

Draft Environmental Assessment

for

**A Greater Sage-Grouse Programmatic Candidate Conservation Agreement with
Assurances for Private Rangelands in Harney County, Oregon**

**Prepared by
U.S. Fish and Wildlife Service**

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DRAFT

1 Introduction

This environmental assessment has been prepared to address the impacts of entering into a Candidate Conservation Agreement with Assurances (CCAA) with the Harney Soil and Water Conservation District (SWCD) and issuing them a section 10(a)(1)(A) permit under the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 et seq.), for the potential incidental take of the greater sage-grouse (*Centrocercus urophasianus*) that may occur during implementation of the CCAA. The area addressed by the CCAA includes non-federal lands within the range of the greater sage-grouse in Harney County, Oregon, but also includes some properties that extend into portions of bordering counties in Oregon. The Harney SWCD will enroll landowners into the CCAA through Certificates of Inclusion that will also transfer the incidental take coverage of the section 10(a)(1)(A) permit for their covered activities. Harney County SWCD will seek landowners interested in conducting voluntary conservation actions outlined in the CCAA that will benefit the greater sage-grouse. Each landowner will have a site-specific plan with conservation measures (CMs) selected from the CCAA 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). Rangelwide, 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) determined that listing the sage-grouse was “warranted, but precluded” under the Endangered Species Act of 1973 (ESA), as amended. This designation means that the species is warranted for listing under ESA, but precluded by other higher priority listing actions. Based on this decision, the sage-grouse is now a Federal candidate species and its status will be reviewed annually by the FWS. In an effort to conserve sage-grouse and attempt to avoid listing, Harney County SWCD has taken steps to reduce impacts to the species and maintain its habitat, including development of the CCAA titled *Greater Sage-Grouse Programmatic CCAA for Private Rangelands in Harney County, Oregon*.

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 the 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.

Many private landowners and several agencies and organizations including: Harney Soil and Water Conservation District (SWCD), Natural Resources Conservation Service (NRCS), Oregon Department of Fish and Wildlife (ODFW), The Nature Conservancy (TNC), Oregon State University Extension (OSU), Eastern Oregon Agricultural Research Center (EOARC), Oregon Department of State Lands (DSL) Burns District Bureau of Land Management (BLM), and FWS (collectively known as the Harney County Greater Sage-Grouse CCAA Steering Committee (Steering Committee)) have developed a draft programmatic CCAA to better manage and conserve sage-grouse in Harney County, Oregon. The Steering Committee requested assistance from the FWS in developing a sage-grouse CCAA 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. Conservation measures (CM's) have been identified in the draft programmatic CCAA to address threats to the species that may occur as a result of ranching and livestock management practices.

In the sage-grouse 12-month finding (75 FR 13910; March 23, 2010), 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. However, while some livestock management methods may be detrimental to sage-grouse habitat, it was not a primary contributor to the "warranted" determination.

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 the programmatic CCAA because issuance of an ESA section 10 permit by the FWS is a Federal action.

1.1 Purpose and Need for Action

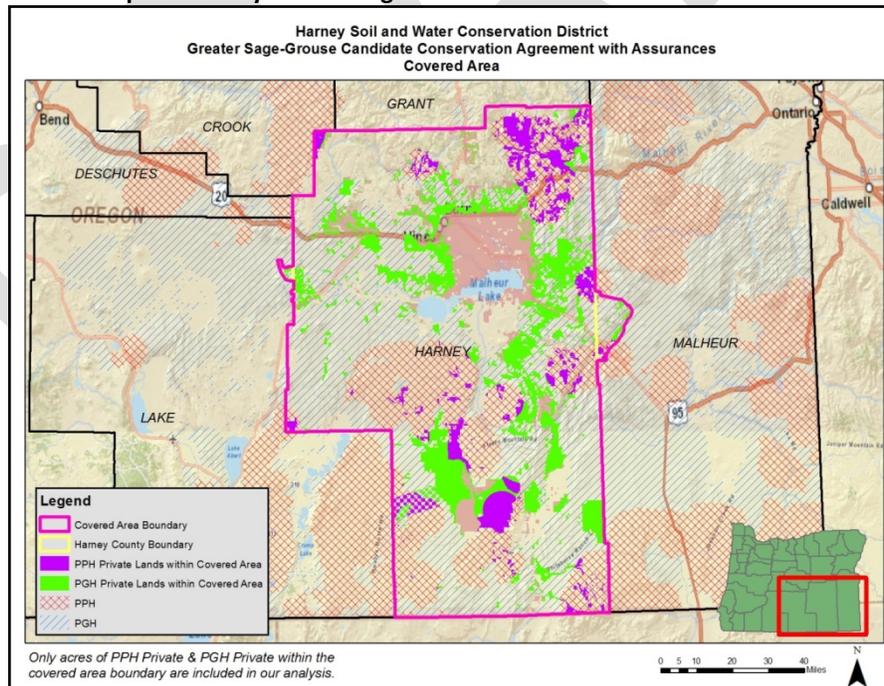
The purpose of the programmatic CCAA is to provide a framework for landowners to conserve sage-grouse and their habitats throughout the county and its borders on suitable range lands

through the implementation of CMs intended to minimize impacts of on-going activities and to maintain or improve habitat conditions. Under the programmatic CCAA landowners sign up for inclusion and coverage under the enhancement of survival permit under section 10(a)(1)(A) that will be issued to Harney SWCD if the species becomes listed. Interested landowners may enroll in the programmatic CCAA by working cooperatively with the Harney SWCD, FWS and others to develop an approved site specific plan and signing of a certificate of inclusion. The area potentially impacted by the CCAA would include non-federal lands containing preliminary priority (PPH) and preliminary general sage-grouse habitat (PGH) throughout Harney County, Oregon.

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 ODFW Sage-grouse Conservation Assessment and Strategy for Oregon, as well as additional areas of suitable sagebrush habitat.

Figure 1: Covered Area Map for Harney SWCD Programmatic CCAA



The CCAA is needed to improve conservation of the sage-grouse. Sage-grouse habitat and populations have declined throughout their range over the past several decades, which prompted the status as a federal candidate species under the ESA. The programmatic CCAA 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 the species, should it be listed in the future. It will also facilitate habitat management efforts by providing a streamlined process for selecting appropriate CMs and best management practices for each participating landowner

Our evaluation will consider:

- The collective impacts of the FWS issuing assurances and an ESA section 10(a)(1)(A) enhancement of survival permit to Harney Soil and Water Conservation District.
- The collective impacts of individual landowners implementing CMs from the programmatic CCAA on non-federal lands.

The FWS, R1, Deputy Regional Director is the responsible official who will determine whether or not to approve the programmatic CCAA and issue an enhancement of survival permit, in accordance with section 10 of the ESA. To approve an enhancement of survival permit, FWS must find that:

- Any take of sage-grouse due to ranching activities will be incidental to otherwise lawful activities and in accordance with terms of the programmatic CCAA;
- The programmatic CCAA complies with the requirements of the Candidate Conservation Agreement with Assurances final policy (64 FR 32726; June 17, 1999);
- The probable direct and indirect effects of any authorized take will not appreciably reduce the likelihood of survival and recovery in the wild of any species;
- Implementation of the terms of the programmatic CCAA are consistent with applicable Federal, State, and tribal laws and regulations;
- Implementation of the terms of the programmatic CCAA will not be in conflict with any ongoing conservation programs for species covered by the CCAA; and
- The signatories have shown capability for and commitment to implementing all of the terms of the programmatic CCAA.

2 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 CCAA, may need to apply for an incidental take permit to cover ranch/land management activities that could potentially take sage-grouse.

2.1 No Action Alternative

The “no action” alternative represents the current management situation and provides the baseline for comparing the environmental effects of all other alternatives. Under the no action alternative, the Service would not enter into any CCAAs for Sage Grouse in Harney County, Oregon nor issue any associated section 10(a)(1)(A) enhancement of survival permits.

Therefore, efforts to reduce threats through providing regulatory assurances to landowners through a section 10(a)(1)(A) of the Act and its implementing regulations, policy, and guidance for CCAAs would not be available. Thus, 0% of the covered area would be enrolled under a CCAA. However, existing protections for the species would remain in effect and are described in the following paragraphs:

Currently in Oregon, sage-grouse are managed by **ODFW** and 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). As part of the Strategy they designated core and low density habitats for sage-grouse in Oregon. These habitat designations are based on four lek density strata and core areas account for over 90% of Oregon’s breeding populations, 84% of occupied leks on 38% of the species range with low-density habitats occupying an additional 33% of the species range. The goal of the Strategy is to promote the voluntary conservation of greater sage-grouse and intact functioning sagebrush communities in Oregon.

The Strategy identified five **Local Implementation Teams (LITs)** (one for each BLM District in sage-grouse range and one for the Baker Resource Area of the Vale District) with the primary directive to ensure that sage-grouse and sagebrush habitat conservation decisions (at a minimum those actions identified in the Plan) 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 conservationist), 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 them to achieve population and habitat objectives. This process occurs at the interface of public and private lands. Priorities and projects are to be first identified based on the biological needs of sage-grouse or habitat rehabilitation. To date the LIT’s have identified action areas within core and low density areas and identified the threats present within each action area.

The sage-grouse is not considered a migratory species; therefore, it is not covered by the provisions of the Migratory Bird Treaty Act (16 U.S.C. 703-712). However, several Federal agencies have other legal authorities and requirements for managing the species and its habitat. These Federal authorities are described in the following paragraphs:

The **NRCS Sage Grouse Initiative (SGI)**, began in March, 2010, to conserve sage-grouse and sustain working ranches throughout the range of the species (including Harney County, Oregon), would continue. 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. From 2010 – 2013, 12,576 acres of sage-grouse habitat has been treated

in Harney County and an additional 8,108 acres are scheduled for treatment in the remainder of 2013 through 2015. SGI funds have also been used to (1) mark 9465 feet of fence to reduce the risk of sage-grouse striking fences with an additional 12,050 feet of fence scheduled for marking in 2013; (2) install 13 water trough escape ramps with an additional 6 escape ramps planned by 2015; (3) treat 20 acres of medusahead/annual grass with an additional 730.6 acres of treatment planned by 2015; and (4) discontinue livestock grazing on 800 acres of land for 12-15 months with an additional 4116.6 acres planned by 2018. The local NRCS office expects to enroll more individuals in SGI so these numbers will likely rise over time. (NRCS 2013)

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 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, this agreement 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 CCAA.

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 rangewide. Sensitive species require special consideration during land use planning and activity implementation.

Additionally, the **Governor of Oregon** has created a task force known as **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, FS), Non-Governmental Organizations (Audubon, Oregon Natural Desert Association, Defenders of Wildlife, others). The Sage Grouse Conservation Partnership (SageCon) will work to pull together an "all lands, all threats" approach to sage-grouse conservation to both address FWS's sage-grouse listing decision in 2015 and 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 (RMP's, CCAA's, CCA's, existing regulatory mechanisms, etc) 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>.

2.2 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 CCAA's 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 species 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 a programmatic CCAA with Harney SWCD nor issue an enhancement of survival permit to Harney SWCD for incidental take of sage grouse in association with the agreement. Consequently there would not be a coordinated outreach effort conducted by Harney SWCD to encourage the over 600 non-Federal landowners in Harney County to enroll under the programmatic CCAA. Developing individual CCAAs under this alternative instead of a programmatic CCAA 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 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 CCAA's; 3) the absence of a coordinated outreach effort by Harney SWCD to encourage landowner participation; and 4) the increased time and expense on the part of landowners to develop individual CCAAs.

2.3 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. Additionally, the Programmatic CCAA provides a streamlined process for non-federal landowners to voluntarily complete site specific plans (SSP's) and be issued a Certificate of Inclusion(CI) to receive coverage under the section 10(a)(1)(A) permit that would be issued to Harney SWCD upon approval of the CCAA.

The Programmatic CCAA is designed to streamline the enrollment process by: (1) following the template provided in the programmatic CCAA to guide the SSP development process, including selection of site-specific CMs; (2) the SWCD and other participating agencies provide assistance to landowners in drafting SSP's, implementing selected CMs, and conducting biological and

habitat monitoring; (3) prioritizing applications; and (4) batching SSP's based on their time of submission; (5) implementation of the SWCD's funded countywide outreach to over 600 landowners within the covered area to educate/inform landowners of the availability of the CCAA and the associated enrollment process.

Individual SSPs would be developed under the guiding framework of the programmatic CCAA. By signing a SSP and CI, the landowner would agree to implement selected CMs associated with current or future activities on the enrolled land. These measures are 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 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 species is listed. The enrolled landowner would receive coverage under the enhancement of survival permit that would be issued to the SWCD which would provide incidental take coverage for those activities listed in the enrollees SSP, should sage-grouse be listed. 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).

Under this alternative we anticipate 40 – 60% of the covered acres would become enrolled under the programmatic CCAA. We based this estimate on (1) the current number of landowners that have expressed an interest in the programmatic CCAA (2) the streamlining of processes associated with enrolling landowners under a programmatic CCAA; and (3) outreach efforts that will be conducted by Harney SWCD and participating partners. The regulatory incentives and streamlining process provided through the Programmatic CCAA under the proposed action alternative is expected to maximize the number of participating landowners. Implementation of this alternative is fully described in the programmatic CCAA.

The programmatic CCAA would be in effect for 30 years following its approval and signing by the FWS and Harney SWCD. The associated section 10(a)(1)(A) permit authorizing take of the species would also have a term of 30 years from the date the permit is issued. Individual CI's 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 permit. While the species remains unlisted, the FWS may renew the programmatic CCAA and associated SSP's, based upon a re-evaluation of the CCAA's 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 CCAA):

- 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

- The property owner agrees to 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 this SSP
- Record dates, locations, and numbers of sage-grouse observed on their enrolled lands to be included in the annual report
- Record new observations 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 will include the following conservation measure (known as CM1 in the Programmatic CCAA):

Maintain contiguous habitat by avoiding further fragmentation.

The objective for this required CM is for no net loss in 1) habitat quantity (as measured in acres) and 2) habitat quality (as determined by the ecological state).

This required measure is the foundation in 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 CCAA or developed with the approval of the FWS. The process for identifying threats and corresponding CMs includes non-federal landowners working with the SWCD 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., powerlines, 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,
- Surface water developments that increase frequency of disease,
- 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 CCAA should apply across any lands to be enrolled in individual SSP's, 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 SWCD on SSP's, including the rationale or justification for any modifications.

3 Affected Environment

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

3.1 Covered area

The covered area encompasses all sage-grouse habitat on non-federal lands in Harney County Oregon and on some lands immediately adjacent to but outside of Harney County. Most sage-grouse habitat on private lands in the project area is already designated as PPH (346,965 acres) or PGH (825,395 acres). 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 CCAA. For purposes of analysis, FWS used the PPH and PGH designations as representing the best current estimate of sage-grouse habitat. The lands outside of Harney County which would be included in the project area are portions of ranches that extend into an adjacent county but whose base of operations (i.e. ranch headquarters, agricultural production, meadows) is within Harney County. Lands outside of Harney County represent only about 1.5% of the project area

3.2 Sagebrush Habitat

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

3.2.1 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).

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. Habitat requirements during late brood-rearing (mid-July through September) may also include riparian sites. 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.

Sage-grouse habitat in Harney County is relatively intact. The current quantity of sage-grouse habitat is estimated at 82% of the historic range, almost 5.1 million acres of PPH and PGH are in Harney County. This does not account for the 20,979 acres of PGH consumed and 246,713 acres of PPH consumed in Harney County in the 2012 fire season (across all ownerships).

The quality of sagebrush habitat in Harney County has often declined compared to historic conditions. The two primary factors contributing to the declines in sagebrush habitat quality are: (1) juniper encroachment, primarily in the upper elevation mountain big sagebrush communities; and (2) annual grass infestations, mainly cheatgrass (*Bromus tectorum*) and medusahead rye (*Taeniatherum caput-medusae*), primarily in the lower elevation Wyoming big sagebrush communities. Sage-grouse avoid juniper encroached rangelands because raptors tend to perch in juniper and sage-grouse see them as a predatory threat, juniper will also eventually decrease perennial grass and sagebrush canopy cover. The annual grass infested rangelands are more susceptible to wildfires which can result in conversion to rangelands dominated by annual grasses lacking sagebrush which is essential for sage-grouse survival and persistence.

As mentioned in Section 2.2, current threats to the species' habitat in Oregon include: fragmentation; infrastructure that decreases habitat quality; disturbed or degraded habitat that is not restored or reclaimed; non-native monocultures; invasive and non-native plant species; wildfire; surface water developments that increase disease frequency; sagebrush management (prescribed fire, chemical, or mechanical); improperly managed grazing management practices; livestock concentration; juniper encroachment; livestock, vehicle, and human activity that disrupts sage-grouse nesting, resting and foraging behavior; design and placement of water developments; predation; insecticide use; prolonged drought; watering tanks and troughs that can cause entrapment and drowning; concentrated or over-abundant wildlife populations; and fences. Some of the threats to sage-grouse identified in the Programmatic CCAA (e.g., drought, invasive plants species, wildfires, improper grazing and loss of riparian habitat) may be exacerbated by climate change.

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.

3.2.1.1 Breeding Habitat (Leks) in Early Spring

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.

3.2.1.2 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, greasewood (*Sarcobatus vermiculatus*), horsebrush (*Tetradymia* spp.), low sagebrush, mountain mahogany (*Cercocarpus* spp.), rabbitbrush (*Chrysothamnus* spp. and *Ericameria* spp.), shadscale saltbush (*Atriplex confertifolia*), snowberry, and western juniper (*J. 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).

Vegetative cover near nesting areas in Oregon was comparable to other studies throughout sage-grouse range and 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. 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 (Hagen 2011).

3.2.1.3 Early Brood Rearing Habitat from June to mid-July

Early brood-rearing generally occurs relatively close to nest sites; however, movements of individual broods may be highly variable. Females with broods may use sagebrush habitats that have less canopy cover (about 14%) than that provided in optimum nesting habitat, but need a canopy cover of at least 15% of grasses and forbs. 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. Insects, especially ants, beetles, and caterpillars are an important component of early brood-rearing habitat. 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).

3.2.1.4 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 succulent vegetation is. Where available, alfalfa fields and other farmlands or irrigated areas adjacent to sagebrush habitats are sometimes used by sage-grouse. These habitat types are not uniformly distributed throughout the range of sage-grouse

in Oregon, nor do they provide forage during fall and winter months. In addition, pesticides, which are frequently applied to such fields, have had negative impacts on sage-grouse survival. Additionally, flood irrigated alfalfa and hay fields may expose sage-grouse to mosquitoes carrying West Nile virus (WNV) (Hagen 2011).

3.2.1.5 Winter Habitat

As fall progresses toward winter, sage-grouse move toward their winter ranges, at which time their diet shifts primarily to sagebrush leaves and buds. Exact timing of this movement 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. 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. 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)

3.2.2 Other Wildlife

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

The mix of shrubs and herbaceous plants found in sagebrush and associated communities in Harney County provides habitat for a large number of other vertebrates. Vander Haegen et. al (2001) lists 22 species of birds and 27 species of mammals that are closely associated with shrub-steppe habitat and an additional 44 species of birds 26 species of mammals, 20 species of reptiles and 9 species of amphibians are generally associated with sagebrush steppe habitat in Oregon and Washington.

Birds

Twenty-two species of birds use shrubs as a key element in their life history requirements. The list of species that are considered obligates or near-obligates usually includes sage sparrow, Brewer's sparrow, vesper sparrow, black-throated sparrow, lark sparrow, loggerhead shrike, green-tailed towhee, and sage thrasher. Population trends of birds associated with shrub steppe in the Intermountain West indicate that 16 to 25 upland birds species are declining in one or more regions of their geographic range (Dobkin and Sauder 2004). Five of 12 riparian species exhibited significant long-term or short-term declines, and only four of 37 species exhibited significant long-term increases (Hagen 2011).

Mammals

Mule deer (*Odocoileus hemionus*) and pronghorn (*Antilocapra americana*) are the primary big game species that utilize sagebrush habitat. The list of mammals considered obligate or near obligates species includes the sagebrush vole, pygmy rabbit, Townsend's ground squirrel, kit fox, and pronghorn. Pygmy rabbits are not very common 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. Sagebrush voles are usually found in sagebrush but may occur in areas lacking a sagebrush over-story if grass understories are thick enough. 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).

Additionally, there are no long-term standardized surveys for mammal populations (Dobkin and Sauder 2004). Consequently, there is little information on the long-term trends in mammal populations in sagebrush communities. Nonetheless, Dobkin and Sauder 2004 found only one species of mammal, the Great Basin pocket mouse, in more than 70% of sampled locations, and no other species were found in more than 62% of potentially suitable locations. Trapping studies showed a negative response of 12 species of small mammals to livestock grazing, and 8 species have been demonstrated to respond negatively to the presence of exotic grasses. Consequently, alteration of sagebrush communities may affect long-term suitability of these habitats for several mammal species (Dobkin and Sauder 2004).

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 shrub steppe communities in Oregon: long-toed salamander, and tiger salamander. Seven of 11 species of native toads and frogs occur in shrub steppe habitat; Great Basin spadefoot toads, western toad, and Woodhouse's toad are the species most likely to be found in this habitat. Columbia spotted frogs and northern leopard frogs are found in shrub steppe communities but usually in close association with standing water (Hagen 2011).

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 and Washington. Lizards are the group of reptiles most closely associated with shrub steppe. The Mojave black-collared lizard, long-nosed leopard lizard, and desert horned lizard occur only in shrub steppe, dwarf shrub steppe, and desert playa/salt scrub shrublands. Ten of 15 snake species in Oregon and Washington occur in shrub steppe communities or related shrub communities. The ground snake, longnose snake, and striped whipsnake are associated with shrub steppe habitats, and six other species (racer, gopher snake, western rattlesnake, rubber boa, western terrestrial

garter snake, and common garter snake) occur in a variety of habitats including shrub steppe. (Vander Haegen et al. 2001).

Table 1: Terrestrial vertebrate species associated with sagebrush ecosystems and status in Oregon (Taken from ODFW 2011)

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

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

Table 2: Additional Migratory Bird Species to Consider from 2008 Birds of Conservation Concern List, Great Basin Region, as required under Executive Order 1386

Species Name	Scientific Name	Sagebrush Obligate
Eared Grebe	<i>Podiceps nigricollis</i>	No
Bald Eagle	<i>Haliaeetus leucocephalus</i>	No
Peregrine Falcon	<i>Falco peregrinus</i>	No
Yellow Rail	<i>Coturnicops noveboracensis</i>	No
Long-billed Curlew	<i>Numenius americanus</i>	No
Marbled Godwit	<i>Limosa fedoa</i>	No
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	No
Flammulated Owl	<i>Otus flammeolus</i>	No
Black Swift	<i>Cypseloides niger</i>	No
Calliope Hummingbird	<i>Selasphorus calliope</i>	No
Lewis's Woodpecker	<i>Melanerpes lewis</i>	No
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	No
White-headed Woodpecker	<i>Picoides albolarvatus</i>	No
Willow Flycatcher	<i>Empidonax traillii</i>	No
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>	No
Sage Thrasher	<i>Oreoscoptes montanus</i>	Yes
Virginia's Warbler	<i>Oreothlypis virginiae</i>	No
Green-tailed Towhee	<i>Pipilo chlorurus</i>	No
Tri-colored Blackbird	<i>Agelaius tricolor</i>	No
Black Rosy-Finch	<i>Leucosticte atrata</i>	No

3.2.3 Threatened, Endangered and Candidate Species

There are no listed or candidate species in Harney County, 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.

Listed Species

In Harney County, three animal species and one plant species are listed as threatened or endangered under the ESA. **Bull trout** (*Salvelinus confluentus*) a threatened species are found only in the Malheur river basin in the northeastern portion of the county, some of Malheur River is surrounded by sagebrush habitats, but most of the river is located within the Malheur National Forest.

The threatened **Lahontan cutthroat trout** (LCT) (*Onchorynchus clarki-henshawi*) occupy numerous streams on the southeastern side of Steens mountain (Willow Creek , lower end of Whitehorse Creek, very headwaters of McDermitt Creek. Introduced populations of LCT can be found in the Steens Mountain area in: Little McCoy Creek, Mosquito Creek, Willow Creek, Cottonwood Creek, Big Alvord Creek, Little Alvord Creek, and Pike Creek; in the Pueblo

Mountains in: Van Horn Creek, and Denio Creek. In addition, ODFW stocks several water-bodies with LCT Usually some form of hybrid cut-bow (rainbow/cutthroat hybrid), such as in Mann Lake, Wildhorse Lake, Wildhorse Creek, and potentially other spots.

Sagebrush is present in the area surrounding Borax lake where the endangered **Borax lake chub** occurs, however Borax lake is owned by the Nature Conservancy and lies within a BLM designated Research Natural Area.

The endangered **Malheur wire lettuce** is a narrow endemic plant located in shrub steppe habitat and is currently only known in one location on BLM lands in Harney County. It occupies about 10 acres of a 70 acre BLM designated Area of Critical Environmental Concern.

Candidate Species

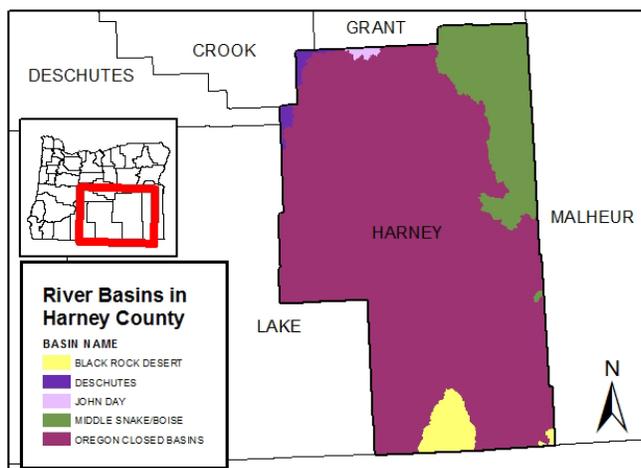
In addition to sage-grouse, there are two other candidate species in Harney County, **Yellow-billed cuckoo (*Coccyzus americanus*)** which was proposed for listing on October 3, 2013, and Columbia Spotted Frog (*Rana luteiventris*). Yellow-billed cuckoo are tied to wetland or riparian areas; however, surrounding habitat can include sagebrush. **Columbia spotted frogs** are found in wetland habitats throughout much of the sage-grouse range in Oregon.

Historically, **gray wolves (*Canis lupis*)** were wide-ranging in Oregon, including sagebrush habitats, but are now mostly limited to mountainous areas of northeastern Oregon. It is anticipated throughout the life of the agreement that wolves will likely inhabit areas where significant elk populations occur, which only overlaps slightly with sage-grouse range.

3.3 Water Resources

This section summarizes the water resources found in the covered area. There are portions of five river basins in the covered area. There are over 6.5 million acres in Harney County, the Oregon Closed Basin covers the majority of the covered area and contains around 5.5 million acres. The Middle Snake/Boise Basin covers over 800,000 acres and there are lesser portion of the Black Rock Basin, Deschutes and John Day Basins. The major rivers within the covered area are the Silvies River, Donner und Blitzen River (both in Oregon Closed Basins) and Malheur River (in the Middle Snake/Boise). All three rivers have substantial amounts of sagebrush habitat surrounding them.

Figure 2: River Basins in Harney County



3.3.1 Water Quality

The Oregon Department of Environmental Quality Water Quality Division (ODEQ), the primary agency responsible for enforcing Federal and State water quality regulations, summarizes water quality conditions by river basin. In 2012, the ODEQ prepared its most recent summary of water quality conditions in the County (Harney Basin Plan 2010).

Table 3: Greater Harney Basin Water Quality Limiting Streams

Location and seasonality of documented water quality concerns in the Greater Harney Basin Management Area from the 2010 303(d) list2. (Taken from the Greater Harney Basin Agricultural Water Quality Management Area Plan (Harney Basin Plan))	
Water Quality Criterion	Stream Segments on the 303(d) List
Water temperature exceeds 64°F or 68°F during season of concern. (Some streams are listed under the old 64 °F criterion instead of the updated 68°F criterion.)	<p>Silver Subbasin Claw Creek (Mile 0-15.1)* Egypt Creek (0-8.9) Nicoll Creek (0-14.1) Salt Canyon Creek (0-1.2) Sawmill Creek (0-10.7) Silver Creek (8.3-63.6) Wickiup Creek (0-9)</p> <p>Silvies Subbasin Hay Creek (0-12.3) Little Bear Creek (0-5.8) Myrtle Creek (0-17.6) Scotty Creek (0-9.5) Silvies River (0-104.8) Skull Creek (0-5.9)</p> <p>Guano Subbasin Home Creek (0-21.3) Rock Creek (0-52.5) Skull Creek (0-13.3)</p> <p>Donner und Blitzen Subbasin Ankle Creek (0-7.6) Bridge Creek (0-15.6) Bridge Creek Canal (0-1.5) Deep Creek (0-7.2) Donner und Blitzen River (0-77.3) Fish Creek (0-7.5) Indian Creek (0-4.2) Little Blitzen River (0-12.8) McCoy Creek (0-26.2) Mud Creek (0-4.8)</p> <p>Harney/Malheur Lakes Subbasin Coffeepot Creek (0-10.3) Coyote Creek (0-7.8) Mill Creek (0-7.1) Paul Creek (in the closed Barton/Dry Lake basin) (0-10.2) Rattlesnake Creek (0-15.1)</p>
Dissolved oxygen less than required (March 1 – June 30)	<p>Silvies Subbasin Silvies River (Mile 0-104.8): <11mg/L and 95% saturation</p>
Heavy metals (sources unknown)	<p>Donner und Blitzen Subbasin Bridge Creek (0-3.1) – iron, manganese Bridge Creek (0-15.7) – beryllium Little Blitzen River (0-12.8) - beryllium</p>
<p>* River miles are measured from the mouth; the mouth is designated as Mile 0. The miles of river on this list may over-represent the actual miles with water quality concern because: 1) establishment of the location of the mouth may be arbitrary on intermittent streams and 2) many of the stream reaches included in this list contain intermittent sections.</p>	

Table 4: Middle Snake/Boise Basin water quality limiting streams:

Stream Name	River Mile*	Parameter
Alder Creek	0-4.1	Temperature
Bear Creek	0-14.7	Temperature
Bluebucket Creek	0-12.1	Temperature
Cottonwood Creek	0-35.3	Temperature
Dry Creek	0-8.3	Temperature
Little Malheur River	0-28.5	Temperature
Malheur River	0-67	Bacteria, Chlorophyll a, DDT,
Malheur River	93.4-119.9	Bacteria

Malheur River	126.3-185.9	Temperature
Malheur River	0-186.1	Dissolved oxygen
Malheur River, North Fork	0-18	Bacteria
Malheur River, North Fork	20.8-59.3	Temperature
Pine Creek	0-24.7	Temperature
Pole Creek	0-6.3	Temperature
Stinkingwater Creek	0-27.8	Temperature
Warm Springs Creek	0-9	Temperature
Willow Creek	0-027.4	Bacteria, chlorophyll a

Stream temperatures are influenced by direct solar radiation, air temperature and movement of groundwater into streams. Specifically, in the covered area increased temperatures may be correlated with natural low flows, high ambient temperatures, water withdrawals, removal of stream-bank vegetation and lack of groundwater recharge. Insufficient oxygen concentrations usually result from low stream flows, warm stream temperatures, and excessive nutrients. The source of metals in the water is unknown and could be natural. (Harney Basin Plan 2012)

Table 5: TMDL's in Harney County

Harney County River Basin (major river basin)	Substantial Sagebrush Habitat?	Number of Waters Requiring TMDLs
Malheur River (Middle Snake Boise Basin)	Yes	1
Silvies River (Oregon Closed Basins)	Yes	0
Donner Und Blitzen River (Oregon Closed Basins)	Yes	0

3.3.2 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, recharge aquifers, store water, and reduce 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 110,000 acres of wetland PGH lands and nearly 37,000 additional acres of wetlands on PPH lands. Of those acres of wetland habitats approximately 65,000 (58%) of these acres are on private lands classified as PGH and approximately 18,000 (48%) are on private lands classified as PPH (NWI 2013 Data).

As previously noted, wetlands are particularly important to sage-grouse during late brood-rearing. According to research in progress by Intermountain West Joint Venture modeling wetland habitat and availability of this habitat for brood rearing, particularly late brood-rearing when water is most limiting in sagebrush habitats, results indicate that 80% of this important habitat type is located on private lands which contrasts strongly with PPH, where 68% of habitat is federally owned public land managed by BLM, and only 20% in private ownership. 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 6: Wetland Acreages in Covered Area (non-federal lands)

Land Classification	All ownership except private (acres)	Private ownership (acres)
PGH Wetlands within the Covered Area	110,933 (100%)	64,758 (58%)
PPH Wetlands within the Covered Area	36,987 (100%)	17,778 (48%)

3.4 Land Use and Ownership

At present, there are nearly 5.1 million ac of sage-grouse habitat in Harney County; over 70% is BLM-owned, 23% is privately-owned, with the remaining 7% split among State, U.S. Forest Service, U.S. Fish and Wildlife Service, Bureau of Indian Affairs and U.S. Department of Agriculture. (Harney County GIS)

Approximately 1.2 million ac of private lands occur within the current range of the sage-grouse in Harney County and the extended area covered under the CCAA. These lands are almost entirely zoned Exclusive Farm and Range Use 1. This county zoning designation specifies a minimum parcel size of 160 acres and the most prevalent development type on these lands, besides agricultural, is housing related to farm use. (Harney County 2013) 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 2012)

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 associated meadow and riparian habitats.

3.5 Socioeconomics and Environmental Justice

Harney County is the largest county in Oregon covering 10,226 square miles with a total population of 7,422 (U.S. Census 2010) . It is a rural county with one of the lowest population densities in the state and according to U.S. Census data between 2000 and 2010, the population of Harney County decreased by 2.8%. Countywide, the majority of the population (88.8%) is white. The minority characteristics of Harney County’s population is 4.5% Hispanic or

Latino, 3.5% American Indian, 0.4% Black or African American, 0.5% Asian, and less than 0.1% Native Hawaiian and Other Pacific Islander (2012 census.gov). Overall, minorities tend to make up a smaller percentage of the population of Harney County than the statewide average.

The median household income in 2007-2011 was \$38,702, with 20.5% of Harney County's population living below the poverty level (2012 census.gov). The median household income is lower than the statewide average and there is a higher percentage of households below the poverty line than the statewide average. The un-employment rate in Harney County in February of 2013 was 13.1% fluctuating from a high in February 2010 of 20.3% and a low in September of 2012 to 9.8%.

The county's early development was primarily a result of the cattle industry and homesteading in the 1860s. (Grasty 2013) Over the past several decades the role of non-service-related sectors (including farming, mining, manufacturing, construction, and the combination of agricultural services, forestry, fishing and related sectors) in supporting jobs has declined compared to service-related sectors and government (US Department of Commerce 2012). Harney County officials are actively pursuing the attraction of new businesses to enhance and diversify the economy; much of the county's economic strategic plan focuses on job creation related to the sustainable use of natural resources. According to county officials, cattle and hay production represent primary industries in the county.

Ranches on private lands range in size from a few acres with only a few cattle to holdings of hundreds or thousands of acres with hundreds of animals, irrigated hay lands, and grazing permits on public lands. (Grasty 2013) The Steering Committee, that developed the CCAA, cited preservation of the rural ranching lifestyle and associated social traditions as one of the main incentives in the development of the CCAA.

3.6 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 maintains a controlled by permit only sage-grouse hunting season, in 2012 the hunt was for 9 days from September 8 – 16. The daily bag and the possession limit is two. In 2011, the most recent harvest report available, the total harvest was 632 sage-grouse (ODFW 2011).

3.7 Cultural and Historic Resources

The Service's decision regarding approval of the Programmatic CCAA is considered an "undertaking" covered by the Advisory Council on Historic Preservation. Therefore, the FWS must comply with section 106 of the National Historic Preservation Act (NHPA) (36 CFR 800).

The earliest inhabitants of Harney County were the Northern Paiute Indians. The Paiutes 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.

4 Environmental Consequences of the Alternatives

4.1 Sagebrush Habitat

4.1.1 Sage-Grouse

4.1.1.1 No Action Alternative

Under the no action alternative which represents current management, none (0%) of the covered area is enrolled in CCAAs for sage-grouse and conservation measures associated with CCAAs would not be implemented on these lands. Ongoing voluntary sage-grouse conservation activities as described in section 2.1 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 it's rural character and the predominance of ranching activities in Harney County, sagebrush habitats are likely to continue to be well represented on the covered area.

Under the no action alternative , sage-grouse populations would likely continue to persist in Harney County due to the presence of sagebrush habitat and the rural landscape, however their status may gradually decline with 0% of the covered area enrolled in CCAAs to address specific threats to sage-grouse and their habitat.

4.1.1.2 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 sage-grouse by:

- Reducing habitat fragmentation;
- Reduce 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;
- Targeted herbicide treatments to improve sagebrush habitat using BMP's 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 that would not be enrolled in an individual CCAA would be subject to the following threats which are known to degrade, fragment, and/or destroy sage grouse habitat.

- Habitat conversion (sub-divide, ag 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;
- Un-marked fences 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 2.1 and benefit sage-grouse on their properties. However, without the regulatory assurances provided as part of a CCAA and 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 0% 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. Under the landowner

specific alternative, sage-grouse populations would likely continue to persist in Harney County and their status may improve with 25-30% of the covered area enrolled in individual CCAAs.

4.1.1.3 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 the landowner specific alternative. However, under this alternative there would be substantially more lands where conservation measures are being implemented because there would be more lands enrolled under a CCAA.

Additionally, we expect efficiencies in implementation of the conservation measures 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 CCAA 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 2.1 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 CCAA estimates that a small level of incidental take 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 no more than 3% from covered activities. See Section 12 of the CCAA for a complete description of all activities covered and the estimated take for each activity. Incidental take associated with ranching activities is expected to be more than offset on ranches that are also implementing CMs under the programmatic CCAA. Under this alternative it is anticipated that, with 40-60% of the covered area enrolled under the programmatic CCAA in combination with other ongoing efforts, there would be an improvement in the status of sage-grouse in Harney County.

4.1.2 Other Wildlife

4.1.2.1 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 2.1). 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 CCAA.

4.1.2.2 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 mortality (to all wildlife) due to collision with fences and other infrastructure;
- Maintaining or improving sagebrush habitat quality and quantity;
- Reducing vulnerability of susceptible wildlife to predation;
- Reducing mortality (birds, mammals) 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;
- Minimizing adverse impacts from grazing; and
- Maintaining insects as a food item for other wildlife species.
- Targeted herbicide treatments to improve sagebrush habitat using BMP's to minimize and avoid impacts to sage-grouse and other wildlife;

Under the landowner specific alternative, beneficial effects would only apply to the 25-30% of the covered area that is enrolled under a CCAA. On lands not enrolled, approximately 70 – 75% of the covered area, current land uses would continue, existing threats (see section 4.1.2.1) would not be addressed, and wildlife management would be through existing regulatory mechanisms and other voluntary programs (see section 2.1). 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.

4.1.2.3 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 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 the 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.

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 2.1 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 CCAA has identified removal of juniper that has encroached on rangelands as a high priority to improve sage-grouse habitat. These conservation measures have 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) and is a primary threat to sage-grouse habitat (FWS 2010). Because the CCAA takes an ecological approach, 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.

4.1.3 Threatened, Endangered and Candidate Species

In Harney County, Malheur wire lettuce and Borax lake chub are both located entirely on BLM lands which are not part of the covered area, therefore activities resulting from issuing the permit associated with a CCAA would have no effect to this species under any alternative. Similarly, because there are no resident gray wolves currently in Harney County, there are no anticipated effects to this species under any alternative.

4.1.3.1 No Action Alternative

With none of the covered area enrolled in a CCAA, implementation of conservation measures would not occur and there would be no benefits to bull trout, Lahontan cutthroat trout,

Columbia spotted frogs and yellow-billed cuckoos from minor improvements in water quality and quantity.

4.1.3.2 Landowner Specific Alternative

Bull trout, Lahontan cutthroat trout, Columbia spotted frogs and yellow-billed cuckoos that occur on the 25-30% of the covered area that is anticipated to be enrolled under individual CCAAs will benefit from conservation measures addressing riverine, riparian habitats and wetlands, such as:

- Improved placement of stock tanks and other water development features to minimize erosion and sediment into water bodies.
- Fencing riparian habitat from livestock would 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) and food supplements (e.g. mineral and salt supplements) as recommended in CM's for individual CCAA's at a suitable distance from water resources would minimize input of those pollutants into water bodies.

With only 20-25% 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 conservation measures above.

4.1.3.3 Proposed Action Alternative

With 40-60% of lands in the covered area enrolled in the programmatic CCAA, benefits to bull trout, Lahontan cutthroat trout, Columbia spotted frogs and yellow-billed cuckoos found in the covered area will be greater than under the landowner specific alternative because there will be more lands where conservation measures for riverine, riparian, and wetland habitats will be implemented.

4.2 Water Resources

4.2.1 No Action Alternative

Because conservation measures associated with a CCAA for sage-grouse would not be implemented, no beneficial effects to water resources would occur under the no action alternative. Current 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 the Harney Basin Plan and the Malheur Basin Plan would

continue, see page 38 of the respective plans for activities planned in 2012 -2015, provided adequate funding is available.

Harney Basin Plan link: http://www.oregon.gov/ODA/NRD/docs/pdf/plans/harney_plan.pdf

Malheur Basin Plan link: http://www.oregon.gov/ODA/NRD/docs/pdf/plans/harney_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.

4.2.2 Landowner Specific Alternative

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

- Improved placement of stock tanks and other water development features could also minimize erosion into water bodies.
- Fencing riparian habitat from livestock would encourage establishment of riparian species that stabilize soil and stream banks.
- Applying herbicides using the prescribed BMP's outlined in Appendix E in the Programmatic CCAA and food supplements at a suitable distance from water resources would minimize input of pollutants into water bodies.
- Maintaining wetland habitats for late brood rearing on enrolled lands will be a priority.

Water resources will benefit from on-going management plans such the Harney and Malheur Basin 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.

4.2.3 Proposed Action Alternative

The conservation measures in the Programmatic CCAA that benefit water resources are largely the same as conservation measures 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 CCAA, 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 CCAA will help leverage funds for the implementation of the Harney Basin Plan which has adopted the same ecological approach to inventory, assessment and monitoring as the Programmatic CCAA. (Marty Goold 2013) 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 conservation measures 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.

4.3 Land Use and Ownership

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

4.3.2 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.

4.3.3 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 CCAA, 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.

4.4 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 conservation measures 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.

4.4.1 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.

4.4.2 Landowner Specific Alternative

Under this alternative an estimated 25-30% of the covered area would be enrolled in individual CCAA's. 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 don't 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 CCAAs compared to a programmatic CCAA under the proposed action. However, we anticipate little or no long-term changes in socioeconomic impacts under this Alternative.

4.4.3 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 CCAA. 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. However, some funding pools (SGI,) plan to prioritize restoration funding to landowners enrolled in the CCAA. Under the proposed action alternative by working with SWCD as the permit holder 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.

4.5 Recreation

4.5.1 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 Harney County. This increase in recreation would likely occur largely on public lands because hunting on private lands would continue to be through landowner permission only. However, opportunities and success rates for hunting of sage-grouse and other game species, such as pronghorn and mule deer, that use sagebrush habitat may decline as a result of the anticipated gradual decline in the quantity and quality of sagebrush habitat in the absence of CCAAs that specifically address threats to this habitat type.

4.5.2 Landowner Specific Alternative

Under this alternative 25-30% of the covered area would likely be enrolled under individual CCAAs 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 conservation measures 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-dependant recreational opportunities.

4.5.3 Proposed Action Alternative

Under the proposed action alternative we expect the same types of effects to occur as under the 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 a programmatic CCAA.

4.6 Cultural and Historic Resources

4.6.1 No Action Alternative

In the absence of a CCAA, associated conservation measures would not be implemented, and there would be no changes to impacts to cultural and historic resources. There would be slightly less potential to identify as yet undiscovered historic properties and implement

protections for them under this alternative because in the absence of a CCAA there would not be a federal action to trigger a National Historic Preservation Act compliance review.

4.6.2 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 CCAA under the proposed action alternative. As part of the CCAA application process, the FWS must determine if implementation of any conservation measure would directly or indirectly change the character or use of historic properties included in or eligible for inclusion in the National Register of Historic Places, and make a reasonable effort to identify undiscovered historic properties. The FWS must consult with the State Historic Preservation Officer (SHPO), affected Tribes, and other interested parties concerning cultural and historic resources, and consider their comments during project planning. Because of established procedures and FWS policies to consult with the Advisory Council on Historic Preservation, the SHPO, affected Tribes and other interested parties, we do not anticipate any impacts to cultural or historic properties as a result of this alternative. However, should the FWS determine that impacts might occur from additional measures in an application for an individual CCAA, steps would be taken to avoid or minimize those impacts.

5 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.

CMs proposed in the Programmatic CCAA, in addition to other ongoing statewide efforts to conserve sage-grouse including: (1) NRCS SGI efforts, (2) the state SageCon effort, (3) BLM RMP amendments focusing on sage-grouse habitat management, (4) efforts of the ODFW to further implement the 2011 Strategy and other agencies to gather data, monitor the status, and protect sage-grouse and their habitat, will result in net beneficial impacts for all of the identified resources, particularly sage-grouse.

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 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 4 in discussions of the no action alternative. However, with the approval and implementation of the Programmatic CCAA, 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 CCAA, which addresses such impacts.

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.

It is reasonable to conclude that with 40-60% acreage enrollment in the programmatic CCAA will result in increased beneficial effects for sage-grouse and the other resources (wildlife, threatened and endangered species, 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 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 Harney County, 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 adversely impact any of these resources.

5.1 Conclusion

Under the no action alternative 0% of the covered area would be enrolled in a CCAA. Sage-grouse would likely persist in Harney County but their status may decline without regulatory

incentives to maintain and improve sagebrush habitat as provided through a CCAA and associated enhancement of survival permit. Under the landowner specific alternative with 25-30% of the covered area enrolled in individual CCAAs, sage-grouse are likely to persist and their status may improve in Harney County. 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 a programmatic CCAA, the status of sage-grouse is likely to improve in Harney County 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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