

**Environmental Assessment
for
A Greater Sage-Grouse Programmatic Candidate Conservation Agreement
with Assurances for Private Rangelands in Baker, Crook/Deschutes, Grant,
Lake, Malheur, and southern Union Counties, Oregon**

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Acronyms and Abbreviations used throughout this document

- AFO** Animal Feeding Operation
- BLM** Bureau of Land Management
- CAFO** Confined Animal Feeding Operation
- CCAA** Candidate Conservation Agreement with Assurances
- CFR** Code of Federal Regulations
- CI** Certificate of Inclusion
- 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
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
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 Agreements with Assurances (CCAAs) with individual Soil and Water Conservation Districts (SWCDs) having jurisdiction in Baker, Crook, Deschutes, Grant, Lake, Malheur and southern Union Counties, and to issue each SWCD 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 CCAAs. The area addressed by the CCAAs consists of non-federal lands within the range of the greater sage-grouse in Baker, Crook, Deschutes, Grant, Lake, Malheur, and southern Union Counties, Oregon. The Crook SWCD will enter into a cooperative agreement with Deschutes SWCD that will delegate the regulatory authority to Crook SWCD to administer the CCAA for greater sage-grouse habitat in Deschutes County. Thus, only one CCAA will be developed to include lands in both counties. Additionally, the Baker Valley SWCD has jurisdiction over the greater sage-grouse habitat in both Baker County and southern Union County to be enrolled under one CCAA. The Baker Valley, Crook/Deschutes, Grant, Lake, and Malheur County SWCDs will enroll landowners into the five CCAAs through Certificates of Inclusion (CIs) that will also transfer the incidental take coverage of the section 10(a)(1)(A) permit for their covered activities. The SWCDs will seek landowners interested in conducting voluntary conservation actions outlined in the CCAAs that will benefit the greater sage-grouse. Each landowner will have a site-specific plan (SSP) with conservation

measures (CMs) selected from the CCAAs that address the identified threats to greater sage-grouse on their properties.

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), the U.S. Fish and Wildlife Service (FWS) published a 12-month finding 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. A proposed listing decision for sage-grouse is scheduled for September 2015.

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 occur in the project area. In an effort to conserve sage-grouse and attempt to avoid listing, the SWCDs have taken steps to reduce impacts to the species and maintain its habitat, including development of a programmatic CCAA for each of the SWCDs’ respective counties and/or jurisdictions.

On April 16, 2014, representatives from Harney County SWCD met with a delegation of SWCD representatives from Baker, Malheur, Lake, Grant, and Crook Counties to discuss pursuing a similar effort as the Harney County Programmatic CCAA for the Greater sage-grouse in the remaining eastern Oregon counties with sage-grouse habitat. Soon after that meeting, the Baker Valley, Crook/Deschutes, Grant, Lake, Malheur County SWCDs formed technical committees to review and use the Harney County Programmatic CCAA document as a template for five additional CCAAs which accurately reflect the primary use of Oregon’s rangelands and communities of their respective counties. Similar to the Harney County CCAA Steering Committee, the SWCD’s technical committees were comprised of representatives from local, private landowners, local livestock associations and stock growers, watershed councils, SWCDs, FWS, the Natural Resources Conservation Service (NRCS), County Courts, Oregon Department of Fish and Wildlife (ODFW), Natural Resources Conservation Service (NRCS), Bureau of Land Management (BLM), Oregon State University Extension, The Nature Conservancy (TNC), Department of State Lands, Confederated Tribes of the Warm Springs Reservation of Oregon,

and the Burns Paiute Tribe. These technical committees requested assistance from the FWS in developing sage-grouse CCAAs for ranch and livestock management activities that would offer landowners assurances that their livestock operations could continue without additional restrictions, in the event the species was listed.

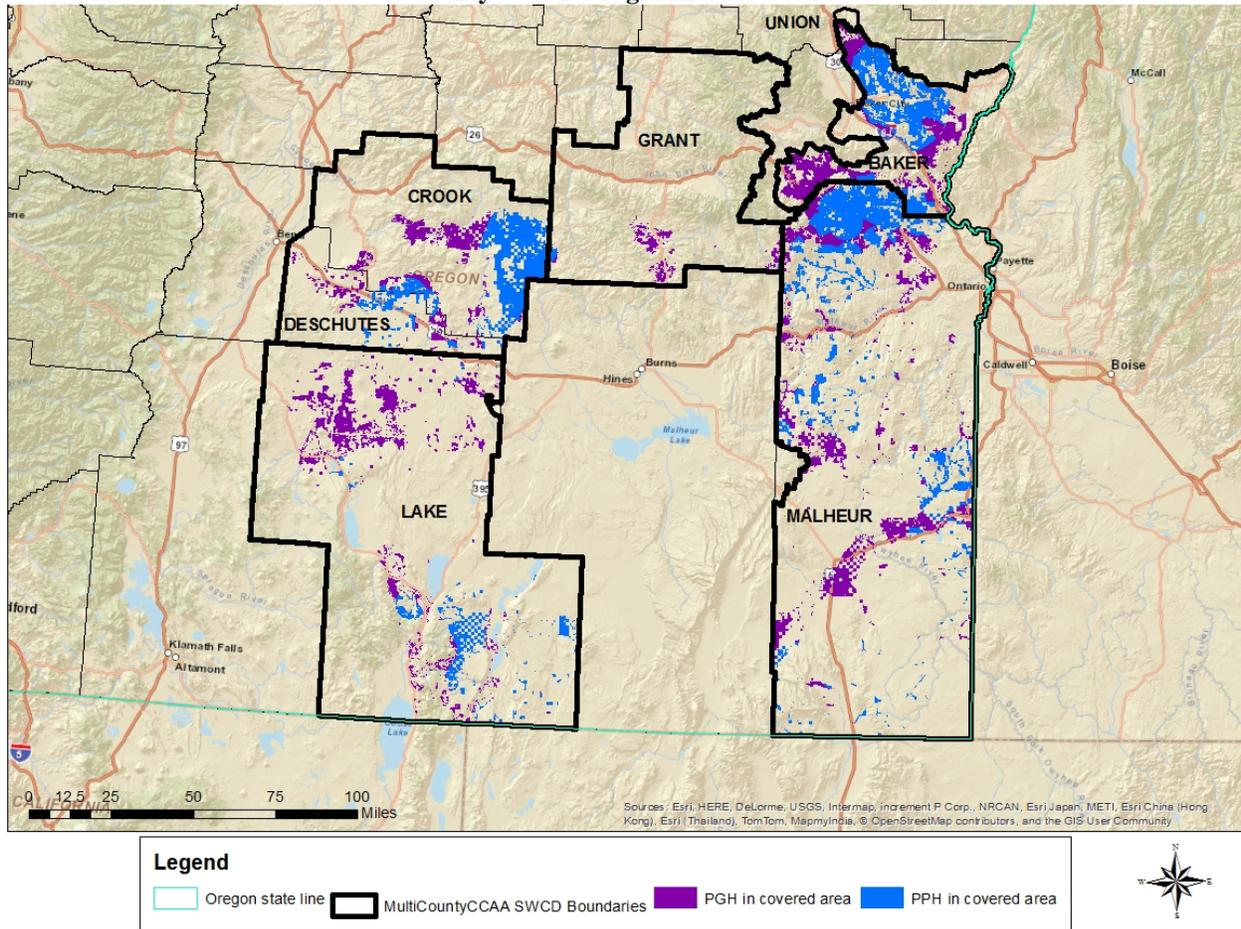
This EA was prepared in accordance with the National Environmental Policy Act (NEPA; 42, U.S.C. §4321 et. seq.) and in compliance with all applicable regulations and laws passed subsequently, including Council on Environmental Quality regulations (40 CFR, Parts 1500-1508) and U.S. Department of Interior requirements (Department Manual 516, Environmental Quality). NEPA compliance is required for each 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 programmatic CCAAs is to provide a framework for landowners to conserve sage-grouse and their habitats on suitable range lands. The conservation of sage-grouse and their habitats can be accomplished through the implementation of CMs in the programmatic CCAAs, which are intended to minimize impacts of on-going activities and to maintain or improve habitat conditions. Under the programmatic CCAAs, landowners sign up for inclusion and coverage under the enhancement of survival permits under section 10(a)(1)(A) that will be issued to the Baker Valley, Crook/Deschutes, Grant, Lake, and Malheur County SWCDs, and which will become effective if the sage-grouse becomes listed. Interested landowners may enroll in the programmatic CCAAs by working cooperatively with the SWCDs and FWS to develop an approved SSP and by signing a CI. The area covered by the programmatic CCAAs consists of non-federal lands containing preliminary priority habitat (PPH) and preliminary general sage-grouse habitat (PGH) throughout 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 ODFW Sage-grouse Conservation Assessment and Strategy for Oregon, 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, as well as additional areas of occupied suitable sagebrush habitat.

Figure 1. Covered Area Map for Baker Valley, Crook/Deschutes, Grant, Lake, and Malheur County SWCD Programmatic CCAAs



The programmatic CCAAs are 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 programmatic CCAAs will provide incentives for conservation of the sage-grouse on non-federal lands by providing assurances that no additional CMs or land, water, or resource use restrictions beyond those voluntarily agreed to by the non-federal landowner will be required for sage-grouse, should it be listed in the future. The programmatic CCAAs will also facilitate habitat management efforts by providing a streamlined process for selecting appropriate CMs and best management practices for each participating landowner. A complete list and description of the CMs can be found in appendix A of each of the CCAAs.

This EA evaluates the effects of three alternatives for responding to the SWCD’s application for ESA section 10(a)(1)(A) enhancement of survival permits and request for programmatic CCAAs. Our evaluation of the three alternatives will consider:

- The collective impacts of the FWS issuing assurances in an ESA section 10(a)(1)(A) enhancement of survival permits to Baker Valley, Crook/Deschutes, Grant, Lake, and Malheur County SWCDs.

- The collective impacts of individual landowners implementing CMs from the Programmatic CCAAs on non-federal lands.

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 programmatic CCAAs and issue enhancement of survival permits, 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 ranching activities will be incidental to otherwise lawful activities and in accordance with terms of the Programmatic CCAAs;
- The Programmatic CCAAs comply 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 programmatic CCAAs are consistent with applicable Federal, State, and tribal laws and regulations;
- Implementation of the terms of the programmatic CCAAs will not be in conflict with any ongoing conservation programs for species covered by the CCAAs; and
- The signatories have shown capability for, and commitment to, implementing all of the terms of the programmatic CCAAs.

3. Description of Alternatives

We are evaluating three alternatives in this EA: (1) a No Action Alternative, (2) a Landowner Specific Alternative, and (3) the Proposed Action Alternative. Under all alternatives, if sage-grouse become listed, landowners who have not enrolled in either an individual CCAA or in the SWCD 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. Currently there is only one CCAA with approximately 7,290 acres enrolled in Baker and Malheur Counties. This acreage represents just 0.32 % of the covered area. Under the no action alternative, the FWS would neither enter into any additional CCAAs for sage-grouse with Baker, Grant, Malheur, Lake, Crook or Deschutes County SWCDs, Oregon, nor issue any associated ESA section 10(a)(1)(A) enhancement of survival permits. As a result, efforts to reduce threats to sage-grouse by providing regulatory assurances to landowners through an ESA section 10(a)(1)(A) permit and its implementing regulations, policy, and guidance for CCAAs would largely not be available in these counties.

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 greater 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), 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). These groups facilitate and identify management priorities and actions to address priorities 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 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. 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 Programmatic CCAs for the SWCDs 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 works to pull together 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, the SageCon Partnership 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 three sub-groups meeting to address the following issues related to sage-grouse conservation: Fire and Invasives, 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 Landowner Specific Alternative

Under the landowner specific alternative, the FWS would enter into individual CCAAs on a case-by-case basis with landowners interested in conserving sage-grouse. For agreements that are completed and approved, the FWS would issue an enhancement of survival permit to the landowner. Landowners enrolling in individual CCAAs would agree to implement selected CMs associated with current or future activities on the enrolled land. These measures would be designed to reduce or remove threats to the sage-grouse and restore, enhance, or preserve its habitat. The landowner would also agree to allow access to SWCD, FWS or other designated staff to monitor the effectiveness of the implemented measures. In return, the FWS would agree not to impose further commitments of resources or additional restrictions on the enrolled landowner during the term of the permit, if the sage-grouse is listed. The enrolled landowner would receive coverage under the enhancement of survival permit for incidental take of sage-grouse if they become listed under ESA.

The FWS would not enter into programmatic CCAAs with Baker Valley SWCD, Crook SWCD, Deschutes SWCD, Grant SWCD, Lake SWCD, or Malheur County SWCD (SWCDs), nor issue an enhancement of survival permit to any of the SWCDs for incidental take of sage-grouse in association with the agreement. Consequently, there would not be a coordinated outreach effort conducted by the SWCDs to encourage the non-Federal landowners in their respective counties to enroll under the programmatic CCAA.

Under the landowner specific alternative, we anticipate that between 25-30% of the covered area acres would become enrolled under individual CCAAs. This estimate is based on 1) the current number of landowners that have expressed an interest in developing an individual CCAA; 2) FWS staffing and funding currently available to develop and implement individual CCAAs; 3) the absence of a coordinated outreach effort by the SWCDs to encourage landowner participation; and 4) the increased time and expense on the part of landowners to develop individual CCAAs.

3.3 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. The proposed action alternative would provide additional protections beyond the no action alternative because CCAAs with the SWCDs create a streamlined process for non-federal landowners to voluntarily complete SSPs and be issued CIs to receive coverage under the ESA section 10(a)(1)(A) permits that would be issued to Baker Valley, Crook/Deschutes, Grant, Lake, and Malheur County SWCDs upon approval of the CCAAs.

The programmatic CCAAs are designed to streamline the enrollment process by: (1) following the template provided in the Programmatic CCAA (appendix B of the programmatic CCAAs) to guide the SSP development process, including selection of site-specific CMs; (2) providing assistance to landowners in drafting SSPs, implementing selected CMs, and conducting biological and habitat monitoring through SWCDs and other participating agencies; (3) prioritizing applications; and (4) batching SSPs based on their time of submission; (5) educating/informing landowners of the availability of the CCAA and the associated enrollment process via implementation of the SWCD's funded countywide outreach to landowners within the covered area.

Under this alternative, we anticipate 40–60% of the covered acres would become enrolled under the programmatic CCAAs. We based this estimate on (1) the current number of landowners that have expressed an interest in the programmatic CCAAs; (2) the streamlining of processes associated with enrolling landowners under a programmatic CCAAs; and (3) outreach efforts that will be conducted by the SWCDs and participating partners. The regulatory incentives and streamlining process provided through the programmatic CCAAs under the proposed action alternative is expected to maximize the number of participating landowners. Implementation of this alternative is fully described in the programmatic CCAAs. This approach 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 programmatic CCAAs would be in effect for 30 years following their approval and signing by the FWS and the chair of each SWCD. 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. Individual CIs for enrolled landowners would be in effect for the amount of time specified in each individual SSP (usually 20 years) not to exceed the expiration of the programmatic CCAA permits. While the sage-grouse remains unlisted, the FWS may renew the programmatic CCAAs and associated SSPs, based upon a re-evaluation of the CCAAs' ability to continue to meet the CCAA standard. An enrolled landowner may also voluntarily terminate an individual SSP.

To ensure that the individual SSP is working and the CMs are adequate, the enrolled landowner must undertake or allow the following measures to continue (taken from the *Landowner Responsibilities* section of the programmatic CCAAs):

- Assist in the development of mutually agreeable SSPs in cooperation with the SWCD and FWS and cosign the SSP/CI document upon receiving a Letter of Concurrence from FWS;
- Implement all agreed upon CMs in their SSP;

- Allow SWCD and FWS employees or its agents, with reasonable prior notice (at least 48 hours) to enter the enrolled properties to complete agreed upon activities necessary to implement the SSP;
- Continue current management practices that conserve sage-grouse and its habitats as identified in the enrollment process;
- Avoid impacts to populations and individual sage-grouse present on their enrolled lands consistent with their SSP;
- Record dates, locations, and numbers of sage-grouse observed on their enrolled lands to be included in the annual report;
- Record new observations in the annual report of noxious weeds that they incidentally find;
- Report observed mortalities of sage-grouse to the SWCD within 48 hours;
- Cooperate and assist with annual and long term monitoring activities and other reporting requirements identified in the SSP.

Each individual SSP must include the following conservation measure (known as CM1 in the programmatic CCAAs):

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 SSP for preventing and/or reducing habitat fragmentation, the primary threat to sage-grouse.

Other threats within control of the enrolled landowner that have been identified on a property must also be addressed through the selection of one or more appropriate CMs listed in the programmatic CCAAs or developed with the approval of the FWS. The process for identifying threats and corresponding CMs includes non-Federal landowners working with the SWCDs 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 property and the landowner 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 programmatic CCAAs should apply across any lands to be enrolled in individual SSPs, 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 the SWCDs on SSPs, including the rationale or justification for any modifications.

4. Affected Environment

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

4.1 Covered Area

The covered area encompasses all sage-grouse habitat on non-Federal lands in Baker, Crook, Deschutes, Grant, Lake, Malheur, and southern Union Counties, Oregon. Most sage-grouse habitat on private lands in the project area is already designated as PPH (1,176,599 acres) or PGH (1,136,074 acres) (Table 1). However, private 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 CCAAs. 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 Baker Valley, Crook/Deschutes, Grant, Lake, and Malheur County SWCD Programmatic CCAAs

SWCD	PGH (acres)	PPH (acres)	Total (acres)
Baker/Union	225,465	258,214	483,679
Crook/Deschutes	167,374	316,134	483,508
Grant	45,775	10,921	56,696
Lake	283,439	115,185	398,624
Malheur County	414,021	476,145	890,166
Total	1,136,074	1,176,599	2,312,673

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.

Sage-grouse habitat in the covered area is mostly unfragmented and intact, with exceptions in the Baker County and Prineville 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 covered area across all ownerships. The quality of sagebrush habitat in the covered area has often 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 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 Programmatic CCAAs is sage-grouse, numerous other wildlife species also inhabit sagebrush ecosystems in Baker, Crook, Deschutes, Grant, Lake, Malheur, and southern Union Counties and could be affected if the Programmatic CCAAs are 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 Baker, Crook, Deschutes, Grant, Lake, Malheur, and southern Union 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 and chipping sparrow 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 (*Uroditellus 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. Northern leopard frogs (*Rana pipiens*) are found in shrub steppe communities, usually in close association with standing water, and may occur 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 Baker, Crook, Deschutes, Grant, Lake, Malheur, and southern Union 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 Baker, Crook, Deschutes, Grant, Lake, Malheur, and southern Union Counties, ten species are listed as threatened or endangered, under the ESA. 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 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 & 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 in the covered area, and will likely inhabit areas where there are significant elk populations.

The final rule listing Yellow-billed cuckoo (*Coccyzue americanus*) as threatened under the ESA became effective on November 3rd, 2014. Yellow-billed cuckoo are tied to wetland or riparian areas; however, surrounding habitat can include sagebrush; however no proposed critical habitat occurs in the covered area.

4.2.3.2 Proposed Species

No currently proposed species occur within the covered area.

4.2.3.3 Candidate Species

In addition to sage-grouse, there is one other candidate species found in Baker, Crook, Deschutes, Grant, Lake, Malheur, and southern Union 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 seven river basins in the covered area, including the Grande Ronde, Powder, John Day, Malheur, Owyhee, and Deschutes Basins, and portions of the Oregon Closed Basin. The major rivers in the project area include the 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 91,000 acres of wetland PGH lands and over 93,000 additional acres of wetlands on PPH lands (Table 4). Of those acres of wetland habitats, approximately 52,605 (58%) of these acres are on private lands classified as PGH and approximately 44,590 (48%) are on private lands classified as PPH (NWI 2013 Data).

As previously noted in Section 4.2.1.4, wetlands are particularly important to sage-grouse during late brood-rearing. According to research in progress by Intermountain West Joint Venture that is modeling wetland habitat and availability for brood rearing (particularly late brood-rearing when water is most limiting in sagebrush habitats), preliminary results indicate that 80% of these important wetlands are located on private lands. This study also 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. (Donnelly 2013)

Table 3: Wetland Acreages in Covered Area

CCAA Covered Area	PGH All Wetland Acres	PPH All Wetland Acres	PGH Private Wetland Acres	PGH Private Wetlands % of Total	PPH Private Wetland Acres	PPH Private Wetlands % of Total
Lake	32,335	34,530	14,092	44%	7,952	23%
Crook/Deschutes	6,469	14,215	4,156	64%	11,438	80%
Malheur	37,516	36,714	20,543	55%	18,502	50%
Baker/Union	10,159	7,356	9,535	94%	6,458	88%
Grant	4,643	252	4,278	92%	239	95%
Totals	91,122	93,067	52,604	58%	44,589	48%

4.4 Land Use and Ownership

Table 5 summarizes habitat types by major ownership classes in the covered area. At present, there are almost 9.7 million acres of sage-grouse habitat in the covered area; approximately 67% 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.

Table 4: Summary of Ownership within Covered Area

	Private PGH	Private PPH	BLM PGH	BLM PPH	Other PGH	Other PPH	Totals
Malheur	414,021	476,145	1,958,339	2,089,574	224,068	119,471	5,281,618
Baker/Union	225,465	258,214	65,773	130,522	3,416	2,892	686,282
Grant	45,775	10,921	9,334	1,162	10,372	790	78,354
Crook Deschutes	169,831	316,135	232,209	307,333	54,198	51,853	1,131,559
Lake	283,439	115,185	1,106,437	649,255	92,804	270,824	2,517,944
Totals	1,138,531	1,176,600	3,372,092	3,177,846	384,858	445,830	9,695,757

Approximately 2.3 million acres of private PPH/PGH lands occur within the current range of the sage-grouse in the covered area under the Programmatic CCAAs. Many of these lands are zoned Exclusive Farm Use. This zoning designation specifies a minimum parcel size of 160 acres and 80 acres for irrigated parcels. The most prevalent development type on these lands, besides agricultural, is housing related to farm use. Other uses may be permitted either administratively (e.g. accessory dwellings in conjunction with farm use) or by conditional use permit (e.g. mining operations) (Harney County 2013).

Prior to settlement of these lands, most of the area was likely native shrub-steppe habitat and therefore, sage-grouse habitat. Livestock production is the dominant land use in the covered area. Much of that production occurs in sagebrush habitat, and associated meadow and riparian habitats.

4.5 Socioeconomics and Environmental Justice

The seven counties within the covered area of the CCAAs 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.

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 income 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 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.

4.6 Recreation

Recreation is not a primary land use in most of the covered area, particularly on private lands. 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.

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

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, requires Federal agencies to take into account the effects of their undertakings on significant cultural resources that are, or may be, eligible for inclusion in the National Register of Historic Places. NHPA defines an undertaking as a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency, those carried out with Federal financial assistance, those requiring a Federal permit, license or approval, and those subject to state or local regulation administered pursuant to a delegation or approval by a Federal agency. Under this definition, the issuance of an incidental take permit or an enhancement of survival permit pursuant to section 10(a)(1)(A) of the Endangered Species Act (ESA) of 1973, is an undertaking that requires NHPA consideration.

While the issuance of a federal incidental take permit (or enhancement of survival permit) meets the definition of an undertaking under NHPA, the permit only authorizes take of species that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." Under these CCAAs, the otherwise lawful activities are associated with continued livestock and rangeland activities on privately-owned lands. As participating landowners develop individual SSP that contain specific information (i.e. the type of activities and where on the ground they will occur), the SWCD's will at that time review the plans and assess the level of work that may be necessary for ensuring compliance with federal, state or local laws that address (or pertain to) cultural resources.

Cultural resources in the broad CCAA vicinity 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 cultures 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, <1% of the covered area would be enrolled in CCAAs for sage-grouse and CMs would not be implemented on any other lands. Ongoing voluntary sage-grouse conservation activities as described in Section 3.1, *No Action Alternative*, could still occur on these 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 Baker, Crook, Deschutes, Grant, Lake, Malheur, and southern Union 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 Baker, Crook, Deschutes, Grant, Lake, Malheur, and southern Union Counties due to the presence of sagebrush habitat and the rural landscape, however, their population size may gradually decline with <1% of the covered area enrolled in CCAAs to address specific threats from ranching activities to sage-grouse and their habitat.

5.1.1.2 Landowner Specific Alternative

Developing individual CCAAs under this alternative instead of programmatic CCAAs as described under the Proposed Action Alternative would be more expensive and time consuming for landowners and the FWS due to the need to prepare ESA and NEPA compliance documents and procedures for each CCAA.

Under this alternative, we anticipate 25-30% of the covered area would be enrolled in individual CCAAs for sage-grouse. Sections 4 and 5 of the CCAA documents describe the development of site specific plans and implementing CMs. The process of selecting and/or developing specific CMs for individual properties will be based on the threats identified for the enrolled property (detailed in the SSP/CI), recognizing that each property is unique and CMs will be site-dependent. The SWCD will work with each landowner to identify specific threats for the property and select and/or develop CM(s) to remove or reduce each threat. Each identified threat within the control of the landowner will be addressed and will have one or more corresponding

CM(s); the FWS and SWCD recognize not every potential CM listed for a particular threat is appropriate for a given property. Therefore, CMs selected or developed will be based on their likely effectiveness, ability to be implemented, and should be the most beneficial for sage-grouse conservation on that particular property.

On these lands, the CMs detailed in the individual CCAAs 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.

The remaining 70-75% of the covered area on private lands that would not be enrolled in an individual CCAA would be subject to the following threats that are known to degrade, fragment, and/or destroy sage grouse habitat:

- Habitat conversion (sub-divide, agricultural conversion);
- Use of native plant species would be unlikely;
- Further expansion of exotic plant species;
- Herbicide use without best management practices for sage-grouse;
- Herbicide use to control sagebrush to increase forage, not to increase sage-grouse habitat quality;
- Fences un-marked in the vicinity of leks and other important areas;
- Off-road vehicle use and concentrating livestock near active leks when birds are present;
- Impacts to seasonally wet areas and other areas important for brood rearing would continue.

Landowners that do not participate in individual CCAAs may still participate in other ongoing sage-grouse conservation activities as described in section 3.1, *No Action Alternative*, and benefit sage-grouse on their properties. However, without the regulatory assurances provided as part of a CCAA and the associated enhancement of survival permit, landowners may be concerned about the potential regulatory implications of having sage-grouse on their lands if the species becomes listed under the ESA. Some landowners may choose to sub-divide their land or convert sagebrush habitat to unsuitable habitat in order to decrease their liability prior to a sage-

grouse listing decision. While we anticipate that a relatively small number of landowners may take steps to convert sage-grouse habitat, the potential would be greater under this alternative compared to the proposed action because fewer landowners would participate and fewer acres would be enrolled in a CCAA.

Under this alternative, we anticipate fewer negative effects to sage-grouse and their habitat from ranching activities compared to the no action alternative with <1% of the covered area enrolled in CCAAs but higher levels of negative effects compared to the proposed action alternative which would have 40-60 % of the covered area enrolled. More private land would be enrolled under the landowner specific alternative than the no action alternative, but not as many as we anticipate enrolling under the proposed action alternative. Thus, more CMs would be implemented over a greater area than the no action alternative, benefitting more sage-grouse than the no action alternative, but not as much as we anticipate under the proposed action alternative. Under the landowner specific alternative, sage-grouse populations would likely continue to persist in Baker, Crook, Deschutes, Grant, Lake, Malheur, and southern Union Counties, and their populations may improve with 25-30% of the covered area enrolled in individual CCAAs.

5.1.1.3 Proposed Action Alternative

Under the proposed action alternative, we anticipate 40-60% of the covered area would be enrolled under the Programmatic CCAA for sage-grouse. Benefits to sage-grouse associated with implementation of CMs in the Programmatic CCAA would be similar to benefits derived from CMs in individual CCAAs as described under Section 5.1.1.2. *Landowner Specific Alternative*. However, under this alternative there would be substantially more lands where CMs are being implemented because there would be more lands enrolled under a CCAA. A difference of 10% enrollment across the covered area, which encompasses more than 2.3 million acres of private land, represents over 230,000 acres. By way of comparison, this represents more than 80% of the current, existing enrollment in the Harney County CCAA, less than six months after the program went into effect (Harney County SWCD pers comm 2014). A 10% increase in enrollment is substantial in that it represents not only a significant amount of acres, but potentially dozens of private landowners. As of November 1st, 2014, the Harney County programmatic CCAA had more than 280,000 acres enrolled in the program, representing nearly 50 private landowners. Additionally, we expect efficiencies in implementation of the CMs under the programmatic CCAA due to having a countywide, comprehensive strategy to address threats associated with ranch management compared to administration of multiple individual CCAAs.

The remaining portion of the covered area that would not be enrolled under the programmatic CCAAs would be subject to the same threats as described under the no action and landowner specific alternatives with the potential for associated negative sage-grouse habitat effects. Landowners that do not participate in the programmatic CCAA may still participate in other ongoing sage-grouse conservation activities as described in section 3.1 and benefit sage-grouse on their properties. Some landowners may choose not to benefit sage-grouse or to actively convert sage-grouse habitat to unsuitable habitat due to concerns over potential regulations if sage-grouse are listed under the ESA. In general, the potential for, and magnitude of, negative effects to sage-grouse habitat are anticipated to be less under the proposed action alternative

compared to the other alternatives because there would be more acres of habitat enrolled under the programmatic CCAA.

The programmatic CCAAs estimate that a small level of incidental take (1 – 5%) 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 less than 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 programmatic CCAAs for information used to calculate take). This is applicable to the no action and landowner specific alternatives as well. Incidental take associated with ranching activities is expected to be more than offset on ranches that are also implementing CMs under the programmatic CCAAs. Under this alternative it is anticipated that, with 40-60% of the covered area enrolled under the programmatic CCAAs in combination with other ongoing efforts, there would be an improvement in the population of sage-grouse in Baker, Crook, Deschutes, Grant, Malheur, and southern Union 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 programmatic CCAAs.

5.1.2.2 Landowner Specific Alternative

Under this alternative, we anticipate 25-30% of the covered area would be enrolled in individual CCAAs for sage-grouse. On these lands, the CMs detailed in the individual CCAAs 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.

Under the landowner specific alternative, beneficial effects would only apply to the covered area that is enrolled under a CCAA. On lands not enrolled, which we anticipate to be approximately 70-75% of the private land within the covered area, current land uses would continue, existing threats (see Section 4.1.2.1 *Sage-grouse*; Sections 4 and 5 of the programmatic CCAAs, as well as Appendix A of the CCAAs) 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.

5.1.2.3 Proposed Action Alternative

Under the proposed action alternative, we anticipate 40- 60% of the private lands in the covered area would be enrolled under the programmatic CCAA for sage-grouse. Benefits to other wildlife associated with implementation of CMs in the programmatic CCAA would be similar to benefits derived from CMs in individual CCAAs as described under Section 5.1.2.2 *Landowner Specific Alternative*. However, under this alternative there would be substantially more lands enrolled under a CCAA and we expect efficiencies in implementation of the programmatic CCAA from a countywide, comprehensive strategy to address threats associated with ranch management compared to administration of multiple individual CCAAs. These efficiencies will allow the SWCDs and FWS to implement more CMs on enrolled lands sooner, benefitting more sage-grouse and reducing more threats in a shorter timeline as compared to the no action and landowner specific alternatives.

The remaining 40-60% of the covered area that would not be enrolled under the programmatic CCAA would be subject to the same threats as described under the other alternatives with the potential for associated negative habitat effects to other wildlife. Landowners that do not participate in the Programmatic CCAA may still participate in other ongoing conservation activities as described in Section 3.1 *No Action Alternative* and benefit other wildlife on their properties. Some landowners may choose to actively remove sagebrush habitat due to concerns over potential regulations if sage-grouse are listed under the ESA. This would also negatively impact other wildlife species associated with this habitat. In general the potential for and magnitude of negative effects to other wildlife are expected to be less under the proposed action alternative compared to the no action alternative because more acres of sagebrush habitat are expected to be enrolled and protected under the programmatic CCAA compared to individual CCAAs.

The programmatic CCAAs have identified removal of juniper that has encroached on rangelands as a high priority to improve sagebrush habitat. Juniper removal has the potential to adversely affect some wildlife species (e.g., Oregon junco and chipping sparrow) that use juniper for

foraging and shelter. Juniper's historic range has expanded since the late 1800's, due to many factors (e.g., increased fire suppression, pre-Taylor Grazing act stocking rates, climate patterns) (75 FR 13910; March 23, 2010). Because the CCAAs take an ecological approach to inventory, baseline assessment and monitoring through the state and transition models (see Section 6, *Inventory and Monitoring Protocols*, of the CCAAs), ecological sites that historically supported juniper woodlands will not be targeted and impacts to associated species will be limited to areas that were not historically occupied by juniper.

With 40-60% of the covered area enrolled, 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 sage brush habitat for at least part of their life cycles. These species will benefit from the implementation of CMs that directly improve habitat conditions, 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

Bull trout, Lahontan cutthroat trout, Columbia spotted frogs, yellow-billed cuckoos, Hutton tui chub, Foskett speckled dace, or Warner suckers occur in the covered area, but none of these species are sage brush obligates. Gray wolves currently occur within the covered area but in very low numbers and only in the far northeastern portion of the covered area, and are typically not found in sage brush habitat. There are no anticipated effects to this species under any alternative.

5.1.3.1 No Action Alternative

With <1% of the covered area enrolled in a CCAA, implementation of CMs would not occur on most of the covered area and there would be few benefits to bull trout, Lahontan cutthroat trout, Columbia spotted frog, yellow-billed cuckoo, Hutton tui chub, Foskett speckled dace, and Warner sucker, from minor improvements in water quality and quantity.

5.1.3.2 Landowner Specific Alternative

Bull trout, Lahontan cutthroat trout, Columbia spotted frogs, yellow-billed cuckoos, Hutton tui chub, Foskett speckled dace, and Warner sucker that occur on the 25-30% of the covered area that is anticipated to be enrolled under individual CCAAs will benefit from CMs addressing riverine, riparian habitats, and wetlands, such as:

- 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.

With only 25-30% of the covered area enrolled in individual CCAAs, beneficial impacts to threatened, endangered, and candidate species other than sage-grouse would be minor improvements in water quality and quantity, and other limited beneficial effects from the implementation of the CMs above.

5.1.3.3 Proposed Action Alternative

With 40-60% of lands in the covered area enrolled in the Programmatic CCAAs, benefits to bull trout, Lahontan cutthroat trout, Columbia spotted frog, yellow-billed cuckoo, Hutton tui chub, Foskett speckled dace, and Warner sucker found in the covered area will be greater than under the landowner specific alternative because there will be more lands where CMs for riverine, riparian, and wetland habitats will be implemented.

5.2 Water Resources

5.2.1 No Action Alternative

Because CMs associated with a CCAA for sage-grouse would be implemented on <1% of the covered area, few beneficial effects to water resources would occur under the no action alternative. Current ranch management practices would continue, and management of water resources would be at the discretion of individual landowners 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 ranch practices under the no action alternative could contribute to long-term, moderate declines in the quality of water resources.

5.2.2 Landowner Specific Alternative

Water resources would benefit from reduced erosion due to habitat restoration, wildfire prevention, and the following CMs likely to be included in individual CCAAs:

- 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 Programmatic CCAAs and placing food supplements at a suitable distance from water resources to minimize input of pollutants into water bodies.

Water resources will benefit from on-going management plans, as well as enrollment in individual CCAAs. However, because we only expect 25-30% of the covered area to be enrolled under individual CCAAs, current ranch management practices would continue on most properties, and management of water resources would be at the discretion of individual landowners and through existing regulatory mechanisms. Thus, we anticipate benefits under this alternative would be minor improvements to water quality and quantity within the covered area.

5.2.3 Proposed Action Alternative

The CMs in the programmatic CCAAs that benefit water resources are largely the same as CMs that would be found in individual CCAAs as described above under the no action alternative. However, we expect higher and more widespread levels of landowner participation in the programmatic CCAAs, with 40-60% of the covered area acreage enrolled. This will result in more beneficial impacts to water quality and quantity in the associated river basins with substantial sagebrush habitat.

We also anticipate that the programmatic CCAAs will help leverage funds for the implementation of the basin plans (referenced above). Under this alternative, the types of impacts to water resources would be the similar to those described under the landowner specific alternative, but the benefits would be greater under the proposed action alternative due to implementation of CMs over a larger area and the enhanced ability to leverage funds for implementation of other plans associated with the covered area that also benefit water resources.

5.3 Land Use and Ownership

5.3.1 No Action Alternative

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 county 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. However 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 Landowner Specific Alternative

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 county 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. The assurances provided to landowners that participate in a CCAA 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, with 25-30% of the covered area enrolled under this alternative we anticipate that this will provide some incentives to maintain ranching as a major land use in the county.

5.3.3 Proposed Action Alternative

Impacts to land use and ownership would be similar to those that are described under the landowner specific alternative. However, with 40-60% of the covered area enrolled in the Programmatic CCAAs, more landowners would benefit from regulatory assurances and funding opportunities associated with conservation of sage-grouse, which could result in greater opportunities to maintain ranching as a major land use in the county.

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 private landowners in a CCAA and implementation of CMs as part of existing ranching activities (e.g. grazing practices, fuels management, and invasive species control) on private 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 the species is listed under ESA, some landowners 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 Landowner Specific Alternative

Under this alternative, an estimated 25-30% of the covered area would be enrolled in individual CCAAs. Participating landowners would benefit from regulatory certainty that would increase the security of their ranching operations. There may be some short-term costs to the landowners to finance implementation of CMs; however, this would be off-set by the benefits. The FWS and other agencies will provide technical assistance to aid landowners in implementing CMs including: assistance in developing or revising grazing management or conservation plans; assistance with monitoring; completing individual CCAA enrollment documentation; providing mediation, facilitation, or other dispute resolution processes; and locating and applying for financial assistance for implementation of CMs. This assistance could provide a minor economic benefit to landowners. Landowners that do not

enroll under a CCAA may have to abruptly modify their land use practices to avoid harming sage-grouse and its habitats, if the species is listed.

Under the landowner specific alternative there would be additional time and expense necessary to develop and implement individual CCAs compared to the programmatic CCAs under the proposed action. However, we anticipate little or no long-term changes in socioeconomic impacts under this Alternative.

5.4.3 Proposed Action Alternative

The FWS and other participating agencies (NRCS, SWCD, etc.) will provide technical assistance to aid landowners in implementing CMs including: assistance in developing or revising grazing management or conservation plans; assistance with monitoring; completing individual CCAA enrollment documentation; providing mediation, facilitation, or other dispute resolution processes; and locating and applying for financial assistance for implementation of CMs. A full list of the technical assistance that would be provided by the FWS and other participating agencies is detailed in the programmatic CCAs. This assistance could provide a minor economic benefit to landowners.

With 40-60% landowner participation in the proposed action alternative there may be some short term impacts to socioeconomics (e.g. out of pocket expenses) as enrolled landowners implement CMs. Some funding pools (e.g., SGI) plan to prioritize restoration funding to landowners enrolled in the CCAs. Additionally, OWEB also provides funds for sage-grouse habitat improvement projects and will likely be a source of funding for implementing CMs. Under the proposed action alternative which includes working with the SWCDs as the permit holders, enrolled landowners will have a higher level of certainty that the rural ranching lifestyle will be preserved and there may be minor long term economic benefits.

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 Baker, Crook, Deschutes, Grant, Lake, Malheur, and southern Union 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 large scale CCAs that specifically address threats to this habitat type.

5.5.2 Landowner Specific Alternative

Under this alternative 25-30% of the covered area would likely be enrolled under individual CCAs that include seasonal recreational 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) on private lands during these times. Implementation of CMs to improve sagebrush habitat on 25-30% of the covered area 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 private property where access for recreational activities is already subject to private landowner permission and enhancement of sagebrush habitat on 25-30% of the covered area may not be enough to appreciably improve wildlife-dependent recreational opportunities.

5.5.3 Proposed Action Alternative

Under the proposed action alternative, we expect the same types of effects to occur as described in Section 5.5.2 *Landowner Specific Alternative*, however, there would be slightly more access restrictions for some types of recreation and slightly more improvement of wildlife-dependent recreation because 40-60% of the covered area is anticipated to be enrolled under the programmatic CCAAs.

5.6 Cultural and Historic Resources

5.6.1 No Action Alternative

In the absence of the programmatic CCAAs, CMs would not be implemented on the majority of the covered area, 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 Landowner Specific and Proposed Action Alternatives

Individual CCAAs for sage-grouse and ranching activities under the landowner specific alternative are likely to contain the same types of measures as in the programmatic CCAAs under the proposed action alternative. Under the proposed action, as part of the SSP application process, the SWCDs will work with participating landowners to determine if implementation of any conservation measure would directly or indirectly impact significant cultural resources that may be present on their private lands. The SWCD's will help landowners identify potential sources of funding (e.g., ODFW, NRCS) for sage grouse habitat conservation measures and will determine the level of work, if any, that may be necessary for ensuring compliance with federal, state, or local laws for cultural resources. Measures that SWCD's and enrollees may undertake to ensure protection of significant cultural resources include, but is not limited to, commissioning cultural resource surveys for their projects by qualified archaeologists and establishing steps that would be taken to avoid or minimize potential impacts. Given these measures and that livestock and rangeland activities have been ongoing in these areas for many decades; we do not anticipate any impacts to cultural or historic properties as a result of this alternative.

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 Programmatic CCAA (e.g., drought, invasive plants species, wildfires, overgrazing, and loss of riparian habitat) may be exacerbated by climate change. The CMs 6, 9-18, 22, 30, 31-33, 35-42, and 47-50 (Appendix A of the CCAAs), 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 programmatic CCAAs, impacts from ranching activities on non-Federal lands would be expected to decrease due to 40-60% enrollment of the covered area in the programmatic CCAAs, which addresses such impacts.

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 programmatic CCAAs would be decreased based on the information in Section 12, Authorized Take of the CCAAs: *“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 programmatic CCAAs 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 are being enrolled in the Harney County Soil and Watershed Conservation District programmatic CCAA, which includes the same CMs as the SWCDs programmatic CCAAs. 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. The Oregon Cattleman's Association CCA covers more than 10 million acres of grazing allotments on federal land throughout the eight counties of southeastern Oregon, with more than 1 million acres of these allotments voluntarily enrolled as of January 2015. Significant additional enrollments are expected. Additionally, DSL is working with the FWS to develop a CCAA to implement CMs on over 633,000 acres of State owned rangelands. 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 SSP. The FWS anticipates that implementation of CMs over the 30 year term of the CCAAs 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 throughout the covered area.

It is reasonable to conclude that a 40-60% acreage enrollment in the programmatic CCAAs 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 the individual CCAAs. 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 Baker, Crook, Deschutes, Grant, Lake, Malheur, and southern Union Counties, Oregon.

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, <1% of the covered area would be enrolled in CCAAs. Sage-grouse would likely persist in Baker, Crook, Deschutes, Grant, Lake, Malheur, and southern Union Counties, but their populations may decline without regulatory incentives to maintain and improve sagebrush habitat as provided through CCAAs and associated enhancement of survival permits. Under the landowner specific alternative with 25-30% of the covered area enrolled in individual CCAAs, sage-grouse are likely to persist and their populations may improve in Baker, Crook, Deschutes, Grant, Lake, Malheur, and southern Union Counties. There would be only minimal effects to the most other resources considered in this EA and no impacts to cultural and historic resources, or environmental justice. Under the proposed action alternative with 40-60% of the covered area enrolled in programmatic CCAAs, the populations of sage-grouse will likely improve in Baker, Crook, Deschutes, Grant, Lake, Malheur, and southern Union Counties, and there would be long-term improvements to sage-grouse habitat, other wildlife, threatened and endangered species, and water resources. Under the proposed action alternative there would be minimal effects to land use and ownership, socioeconomics, and recreation, and no impacts to cultural and historic resources or environmental justice. 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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