire, loss of habitat to invasive species, and potential large-scale developments will continue to have adverse impacts on these same resources through increased loss, deterioration, and fragmentation of sage-grouse habitat. These impacts are described in more detail in *Section 3.1, No Action Alternative*. However, with the approval and implementation of the CCAA, impacts from ranching activities on non-Federal lands would be expected to decrease.

In 2012, three large wildfires occurred in Malheur and Harney Counties and impacted an estimated 943,000 acres or almost 12% of suitable sage-grouse habitat, including over 630,000 acres of PPH/Core Habitat. Because the scale of these fires was unprecedented and because of the compounding effects of invasive annual grasses and climate change, we anticipate fires like this are likely to occur in the future and may result in large-scale losses of sage-grouse habitat and ultimately impact sage-grouse populations. If sage-grouse populations decline as a result of fires, the take allowed under the CCAA would be decreased based on the information in *Section 12, Authorized Take of the CCAA* which states: “*The authorized amount of take may be adjusted if the statewide 10- year minimum spring breeding population average changes by more than 10%.*”

CMs proposed in the CCAA and other ongoing statewide efforts to conserve sage-grouse will result in net beneficial impacts for all of the identified resources, particularly sage-grouse. These statewide efforts include: (1) NRCS SGI efforts, (2) ODFW efforts to further implement the 2011 Strategy, and (3) OWEB funding for sage-grouse habitat improvement projects as well as technical assistance funding to support the CCAAs. The state SageCon effort and BLM RMP

amendments focusing on sage-grouse habitat management are ongoing and we do not have enough information to assess their cumulative impacts.

Private rangelands in Harney County may be enrolled in the Harney County Soil and Watershed Conservation District programmatic CCAA, which includes the same CMs as the Multi-County programmatic CCAs currently undergoing NEPA review. Federal lands may also be enrolled in the Oregon Cattleman's Association CCA for rangelands which will allow CMs to reach across property types, regardless of ownership and allow enrolled landowners to address all the threats within their control on not only their private rangelands but their permitted Federal grazing allotments as well. Implementation of the CMs on participating lands will avoid and minimize the impacts of ongoing activities to sage-grouse and their habitat. Overall, sage-grouse will benefit from the implementation of CMs agreed to by landowners as part of their site-specific plans. The FWS anticipates that implementation of CMs over the 30 year term of the CCAs will benefit sage-grouse through improvements in habitat quality and a reduction of direct take. These efforts will enhance the comprehensive landscape approach to sage-grouse conservation for livestock management and associated activities.

It is reasonable to conclude that enrollment in a CCAA will result in increased beneficial effects for sage-grouse and other resources (e.g., wildlife, threatened and endangered species, and water resources) identified and analyzed in this EA, have a minor impact to recreation and socioeconomics, and have no impact on cultural and historic resources and environmental justice.

Beneficial effects will accrue through widespread implementation of CMs that reduce the loss, deterioration, and fragmentation of sage-grouse habitat. There is the potential for a minimal amount of incidental take as part of the regulatory assurances provided in ESA section 10(a)(1)(A) enhancement of survival permits that would be issued in conjunction with a CCAA. However, potential losses due to incidental take will be off-set by the implementation of CMs that will improve sage-grouse habitat and increase sage-grouse distribution and abundance in the Counties.

Therefore, the cumulative effects from incremental impacts of the proposed action, when added to other past, present, and reasonably foreseeable future activities within the covered area, will not result in a significant environmental impact.

7. Conclusion

Under the no action alternative, 0% of the covered area would be enrolled in a CCAA and current management activities would continue. Sage-grouse would likely persist in the Counties, but their populations may decline without regulatory incentives to maintain and improve sagebrush habitat as provided through CCAs and associated enhancement of survival permits. Under both the proposed action alternative, sage-grouse are likely to persist and their populations may improve. There would be no impacts to cultural and historic resources or environmental justice and only minimal effects to the other resources considered in this EA. There would also be long-term improvements to sage-grouse habitat, other wildlife, threatened and endangered species, and water resources. Based upon our evaluation of the

environmental consequences of both alternatives, we conclude that the proposed action alternative would provide the greatest benefit to sage-grouse and other resources within the covered area.

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