CONFERENCE OPINION
ON THE
EFFECTS OF THE FISH AND WILDLIFE SERVICE'S ISSUANCE OF AN ENDANGERED SPECIES ACT SECTION 10(A)(1)(A) ENHANCEMENT OF SURVIVAL PERMIT TO THE IDAHO DEPARTMENT OF FISH AND GAME ASSOCIATED WITH A CANDIDATE CONSERVATION AGREEMENT WITH ASSURANCES FOR THE GREATER SAGE-GROUSE IN THE WEST CENTRAL PLANNING AREA, ADAMS, GEM, PAYETTE, AND WASHINGTON COUNTIES, IDAHO

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FISH AND WILDLIFE SERVICE
IDAHO FISH AND WILDLIFE OFFICE
BOISE, IDAHO

TABLE OF CONTENTS

LIST OF FIGURES

1. BACKGROUND

1.1 Introduction

This responds to a December 3, 2009, request from the Pacific Regional Office for formal conference on the Fish and Wildlife Service's (Service) issuance of an Endangered Species Act (ESA) section 10(a)(1)(A) Enhancement of Survival Permit for the greater sage-grouse (*Centrocercus urophasianus*), hereafter referred to as sage-grouse, to the Idaho Department of Fish and Game (IDFG) in the West-central Planning Area (WCPA) of Idaho. This Conference Opinion (Opinion) is based on information in the December 2009 Candidate Conservation Agreement with Assurances (CCAA) for Greater Sage-Grouse in the West Central Planning Area (Agreement) (NNRG *et al.* 2010), the December 2009 Environmental Assessment (EA) evaluating the Agreement and two alternatives (Service 2009), and other sources of information referenced below. A complete administrative record of this Opinion is on file in the Service's Idaho Fish and Wildlife Office, Boise, Idaho.

1.2 Conference History

March 30, 2009	Draft CCAA and EA were provided to the Regional Office for review and comment.
April – June 2009	The Regional Office and solicitor reviewed the draft CCAA and EA and provided the Field Office with comments.
June 12, 2009	The Regional Office submitted the documents for publication in the Federal Register.
July 23, 2009	The CCAA and EA were made available for public review and comment.
August 24, 2009	The comment period closed.
December 2009	The Idaho Field Office responded to comments on the draft CCAA and EA.
December 3, 2009	The Regional Office requested initiation of a section 7 conference.

2. CONFERENCE OPINION

2.1 Purpose and Organization of this Conference Opinion

This Conference Opinion is organized in the same way as a Biological Opinion to facilitate a meaningful jeopardy analysis and the conversion of this Conference Opinion into a Biological Opinion should the sage-grouse be listed as an endangered or threatened species. If the sage-grouse is listed under the ESA, this Conference Opinion may be confirmed as a Biological Opinion, compliant with section 7 of the ESA, if conditions have not changed the jeopardy and incidental take analyses found herein are determined to be valid and unchanged.

2.2 Description of the Proposed Action

This section describes the proposed Federal action, including any measures that may avoid, minimize, or mitigate adverse effects to listed species or critical habitat, and the extent of the geographic area affected by the action (i.e., the action area). The term "action" is defined in the implementing regulations for section 7 as "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas." The term "action area" is defined in the regulations as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action."

2.2.1 Action Area

The action area is defined as all areas to be affected directly or indirectly by the proposed Federal action. The proposed action area is the West-Central Planning Area (WCPA), which is approximately 930,640 acres (376,617 ha) within Adams, Gem, Payette, and Washington counties, Idaho (NNRG *et al.* 2010, Table 1). Of this area, 31% is classified as key sage-grouse habitat ((Idaho Sage-Grouse Advisory Committee, 2006, p. 3-37). Approximately 30% of the sage-grouse habitat is administered by the Bureau of Land Management (BLM), 64% is private, and 5.5% is managed by the Idaho Department of Lands (NNRG et al. 2010, Table 1). Only non-Federal lands may be enrolled under the Agreement; therefore there are 644,707 ac (260,904 ha) eligible for enrollment under the Agreement.

The area is largely shrub/steppe habitats interspersed with cropland. Analysis of cover type data derived from satellite imagery indicates that approximately 46% of the WCPA is currently in shrub cover that is potentially suitable for sage-grouse. The primary land uses in the area are those related to crop cultivation/harvesting and livestock production. These lands are also extensively used for dispersed recreation, primarily hunting during the fall months, and hiking, trail riding, or ATV use. Sage-grouse primarily use upland sagebrush habitats within this area, although during certain life stages (brood-rearing) they may also use riparian habitat or wet meadows. Actions taken pursuant to the Agreement may occur in upland, riparian, or wet meadow areas.

Therefore, for purposes of this conference opinion, the action area (the area where direct and indirect effects of the proposed action would occur) is defined as all private lands within the WCPA. See the EA (Service 2009) for additional information on vegetation, wildlife, local communities, and recreation in the action area.

2.2.2 Proposed Action

The proposed action is the Service's issuance of an Enhancement of Survival Permit (permit) under section 10(a)(1)(A) of the ESA, to the IDFG. The IDFG has applied to the Service for a permit to authorize incidental take of sage-grouse, should they become listed under the ESA in the future. The permit would be issued in accordance with section 10(a)(1)(A) of the ESA, and the Service's Candidate Conservation Agreements with Assurances Final Rule (64 FR 32726). As part of their permit application, the IDFG proposes to enter into the Agreement with the Natural Resource Conservation Service (NRCS) and the Service (collectively, the agencies), and is seeking the Service's approval of the Agreement and issuance of the permit. To be deemed adequate, a CCAA must reduce or eliminate all threats to a species in the area covered by the

CCAA such that, if similar conservation actions occurred on other necessary properties within the species' range, the need to list the species would be precluded.

The permit would authorize limited incidental take of sage-grouse within the 644,707-ac action area described above. As a condition of the proposed permit, the IDFG, in coordination with the Agencies, would be responsible for implementing the Agreement. The Agreement includes various conservation measures for sage-grouse, and will be implemented through the development of site-specific plans for participating landowners in the WCPA. The IDFG has submitted the Agreement as part of their permit application.

Under the Agreement, the IDFG would provide various conservation benefits for sage-grouse within the action area by working with interested property owners and the Agencies to develop site-specific conservation plans. A permit authorizing limited incidental take of sage-grouse would be issued to the IDFG for certain activities occurring on non-federal lands enrolled in the Agreement, consistent with section 10 of the ESA. The IDFG would then extend a subset of the total amount of take authorized over the action area to each private landowner that enrolled lands under the Agreement. This take delegation would occur through issuance of Service-approved certificates of inclusion (NNRG et al. 2010, Appendix B). The permit would authorize incidental take of sage-grouse, should it occur, as long as the permit conditions, including implementation of the Agreement and site-specific plans, are followed. Incidental take would be authorized for the otherwise lawful activities on the enrolled lands, including range and livestock management, recreation, and general farm and ranch operations.

The Agreement is intended to reduce or eliminate threats to sage-grouse in the WCPA over the next 30 years. The main purpose of the Agreement is two-fold: (1) ensure sustainable populations of sage-grouse and associated habitat through the reduction or elimination of threats on enrolled lands; and (2) encourage non-federal property owners to voluntarily implement proactive conservation measures for sage-grouse in the WCPA. These objectives are the basis for conservation measures identified in the Agreement (see NNRG et al. 2010, Table 5).

By enrolling their lands under the Agreement, all participating property owners are agreeing to the following conservation actions: (1) allow Agency access to evaluate habitat conditions, monitor sage-grouse populations, and to identify needed habitat enhancement/rehabilitation measures; (2) implement measures to minimize or avoid the adverse effects of land use activities on sage-grouse populations; (3) allow translocations of sage-grouse to or from enrolled lands, if appropriate; (4) encourage and support appropriate local efforts to protect sage-grouse populations and habitat through adequate land use planning and zoning, fire prevention and protection, mosquito abatement, weed control and insect control activities that recognize and minimize potential adverse impacts on sage-grouse; and (6) work with the Agencies to actively pursue funding, as appropriate, to implement a site-specific plan. Participating landowners will work with the Agencies to develop site-specific measures within each of the above categories that are appropriate to their lands, and commit to implementing those measures on their lands for the length of their site-specific plan and permit.

Under the Agreement, both individual sage-grouse and their habitat on enrolled lands will be protected from land use activities that may cause adverse affects. Each site-specific plan will be developed to include necessary conservation measures, and modified as needed to address suitable sage-grouse habitat. Table 5 in the Agreement outlines all of the potential threats that could be identified on enrolled properties, as well as the associated conservation measures that

could be implemented to eliminate or reduce those threats. Decisions regarding which conservation measures are most appropriate on enrolled properties will be made through the development of site-specific plans. Under the Agreement, adaptive management measures exist that provide for conservation of sage-grouse, while maintaining ESA regulatory assurances under the permit. Sage-grouse conservation measures can be modified in site-specific plans as monitoring and other information becomes available.

Implementation of the Agreement is expected to result in an increase in the amount of sagebrush cover in the planning area through application of "No Net Loss" and "Fair Share" standards, which will be implemented on all enrolled lands. Under the No Net Loss standard, participating property owners will agree not to intentionally convert suitable sage-grouse habitats to unsuitable habitat over the term of their site-specific plan. The Fair Share Standard was developed to ensure that greater than 50% of the action area would be maintained in sagebrush cover over the duration of the agreement, which is important to the persistence of sage-grouse populations (see Habitat Characteristics section below; Aldridge et al. 2008, p.990; Wisdom et al. *in press,* p. 17). Currently, approximately 46% of the WCPA is in shrub cover that is potentially suitable for sage-grouse. The model used to implement the Fair Share Standard is Appendix C of the Agreement.

Lands that could be enrolled under this Agreement and the associated Permit will generally include those that are currently farmed or managed as part of range livestock operations. In addition, these same lands provide numerous recreational benefits for family members and guests, some of whom pay for recreational services by leasing hunting rights or through other mechanisms. For the purposes of this Agreement, the following land use, management and recreational activities are defined as "covered activities," although they will be further refined in individual site-specific plans.

> Farm Operations: cultivation of existing fields, including planting, cultivation and harvesting small grain, corn, seed and hay crops; mechanical treatment of fields and pastures; irrigation by flooding or sprinklers; weed control within fields and along ditch banks by burning; application of manure; maintenance of houses, outbuildings, fences and corrals, and road maintenance. While it is common to use various herbicides, insecticide, rodenticides and other chemicals (collectively known as "pesticides") in the course of various land uses and management described in this section, the uses of these chemicals are not defined as "covered activities" under this Agreement.
>
> Range and Livestock Management: Grazing of forage; feeding hay and dietary supplements in feedlots and in various pastures; calving and branding operations, including temporary penning of animals; disposal of dead animals; construction and placement of watering sources; construction and repair of fences, gathering and shipping livestock; general stewardship and animal husbandry practices.
>
> Recreational Activities: Legal hunting and fishing; use of recreational vehicles both on and off established roads (as may be further described in individual site-specific plans); horseback riding, camping, and hiking.

Participating landowners and the Agencies will cooperate in good faith to develop site-specific sage-grouse protection measures. If there is disagreement over the protective measures necessary in a site-specific plan to meet the intended conservation benefits of the Agreement, the parties will work to resolve such disagreement, elevating the issue within their respective

organizations as necessary. If the parties cannot reach agreement after all cooperative efforts have been exhausted and the IDFG proceeds with issuance of a CI under their permit, the IDFG will be found to not be in compliance with the conditions of the permit and the Service will retain the authority to immediately suspend the permit at its sole discretion, consistent with current regulations described in 50 CFR 13.27(a). To ensure sage-grouse conservation measures will be adequate at these sites as long as the Agreement and permit are in effect, the Service will retain the authority to suspend the permit in this circumstance.

By February 1 of each year, the IDFG will provide the Service with a report on the previous year's implementation activities for the Agreement, a map of all enrolled properties, a list of enrolled landowners and their contact information, and the status of sage-grouse within the WCPA. In addition, each year, the Agencies will share information on sage-grouse distribution with participating landowners. This information sharing may be in the form of an annual meeting with the property owner or as an annual report.

The NRCS in Idaho is also a signatory to this Agreement. In addition to the Service's issuance of a section 10(a)(1)(A) permit, the proposed action includes the activities that NRCS may conduct to facilitate the implementation of this Agreement. All actions that the NRCS may conduct are included in the conservation actions, listed in Table 5 of the Agreement. NRCS may use funding mechanisms, such as the Environmental Quality Incentive Program (EQIP), to assist non-federal property owners who are interested in enrolling their properties under the Agreement. NRCS may also dedicate staff resources to assist in habitat assessments, to provide technical assistance to interested landowners, as well as to assist in the preparation of plans (e.g., grazing management plans) to reduce threats and implement conservation measures on enrolled lands. The following NRCS activities are considered part of the proposed action: technical assistance to interested non-federal property owners, conducting habitat assessments, evaluating current land-use activities and potential threats to the species, developing plans to reduce or eliminate ongoing land use impacts, implementation of conservation measures, and assistance in monitoring efforts. All NRCS activities are considered part of the overall proposed action. It is possible that several entities, including the Service, the NRCS, or the IDFG may be responsible for implementing these actions under the Agreement, depending on the site-specific circumstances. Thus, NRCS's actions will be analyzed together with all other elements of the proposed action. The proposed action, in its entirety and including NRCS actions, is the subject of this Conference Opinion and the Jeopardy analysis contained herein.

3. ANALYTICAL FRAMEWORK FOR THE JEOPARDY DETERMINATION

3.1 Jeopardy Determination

In accordance with policy and regulation, the jeopardy analysis in this Conference Opinion relies on four components: (1) the *Status of the Species*, which evaluates the condition of sage-grouse range-wide, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of the sage-grouse in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the sage-grouse; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or

interdependent activities on the sage-grouse; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the sage-grouse.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the sage-grouse current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the sage-grouse in the wild.

The jeopardy analysis in this Conference Opinion places an emphasis on consideration of the range-wide survival and recovery needs of the sage-grouse and the role of the action area in the survival and recovery of the sage-grouse as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

If the sage-grouse is listed under the ESA, this Conference Opinion may be confirmed as a Biological Opinion under section 7 of the ESA, provided none of the reinitiation criteria at 50 CFR 402.16 apply.

3.2 Adverse Modification Determination

No critical habitat for the sage-grouse has been proposed or designated, thus this Conference Opinion does not consider this matter.

4. STATUS OF THE SPECIES AND ENVIRONMENTAL BASELINE

This section presents information about the regulatory, biological and ecological status of the sage-grouse that provides context for evaluating the significance of probable effects caused by the proposed action. The following information was adapted from our files and several volumes in the scientific monograph titled "Ecology and Conservation of Greater Sage-Grouse: A Landscape Species and Its Habitats", a publication of the Cooper Ornithological Society, and the University of California Press (all manuscripts available online at http://sagemap.wr.usgs.gov/monograph.aspx (accessed December 3, 2009). Manuscripts from the monograph are cited as appropriate herein.

4.1 Status of the Species

4.1.1 Rangewide Status and Distribution

Prior to settlement of the western North America by European immigrants in the 19th century, sage-grouse occurred in 13 States and 3 Canadian provinces—Washington, Oregon, California, Nevada, Idaho, Montana, Wyoming, Colorado, Utah, South Dakota, North Dakota, Nebraska, Arizona, British Columbia, Alberta, and Saskatchewan (Schroeder et al. 1999, p. 2; Young et al. 2000, pp. 445; Schroeder et al. 2004, p. 369). Sagebrush habitats that potentially supported sage-grouse occurred over approximately 1,200,483 km^2 (463,509 mi^2) before 1800 (Schroeder et al. 2004, p. 366). Currently, sage-grouse occur in 11 States and 2 Canadian provinces, ranging from

extreme southeastern Alberta and southwestern Saskatchewan, south to western Colorado, and west to eastern California, Oregon, and Washington (Miller et al., in press; Figure 1).

Sage-grouse have been extirpated from Nebraska, British Columbia, and possibly Arizona (Schroeder et al. 1999, p. 2; Young et al. 2000 p. 445; Schroeder et al. 2004, p. 369). Current distribution of the sage-grouse is estimated at 668,412 km2 (258,075 mi2) or 56 percent of the potential pre-settlement distribution (Schroeder et al. 2004, p. 369; Connelly et al. 2004, p. 6-9).

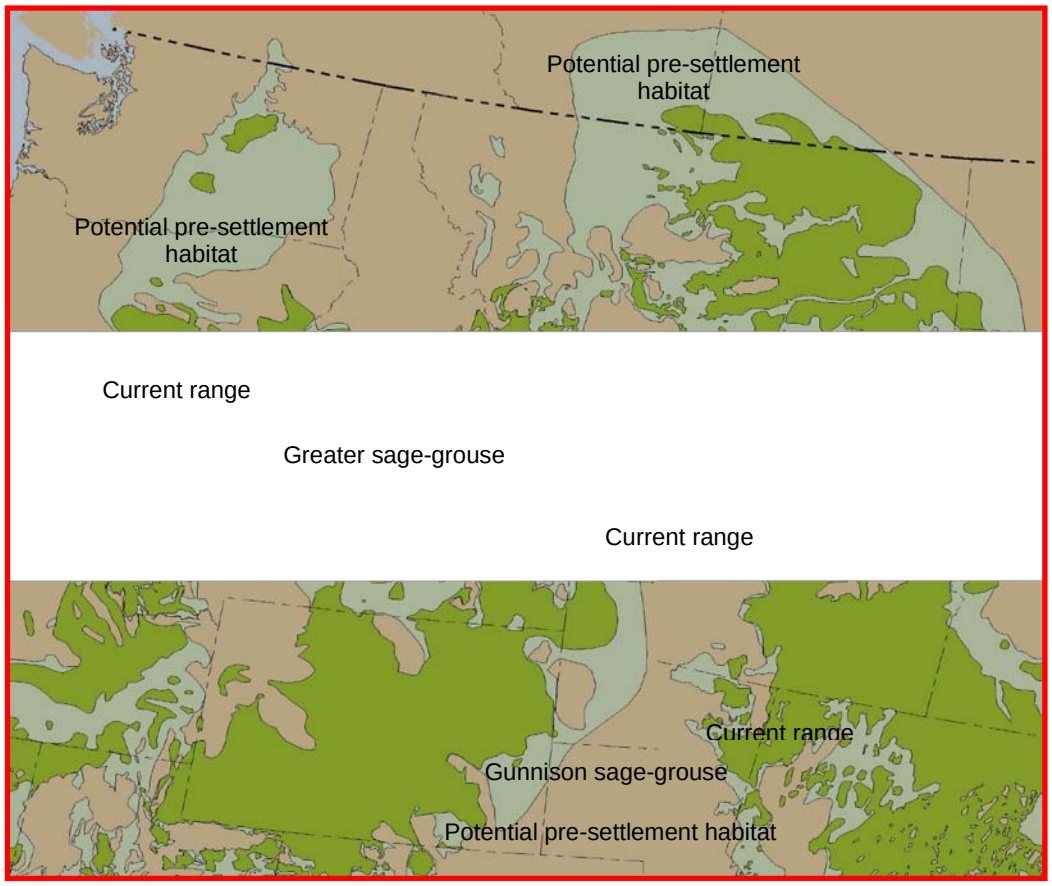

Figure 1: Current and pre-settlement range of the sage-grouse (from Schroeder et al. 2004).

4.1.2 Life History

Greater sage-grouse depend on a variety of shrub-steppe habitats throughout their life cycle, and are considered obligate users of several species of sagebrush (e.g., *Artemisia tridentata* ssp. *wyomingensis* (Wyoming big sagebrush), *A. t.*ssp. *vaseyana* (mountain big sagebrush), and *A. t. tridentata* (basin big sagebrush)) (Patterson 1952, p. 48; Braun *et al.* 1976, p. 168; Connelly *et al.* 2000a, pp. 970-972; Connelly *et al.* 2004, p. 4-1; Miller *et al. in press*, p. 1). Greater sage-grouse also use other sagebrush species such as *A. arbuscula* (low sagebrush), *A. nova* (black sagebrush), *A. frigida* (fringed sagebrush) and *A. cana* silver sagebrush (Schroeder *et al.* 1999, pp. 4-5; Connelly *et al.* 2004, p. 3-4). Thus, sage-grouse distribution is strongly correlated with the distribution of sagebrush habitats (Schroeder *et al.* 2004, p. 364). Sage-grouse exhibit strong

site fidelity (loyalty to a particular area even when the area is no longer of value) to seasonal habitats, which includes breeding, nesting, brood rearing, and wintering areas (Connelly *et al.* 2004, p. 3-1).

During the spring breeding season, male sage-grouse gather together to perform courtship displays on areas called leks. Areas of bare soil, short-grass steppe, windswept ridges, exposed knolls, or other relatively open sites typically serve as leks (Patterson 1952, p. 83; Connelly et al. 2004, p. 3-7 and references therein). Leks can be formed opportunistically at any appropriate site within or adjacent to nesting habitat (Connelly et al. 2000a, p. 970), and therefore lek habitat availability is not considered to be a limiting factor for sage-grouse (Schroeder 1999, p. 4). Males defend individual territories within leks and perform elaborate displays with their specialized plumage and vocalizations to attract females for mating. A relatively small number of dominant males accounts for the majority of breeding on each lek (Schroeder et al. 1999, p. 8). Bush (2009, p. 106), however, found on average that 45.9 percent (range 14.3-54.5 percent) of genetically identified males in a population fathered offspring in a given year. This more recent work suggests that males and females likely engage in off-lek copulations. Males do not participate in incubation of eggs or rearing chicks.

Females have been documented to travel more than 20 km (12.5 mi) to their nest site after mating (Connelly *et al.* 2000a, p. 970), but distances between a nest site and the lek on which breeding occurred is variable (Connelly *et al.* 2004, pp. 4-5). Average distance between a female's nest and the lek on which she was first observed ranged from 3.4 km (2.1 mi) to 7.8 km (4.8 mi) in five studies examining 301 nest locations (Schroeder *et al.* 1999 p. 12). Research by Bradbury *et al.* (1989, p. 22) and Wakkinen *et al.* (1992, p. 382) demonstrated that nest sites are selected independent of lek locations, but that the reverse is not true.

Productive nesting areas are typically characterized by sagebrush with an understory of native grasses and forbs, with horizontal and vertical structural diversity that provides an insect prey base, herbaceous forage for pre-laying and nesting hens, and cover for the hen while she is incubating (Gregg 1991, p. 19; Schroeder *et al.* 1999, p. 4; Connelly *et al.* 2000a, p. 971; Connelly *et al.* 2004, pp. 4-17, 18). Sage-grouse may also use other shrub or bunchgrass species for nest sites (Klebenow 1969, p. 649; Connelly *et al.* 2000a, p.970; Connelly *et al.* 2004, p. 4-4). Shrub canopy and grass cover provide concealment for sage-grouse nests and young, and are critical for reproductive success (Barnett and Crawford 1994, p.116; Gregg *et al.* 1994, p. 164; DeLong *et al.*1995, p. 90; Connelly *et al.* 2004, p. 4-4). Published vegetation characteristics of successful nest sites included a sagebrush canopy cover of 15-25 percent, sagebrush heights of 30-80 cm (11.8-31.5 in), and grass/forb cover of 18 cm (7.1 in; Connelly *et al.* 2000a, p. 977).

Sage-grouse clutch size ranges from 6 to 9 eggs with an average of 7 eggs. (Connelly *et al. in press*, p.15). The likelihood of a female nesting in a given year averages 82 percent in the eastern portion of the range (Alberta, Montana, North Dakota, South Dakota, Colorado, Wyoming) and 78 percent in the western portion of the range (California, Nevada, Idaho, Oregon, Washington, Utah) (Connelly *et al. in press*, p. 15). Nest success (one or more eggs hatching from a nest) varies widely (15-86 percent Schroeder *et al.* 1999, p. 11), but overall, the average nest success for sage-grouse in habitats where sagebrush has not been disturbed is 51 percent and for sage-grouse in disturbed habitats is 37 percent (Connelly *et al.*, *in press*, p. 16). Re-nesting only occurs if the original nest is lost (Schroeder *et al.* 1999, p. 11). Little information is available on the level of productivity (number of chicks per hen that survive to fall) that is necessary to maintain a stable population (Connelly *et al.* 2000b, p. 970). However,

Connelly *et al.* (2000b, p. 970, and references therein) suggest that 2.25 chicks per hen are necessary to maintain stable to increasing populations.

Hens rear their broods in the vicinity of the nest site for the first 2-3 weeks following hatching (within 0.2-5 km (0.1-3.1 mi)) (Connelly *et al.* 2004, p. 4-8). Forbs and insects are essential nutritional components for chicks (Klebenow and Gray 1968, p. 81; Johnson and Boyce 1991, p. 90; Connelly *et al.* 2004, p. 4-9). Therefore, early brood-rearing habitat must provide adequate cover (sagebrush canopy cover of 10-25 percent; Connelly *et al.* 2000a, p. 977) adjacent to areas rich in forbs and insects to ensure chick survival during this period (Connelly *et al.* 2004, p. 4-9). Sage-grouse gradually move from sagebrush uplands to more mesic areas during the late brood-rearing period (3 weeks post-hatch) in response to summer desiccation of herbaceous vegetation (Connelly *et al.* 2000a, p. 971). Summer use areas can include sagebrush habitats as well as riparian areas, wet meadows and alfalfa fields (Schroeder *et al.* 1999, p. 4). These areas provide an abundance of forbs and insects for both hens and chicks (Schroeder *et al.* 1999, p. 4; Connelly *et al.* 2000a, p. 971). Sage-grouse will use free water although they do not require it since they obtain their water needs from the food they eat. Broodless hens and cocks will also use more mesic areas in close proximity to sagebrush cover during the late summer, often arriving before hens with broods (Connelly *et al.* 2004, p. 4-10).

As vegetation continues to desiccate through the late summer and fall, sage-grouse shift their diet entirely to sagebrush (Schroeder *et al.* 1999, p. 5). Sage-grouse depend entirely on sagebrush throughout the winter for both food and cover. Sagebrush stand selection is influenced by snow depth (Patterson 1952, p. 184; Hupp and Braun 1989, p. 827), availability of sagebrush above the snow to provide cover (Connelly *et al.* 2004, pp. 4-13, and references therein) and, in some areas, topography (e.g., elevation, slope and aspect; Beck 1977, p. 22; Crawford *et al.* 2004, p. 5).

Many populations of sage-grouse migrate between seasonal ranges in response to habitat distribution (Connelly *et al.* 2004, p. 3-5). Migration can occur between winter and breeding and summer areas, between breeding, summer and winter areas, or not at all. Migration distances of up to 161 km (100 mi) have been recorded (Patterson 1952, p.189); however, distances vary depending on the locations of seasonal habitats (Schroeder *et al.* 1999, p. 3). Migration distances for female sage-grouse generally are less than for males (Connelly *et al.* 2004, p. 3-4). Almost no information is available regarding the distribution and characteristics of migration corridors for sage-grouse (Connelly *et al.* 2004, p. 4-19). Sage-grouse dispersal (permanent moves to other areas) is poorly understood (Connelly *et al.* 2004, p. 3-5) and appears to be sporadic (Dunn and Braun 1986, p. 89). Estimating an 'average' home range for sage-grouse is difficult due to the large variation in sage-grouse movements both within and among populations. This variation is related to the spatial availability of habitats required for seasonal use and annual recorded home ranges have varied from 4–615 square kilometers ($km^{2;}$ 1.5-237.5 square miles (mi^2); Connelly *et al., in press*, p. 10).

Sage-grouse typically live between 3 and 6 years, but individuals up to 9 years of age have been recorded in the wild (Connelly *et al.* 2004, p. 3-12). Hens typically survive longer due to a disproportionate impact of predation on leks to males (Schroeder *et al.* 1999, p. 14). Juvenile survival (from hatch to first breeding season) is affected by food availability, habitat quality, harvest, and weather. Based on a review of many field studies, documented juvenile survival rates range from 7 to 60 percent (Connelly *et al.* 2004, p. 3-12). The variation in juvenile mortality rates may be associated with gender, weather, harvest rates, age of brood female

(broods with adult females have higher survival), and with habitat quality (rates increase in poor habitats) (Schroeder *et al.* 1999, p. 14; Connelly *et al*., *in press*, p. 20). The average annual survival rate for male sage-grouse (all ages combined) documented in various studies ranged from 38 to 60 percent and 55 to 75 percent for females (Schroeder *et al.* 1999, p. 14). Higher female survival rates account for a female-biased sex ratio in adult birds (Schroeder 1999, p.14; Johnsgard 2002, p. 621). The sex ratio of sage-grouse breeding populations varies widely with values between 1.2 and 3 females per male being reported (Connelly *et al*., *in press*, p. 23). Although seasonal patterns of mortality have not been thoroughly examined, over-winter mortality appears to be low (Connelly *et al.* 2000b, p. 229; Connelly *et al.* 2004, p. 9-4).

4.1.3 Habitat Characteristics

Sage-grouse are dependent on large areas of contiguous sagebrush (Patterson 1952, p. 48; Connelly *et al.* 2004, p. 4-1; Connelly *et al. in press*, p. 10; Wisdom *et al. in press*, p. 4), and large-scale characteristics within surrounding landscapes influence sage-grouse habitat selection (Knick and Hanser *in press*, p. 26). Research shows that ensuring the persistence of sage-grouse populations requires maintaining large landscapes that are relatively unfragmented and predominately covered with sagebrush. The amount of sagebrush cover in an area was the "single-best discriminator between occupied and extirpated ranges" of sage-grouse, and landscapes with 50% or more of the area occupied by sagebrush cover types had a high probability of supporting persistent populations (Aldridge et al. 2008, p.990; Wisdom *et al* (in press, p. 17).

Sagebrush is the most widespread vegetation in the intermountain lowlands in the western United States (West and Young 2000, p. 259) and is considered one of the most imperiled ecosystems in North America (Knick *et al.* 2003, p. 612; Miller *et al. in press*, p. 4, and references therein). Scientists recognize 14 species and 13 subspecies of sagebrush (Connelly *et al.* 2004, p. 5-2; Miller *et al. in press*, p. 8), each with unique habitat requirements and responses to perturbations (West and Young 2000, p. 259). Sagebrush species and subspecies occurrence in an area is dictated by local soil type, soil moisture, and climatic conditions (West 1983, p. 333; West and Young 2000, p. 260; Miller *et al. in press*, pp. 8-11). The degree of dominance by sagebrush varies with local site conditions and disturbance history. Plant associations, typically defined by perennial grasses, further define distinctive sagebrush communities (Miller and Eddleman 2000, pp. 10-14; Connelly *et al.* 2004, p. 5-3), and are influenced by topography, elevation, precipitation and soil type. These ecological conditions influence the response and resiliency of sagebrush and their associated understories to natural and human-caused changes. Sagebrush that provide important annual and seasonal habitats for sage-grouse include three subspecies of big sagebrush (*A. t.* ssp. *wyomingensis, A. t*. ssp. *tridentata* and *A. t*. ssp. *vaseyana*), two low forms of sagebrush (*A. arbuscula* (little sagebrush) and *A. nova*) and *A. cana* ssp. *cana*) Miller *et al. in press*, p. 8).

Sagebrush is long-lived, with plants of some species surviving up to 150 years (West 1983, p. 340). They produce allelopathic chemicals that reduce seed germination, seedling growth and root respiration of competing plant species and inhibit the activity of soil microbes and nitrogen fixation. Sagebrush has resistance to environmental extremes, with the exception of fire and occasionally defoliating insects (e.g., webworm (*Aroga* spp.); West 1983, p. 341). Most species of sagebrush are killed by fire (West 1983, p. 341; Miller and Eddleman 2000, p. 17; West and Young 2000, p. 259), and historic fire-return intervals can be as long as 350 years, depending

sagebrush type and environmental conditions (Baker *in press*, p. 16). Natural sagebrush re-colonization in burned areas depends on the presence of adjacent live plants for a seed source or on the seed bank, if present (Miller and Eddleman 2000, p. 17).

Very little sagebrush within its extant range is undisturbed or unaltered from its condition prior to EuroAmerican settlement in the late 1800's (Knick *et al.* 2003, p. 612, and references therein). Due to the disruption of primary patterns, processes and components of sagebrush ecosystems since EuroAmerican settlement (Knick *et al*. 2003, p. 612; Miller *et al. in press*, p. 4), the large range of abiotic variation, the minimal short-lived seed banks, and the long generation time of sagebrush, restoration of disturbed areas is very difficult. Not all areas previously dominated by sagebrush can be restored because alterations of vegetation, nutrient cycles, topsoil, and living (cryptobiotic) soil crusts have exceeded recovery thresholds (Knick *et al.* 2003, p. 620). Additionally, processes to restore sagebrush ecology are relatively unknown (Knick *et al.* 2003, p. 620).

4.2 Environmental Baseline of the Action Area

This section assesses the effects of past and ongoing human and natural factors that have led to the current status of the species, its habitat and ecosystem in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects in the action area which have already undergone section 7 consultations, and the impacts of state and private actions which are contemporaneous with the consultations in progress.

4.2.1 Status of the Sage-grouse

The proposed action area, defined by the WCPA boundary, encompasses an isolated population of sage-grouse in west-central Idaho. This area ranked as having the highest risk for extirpation of sage-grouse among the 13 planning areas in Idaho (Idaho Sage-Grouse Advisory Committee, 2006, Appendix E-5). The WCPA received this ranking due to its "isolated nature, the high proportion of private property, low sage-grouse population numbers, high amount of annual grasslands, and lack of connectivity with sage-grouse populations in Oregon" (Idaho Sage-Grouse Advisory Committee, 2006, Appendix E-7).

Historic population data on sage-grouse in the WCPA are limited. Lek counts for the WCPA during the late-1960s through the late-1990s were sporadic. In addition, there has been no sage-grouse hunting season in the WCPA for more than twenty years. Consequently, production data from hunters are also lacking. Intensive surveys of active, historical and potential leks, were conducted between 1998 and 2001. Displaying males were observed at 19 leks but no birds were observed at 42 historic lek sites. To gain a better understanding of population trend, four lek routes were established by the Idaho Department of Fish and Game in the late 1990s that provide data on 14 leks. A lek route is an established route among a number of known leks in close enough proximity that they can be observed by one observer traveling between leks in a single morning. Trained volunteers and IDFG staff monitor these lek routes on a regular basis using a prescribed protocol for counting the number of birds on each lek during the spring mating season. While data inconsistencies and the limited number of lek counts do not allow for definitive conclusions as to trends in the data for the WCPA, the population today appears to be significantly smaller than in the 1970s, based on the number of historic leks that are now unoccupied and the low average number of males per lek (Figure 4) (IDFG, unpublished data).

IDFG and the WCPA sage-grouse local working group initiated a sage-grouse telemetry study in 2004 to help fill in the data gaps regarding sage-grouse use in the WCPA. The telemetry locations are identified in Figure 2. Telemetry data show the general areas which are preferred by sage-grouse throughout the year, and also indicate the distances that the birds commonly travel during the year. It suggests that the sage-grouse population is primarily non-migratory, spending most of the time within 2 miles of the leks, although individuals have been documented traveling as far as 11 miles between locations. Since this population is largely non-migratory, seasonal habitats significantly overlap at broader scales and grouse likely seek smaller patches of suitable habitat within these areas.

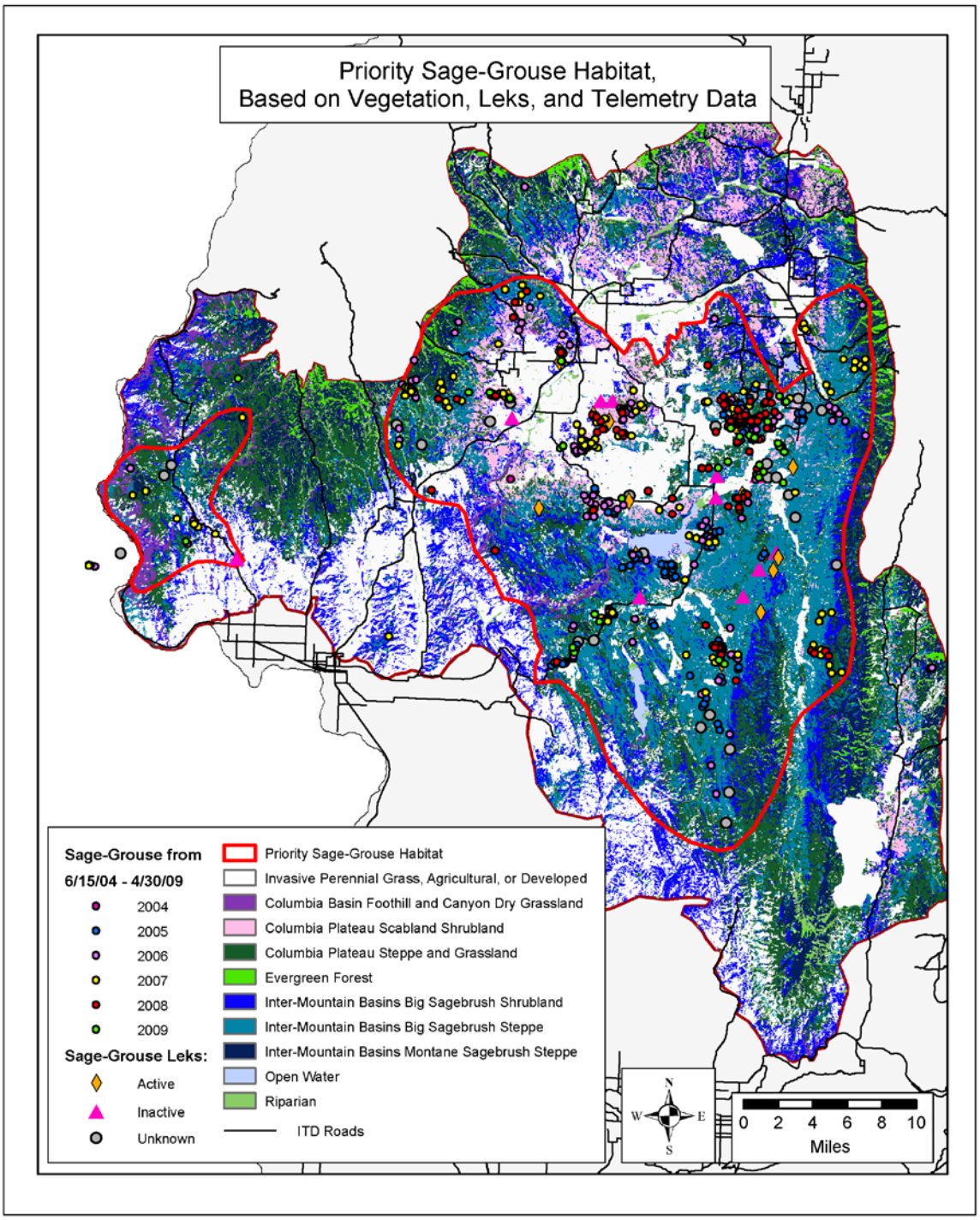

Figure 2. Priority Sage-grouse habitats within the West Central Planning Area

4.2.2 Factors Affecting the Species' Environment Within the Action Area

Sage-grouse require large landscapes that are relatively unfragmented and predominately covered with sagebrush. In recent history, the primary factors accounting for the loss and fragmentation of sagebrush habitat in the WCPA are wildfire and exurban development. Although wildfire is a natural part of the ecosystem, numerous anthropogenic factors have resulted in unnatural wildfire conditions that sagebrush habitats have not evolved with. One of the results of this has been significant loss and fragmentation of sage-grouse habitat.

The other primary factor affecting sagebrush habitat has been development, which has varied widely since settlement began. Historically, development was largely associated with the conversion of sagebrush habitat to row crops and perennial grasslands that support the livestock and agricultural economy. More recently development has been related to the subdivision of large pieces of property to smaller ranches and ranchettes. The Idaho State Plan (Idaho Sage-Grouse Advisory Committee, 2006, p. 4-1 – 4-126) describes 19 categories of threats that may affect sage-grouse across the State of Idaho. Sixteen of those 19 threats are likely to affect sage-grouse in the WCPA (NNRG et al. 2010, p. 22). The threats in the WCPA include the following:

1. Fire: Wildfire and its synergistic relationship with annual grasses has had a significant impact on sage-grouse habitat within the WCPA and continues to be considered one of the most significant threats. Direct effects of prescribed fire and wildfire include disturbance and direct mortality from the fire and fire fighting/management operations. Indirect effects of fire are primarily related to the loss and fragmentation of suitable habitat. Fire provides the disturbance necessary for exotic annual grasses (e.g., cheatgrass and medusa head) to invade large amounts of habitat; sometimes resulting in the permanent conversion to annual grassland and the loss of forage and cover for sage-grouse. Since sagebrush is not well adapted to fire, fire return intervals in these grasslands make active or passive restoration difficult. Difficulties with restoration and slow growth rates result in the fragmentation and loss of habitat for a minimum of 20 years.

2. Infrastructure: A significant proportion of the WCPA is private property, resulting in increased risk of development and associated infrastructure. Roads, pipelines, fences, new buildings, ranch infrastructure, or land easements/rights-of-way for powerlines or other large infrastructure may result in direct and indirect effects to sage-grouse through disturbance and loss or fragmentation of suitable habitat.

3. Annual Grassland: Annual grasses have been observed throughout the WCPA and may have indirect effects to sage-grouse. Conversion of shrub steppe to annual grasslands has indirect effects to sage-grouse through the reduction in quality and quantity of all seasonal habitats. Conversion to annual grasslands results in the reduction of forage and cover for all life history stages. Furthermore, annual grasses synergistically affect fire related affects by providing a thick homogenous understory that can increase the risk of ignition, spread, and burn intensity.

4. Livestock Impacts: Livestock grazing is a significant land management activity throughout the WCPA and has the potential to directly and indirectly affect sage-grouse. Direct effects may result from the concentrated movement (i.e., herding) of livestock through areas where sage-grouse may be concentrated, and pasture management activities, including design and placement of fences. Indirect effects of historic livestock grazing and management are evident throughout the WCPA. Indirect effects result from reduced habitat quality related to inappropriate grazing and management. For example, over-grazing pastures where perennial bunchgrass communities naturally associated with native rangeland has resulted in the bunchgrass understory being replaced by a variety of annual grasses.
5. Human Disturbance: Although human disturbance is not currently considered to be a significant threat in the WCPA, isolated incidents associated with recreation or other human uses may occasionally occur. Wildlife viewing and incidental disturbance to sage-grouse, particularly birds on leks, has been documented in the WCPA.

6. West Nile Virus: West Nile virus has been noted as a potential threat throughout the WCPA and has been confirmed in two sage-grouse mortalities. Suitable mosquito habitat is found throughout the area and is largely associated with irrigated agriculture,

7. Prescribed Fire: The use of prescribed fire as a vegetation control technique is often used in the management of rangeland and has the potential to result in similar effects as wildfire.

8. Seeded Perennial Grassland: Numerous areas throughout the WCPA have been converted to perennial grasslands. This has resulted in reduction of habitat quantity and quality throughout the action area. These areas have limited or no shrub component remaining, resulting in the loss of cover and forage for sage-grouse.

9. Climate Change: Over time, warmer temperatures could increase fires and the proliferation of annual grasses into sage habitats. As noted above, annual grasses and sage habitats occur throughout the WCPA which could be threatened by future climate change.

10. Isolated Population: The WCPA provides habitat associated with an isolated population of sage-grouse. Since there is little or no immigration and emigration, population declines resulting in the loss of a genetically viable population of sage-grouse remains a significant threat.

11. Predation: Predators are located throughout the WCPA. Although they currently are not considered to be excessively abundant, they may have significant impacts when sage-grouse population size becomes too small. Non-native predators (feral cats and dogs) are

also present and the threats associated with them increase as human encroachment and development expands into rural areas adjacent to sage-grouse habitat.

12. Development: Rural development has historically had a significant threat to sage-grouse throughout the WCPA and is currently considered to be one of the greatest threats in the area. Expansion of the human footprint into sagebrush habitat has resulted in the direct loss of forage and cover as well as resulted in increased fragmentation of the remaining habitat. Since much of the WCPA is private property, these areas will likely experience increased pressure from subdivision development.

13. Sagebrush Control: Sagebrush control has been used throughout the WCPA to provide additional forage for livestock. This is considered to be a significant threat to sage-grouse and could result in reductions in sage-brush cover in the area further reducing and fragmenting available habitat.

14. Insecticides: Irrigated and dry agriculture crops are raised throughout the WCPA. Insecticides are often used to protect row crops from substantial damage. Application of insecticides can have localized impacts on forage (e.g. grasshoppers) for sage-grouse chicks.

15. Agricultural Expansion: Throughout the WCPA, sagebrush habitat has been cleared for additional arable land. Although this activity can significantly reduce and fragment available habitat, a large majority of potential arable has already been cleared. Since we anticipate that the potential for this activity will be limited by available resources, it is not considered to be a significant threat in the area.

16. Sport Hunting of Sage-grouse, Poaching and Accidental Shooting: Sage-grouse hunting has not been allowed in the WCPA for approximately 20 years. Although sport hunting of other upland bird species does occur and the potential threat of accidental shooting and poaching exists, we believe that it only rarely occurs and that it is a minor threat in the area.

5. EFFECTS OF THE PROPOSED ACTION

This section considers the direct and indirect effects of the proposed permit on sage-grouse, together with the effects of other activities that are interrelated or interdependent with that action, which will be added to the environmental baseline. Direct effects are defined as those that result from the proposed action and directly or immediately impact the species or its habitat. Indirect effects are those that are caused by, or will result from, the proposed action and are later in time, but still reasonably certain to occur. An interrelated activity is an activity that is part of the proposed action and depends on the proposed action for its justification. An interdependent activity is an activity that has no independent utility apart from the action under consultation.

5.1 Direct and Indirect Effects of the Proposed Action

Direct effects are those caused by the proposed action and immediately affect the species or its habitat. Indirect effects are caused by or will result from the proposed action, are later in time, and are reasonably certain to occur.

5.1.1 Agreement Effects: Threat Reduction

Implementation of the covered activities, inclusive of the conservation measures, under the Agreement is likely to reduce threats to sage-grouse (see Factors Affecting Species Environment within the Action Area) on all enrolled lands for the following reasons.

Habitat Destruction or Modification

1. The "No Net Loss" and "Fair Share" standards, which will be implemented on all enrolled lands, are likely to minimize further decreases and result in restoration of sagebrush cover across the action area. By agreeing not to remove or treat existing habitat, as well as committing to habitat restoration, property owners will assure these outcomes on enrolled lands. Although there is no guarantee that landowners will enroll, the Fair Share Standard was developed to help ensure that greater than 50% of the action area will be maintained in sagebrush cover over the duration of the agreement (see Habitat Characteristics section above; Aldridge et al. 2008, p.990; Wisdom et al. *in press*, p. 17). The standard accounts for the current amount of sagebrush cover across the landscape and estimated future losses due to wildfire and urbanization, the two primary threats to sage-grouse in the WCPA. This standard will ensure that over 50% of suitable or potentially suitable sage-grouse habitat on all enrolled lands will be actively maintained or restored to provide suitable sage-grouse habitat.

2. The Agreement includes numerous conservation measures designed to prevent and limit the spread of wildfire and invasive weeds including: installation of "green strips" and/or buffers, restoration of annual/biannual grasslands, and education/outreach of participants and visitors. To effectively limit the impacts of wildfire, the conservation measures will reduce fire starts and slow fire spread through education, outreach, and direct land management activities. Education and outreach efforts will be completed for all family, employees, and guests of the ranch. Agency personnel will determine the potential usefulness of fire breaks or green strips through the initial habitat assessment, and will recommend their application in those areas where they will most effectively reduce the likelihood of fire ignitions and spread. Although all wildfire can't be prevented, conservation measures in the Agreement improve restoration of burnt areas. Effectiveness of these conservation measure will be maximized through interagency and interdisciplinary collaboration, one or more seedings where necessary, and rest from livestock grazing through two growing seasons. These measures and the expertise of Agency personnel will ensure that plantings and other restoration actions are implemented in the most appropriate areas, and with attention to the needs of the specific plants and habitats to be restored within those site-specific conditions.

3. Other conservation measures in the Agreement aim to improve habitat quality by adjusting the timing, intensity, and duration of livestock use to meet sage-grouse habitat standards from the Bureau of Land Management's "Framework for describing sage-grouse habitat at multiple scales." Native rangelands throughout the action area have been degraded through historic livestock operations. Agreement by landowners to meet habitat quality standards set forth in the

framework would likely improve significant amounts of habitat through increases in sagebrush and perennial grass cover, increases in residual plant height, and increases in forb diversity and abundance.

4. Additional conservation measures that are likely to reduce habitat fragmentation or improve habitat quality are: agreement by enrollees not to subdivide or build residences in potentially suitable sage-grouse habitat, participation in wildfire restoration efforts with the aid agency experts, stipulations on the placement of new fences and visibility measures for existing fences (tagging), minimization of infrastructure development on enrolled lands (e.g., wind turbines, cell towers), design standards for water developments, delayed stock turn-out in pastures near leks, design and implementation of livestock grazing standards or a grazing management plan with Agency expertise, and restrictions on the chemical or mechanical treatment of sagebrush. These conservation measures are likely to be effective because they have been designed using the most recent and relevant scientific literature, reviewed by numerous sage-grouse experts and potential enrollees, and collaboratively articulated by all those involved. They will ensure that existing habitat is maintained, that potentially suitable habitat is treated and potentially restored, and that any potential impacts associated with ongoing land management activities are minimized.

It is not possible to describe precisely which conservation measures will be implemented across the landscape because each site-specific plan and the associated conservation measures will be developed through site evaluations; site-specific plans will be based on existing habitat conditions, sage-grouse use, and threats on the property. However, the Fair Share Standard will ensure that sufficient measures to increase habitat quality and quantity in the WCPA will occur across the enrolled lands, with an associated increase in the population of sage-grouse. Over time, this Agreement will allow population expansion into adjacent areas of the enrolled lands, and into currently unoccupied areas within the historical range of the species in the WCPA. Population expansion into adjacent areas will likely occur as additional lands are returned to suitable habitat condition through implementation of conservation measures and the Fair Share Standard. Additional population connectivity resulting from such an expansion will reduce the risk of local population extirpation from stochastic events (Lande et al. 2003, p. 36).

Overutilization

Hunting seasons have been closed throughout the WCPA for over 20 years. Although hunting is not impacting the sage-grouse population in the WCPA, direct mortality from poaching or accidental shooting continues to be a threat. Under the Agreement, sage-grouse would be afforded additional protection from accidental shooting through education and outreach to family members and guests of the enrolled property. Family members, employees, and guests to the enrolled properties that are participating in upland game bird hunting will be instructed annually on sage-grouse identification and the importance of their conservation, thereby reducing the potential for accidental shooting. It will also increase visitors' and the property owner's ability to recognize and report poaching events. The Agreement is expected to minimize sage-grouse mortality from poaching and accidental shooting on lands enrolled in the program.

Predation

Predation is the most commonly identified cause of direct mortality for sage-grouse (Schroeder et al. 1999, p. 9; Connelly et al. 2000b, p. 228). Despite this fact, adult sage-grouse typically

experience relatively high annual survival rates, suggesting that predation has little impact on breeding populations (Connelly et al. 1994 cited in Connelly 2000, p. 29). Due to its isolated status, the population of sage-grouse that currently exists in the WCPA is more susceptible to diseases, predators, and other stochastic events.

The Agreement contains provisions for the Service and the IDFG to minimize the amount of mortality that occurs from avian species, domestic dogs and cats, and other natural predators where identified as a threat to the species. These provisions will reduce and minimize mortality due to predation where it is a threat (Northwest Natural Resource Group et al., 2009, p. 40).

Inadequacy of Regulatory Mechanisms

In the WCPA the long-term survival of sage-grouse is dependent on non-Federal land. Sixty-four percent of the land in the WCPA, including many of the leks and nesting habitats, is non-Federal land. Landowners have regulatory concerns related to the potential listing of the sage-grouse under the ESA, and these concerns could negatively affect their interest in conserving the species. The ESA regulatory assurances that would be provided to participating landowners under the Agreement and this permit would limit the need to make additional changes in land use activities, beyond those identified in the Agreement, should sage-grouse be listed under the ESA. In doing so, the Agreement is expected to reduce take and thereby benefit the species by reducing participating landowners' regulatory concerns about its possible listing. The Agreement will also encourage additional cooperative efforts toward conservation of sage-grouse on enrolled lands. Indirect benefits of the Agreement are also expected, by encouraging cooperative sage-grouse conservation efforts between the Agencies and other landowners.

Other Natural or Manmade Factors

Pesticides and contaminants are manmade factors which may affect sage-grouse. Pesticides can potentially affect sage-grouse through impacts to habitat quality, abundance of prey items, and direct affects to the bird's health and survival. Although research has shown that pesticides can cause direct mortality to individuals, those pesticides have been banned or have had their use further restricted for more than 20 years (e.g., dieldrin). Application of herbicides and insecticides may also impact individual sage-grouse through reductions in food and cover availability. Conservation measures from the Agreement will minimize the use of herbicides and insecticides which may reduce food and cover availability (Northwest Natural Resource Group et al., 2009, p. 41); however, the uses of these chemicals are not defined as "covered activities" under this Agreement and the potential effects of such use will not be evaluated further.

There is currently not any published literature concerning non-consumptive (non-hunting) recreational impacts to sage-grouse, but significant research has been conducted on the impacts of recreation to various other wildlife species and their habitats. In general, recreation may have direct effects to wildlife through mortality from collisions or disturbance to individuals. Indirect effects to sage-grouse from route proliferation include: habitat loss and fragmentation, increased risk of fire, increased risk of weed invasion, and increased access for predators. Increasing popularity and improved access to sage-grouse leks have recently resulted in concerns over disturbance to mating sage-grouse. Conservation measures implemented through this Agreement will minimize the potential impacts of disturbance by reducing recreational access to areas where sage-grouse are likely to be breeding, nesting, or rearing broods (Northwest Natural Resource Group et al., 2009, p. 30). This reduction in access within key areas during sensitive time

periods will likely result in reduced potential for disturbance to sage-grouse on enrolled properties.

5.1.2 Site-Specific Effects

The Agreement sets out to reduce threats to sage-grouse across the WCPA through the development of site-specific plans that identify conservation measures to minimize the adverse effects of ongoing activities on enrolled lands. However, not all adverse effects on enrolled properties will be eliminated. We anticipate that adverse effects associated with the following activities would continue to occur at low levels on enrolled lands.

Farm Operations: Adverse effects to sage-grouse associated with farm operations are often related to loss of habitat. Enrollees will agree to the "no net loss" standard, therefore we will not be authorizing any loss of habitat. Furthermore, the "fair share" standard will likely result in increased amounts of habitat and corresponding increases in the population over the period of the agreement. Cultivation of alfalfa crops may result in adult sage-grouse being flushed from fields; this is a normal behavior and will not likely affect these individuals' fitness. An abundance of forage throughout native rangelands during the early brood rearing period typically precludes the need for broods to use irrigated agriculture during this time. In dry years or in areas where forage may not be abundant on native rangeland, hens and broods may forage within irrigated alfalfa fields during the early brood rearing period. In these cases, young broods of chicks (that are unable to fly) may not be able to flee hay swathers during the first crop cutting and may be killed. Sage-grouse clutch size varies from 6 to 9 eggs with an average of 7 eggs (Connelly *et al. in press*, p.15), and nest success in undisturbed habitat is 51 percent (Connelly *et al.*, *in press*, p. 16). Therefore, an average brood may have approximately 4 chicks. If an average of 4 broods were killed per year, this would result in incidental take of approximately 16 sage-grouse. Enrollees with irrigated alfalfa crops will agree to conservation measures that have been designed to reduce and minimize these adverse effects. For example, machinery operators will make visual observations for sage-grouse and start swathing the crop from the inside of field working towards the outside edge. This will allow hens with broods the opportunity to escape from the field into adjacent sage-brush cover. Therefore, we anticipate that adult birds will easily be able to avoid being struck by machinery and few broods will be killed. Although hens and broods often use irrigated alfalfa fields later in the summer and fall, chicks are able to fly and easily avoid being hit by machinery.

Range and Livestock Management: Feeding, calving, and herding livestock are activities that may affect sage-grouse. During these activities it is likely that some sage-grouse will be flushed short distances. This is a natural response and will not likely have any effect on the fitness of these individuals. Although disturbance of nests and eggs by livestock activities has been reported in the literature, implementation of conservation measures will minimize the risk of these effects. Sage-grouse may also be affected by existing or newly constructed fences. Flying sage-grouse may inadvertently fly into the top wire on fences, resulting in three or less individuals being maimed or killed per year. Under the Agreement, the risk of these effects has been reduced through conservation measures that address the placement and monitoring of new fences. If fence strikes are observed on existing fences, these areas of the fence will be flagged or the fence will be relocated.

Recreational Activities: Incidental disturbance of some individuals may occasionally occur from recreational activities (e.g., horseback riding, ATV riding, legal hunting). These incidences are expected to rarely occur and will likely only result in birds being flushed a short distance. This will not likely have any effect on the fitness of these individuals. Conservation measures have been developed to educate recreational users on the identification and status of sage-grouse; reducing the likelihood of adverse effects from these activities.

Effects Summary

In summary, direct and indirect beneficial effects to sage-grouse from conservation measures under the Agreement are expected to occur and increase sage-grouse habitat quantity and quality. Limited adverse effects in the form of injury and death will likely occur due to continued land uses such as livestock management and farming of row crops in areas used by sage-grouse. An average of four broods (sixteen chicks) and four adults, for a total average of 20 individuals, may be taken through farm operations and livestock management per year, across the entire WCPA. However, the net effect of this Agreement will be to reduce the likelihood and amount of direct and indirect effects that occur on private lands throughout the WCPA by increasing landowner awareness of the species' needs, by maintaining or increasing available habitat, and through the conservation measures that participating landowners will commit to implement to reduce identified threats on enrolled lands. The commitments made by participating property owners are expected to result in an increase in habitat quantity and quality, and an expansion of the species' distribution within the WCPA. The combination of these benefits with the Agreement's regulatory assurances encouraging a cooperative relationship between the Agencies and participating property owners, is expected to result in an overall benefit to sage-grouse conservation. By reducing landowner's regulatory concerns related to the potential listing of sage-grouse, and gaining increased cooperation with and support from landowners for the Agreement and measures contained therein, conservation of sage-grouse should be enhanced. The anticipated net result of the Agreement is a larger number and more widely distributed population of sage-grouse in the WCPA, and more secure occurrence of sagebrush habitats on the landscape than occurs currently, resulting in enhancement of the long-term survival of sage-grouse in the WCPA.

5.2 Effects of Interrelated or Interdependent Actions

Interrelated actions are those that are a part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration.

No activities or other actions are known to be interrelated or interdependent to the proposed action.

5.3 Cumulative Effects

The implementing regulations for section 7 define cumulative effects to include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this Conference Opinion. Future Federal actions that are unrelated to the proposed

action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

In general, land use activities, including agricultural activities, on non-Federal lands are expected to continue. Since current land-use activities are expected to continue, for lands not enrolled under the Agreement, most of the threats to sage-grouse would also continue. Lands that are not enrolled under the Agreement would likely remain similar to their current habitat condition, or there may be a higher likelihood of fire or development to occur. The loss of habitat on these non-enrolled lands will exacerbate the fragmentation of the landscape for sage-grouse. However, the Fair Share Standard accounts for projected habitat losses associated with fire and development, which minimizes the adverse effect that losses on non-enrolled lands would have.

5.4 Conclusion

The Service has reviewed the current status of sage-grouse, the environmental baseline in the action area, effects of the proposed action, and cumulative effects, and it is our conclusion that the proposed action is not likely to jeopardize the sage-grouse. No critical habitat has been designated for the species, therefore none will be affected.

Approval of the Agreement, including issuance of the section 10(a)(1)(A) permit, is likely to reduce multiple threats to sage-grouse in the WCPA. Specifically, conservation measures under the Agreement will provide direct sage-grouse population and habitat conservation benefits and facilitate a cooperative environment with participating property owners and other private landowners who control much of the suitable habitat for sage-grouse in the WCPA. The range of sage-grouse is large, including portions of 11 western states and parts of Canada. The survival and recovery of the sage-grouse is dependent on landscape and habitat conditions across the range, as well as the occurrence of disturbance to the species. This Agreement will have a conservation benefit to the species, and will increase the availability of habitat in this isolated population; thus increasing the contribution that sage-grouse in the WCPA can play in the maintenance or expansion of the species' distribution and population viability. Fifty-percent or more of sage-grouse habitat on private or State lands within the WCPA is likely to be preserved with implementation of the proposed action, assuming similarly-situated landowners participate in this Agreement.

Although some incidental take will be authorized under the permit for the IDFG, the Agreement's conservation goal of preserving a viable sage-grouse population within the WCPA is expected to be met. As a result, the Agreement is expected to be beneficial and contribute significantly to successful long-term conservation of the species. Although the extent of beneficial effects resulting from the Agreement is unknown due to uncertainty of enrollment, harm and mortality to sage-grouse will be minimized through implementation of the Agreement. Since this is a small isolated population of birds that represents a very small percentage of sage-grouse throughout its range, the majority of expected effects will be beneficial, and the occurrence of any adverse effects will be minimized, the proposed action is not likely to jeopardize the continued existence of this species.

6. INCIDENTAL TAKE STATEMENT

6.1 Incidental Take Statement

Please note that the following Incidental Take Statement is not effective until the Service adopts this Conference Opinion as a Biological Opinion should the sage-grouse be listed as an endangered or threatened species under the ESA.

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without specific exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm in the definition of take in the Act means an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species by annoying these species to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The exemption from the section 9 take prohibitions (should the sage-grouse be listed) for activities covered under the Agreement is provided to the IDFG, and parties with a valid Certificate of Inclusion, under the authority of the ESA section 10(a)(1)(A) permit as well as this Incidental Take Statement. Such an exemption for the Service is provided via this Incidental Take Statement.

All monitoring and compliance measures described in the Agreement, along with conservation measures identified in site-specific plans, together with the terms and conditions described in the section 10(a)(1)(A) permit issued with respect to the Agreement, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement pursuant to 50 CFR 402.14(i). The Service has determined that no additional reasonable and prudent measures or terms and conditions are necessary and appropriate to further minimize the impacts of the anticipated take on the sage grouse. These terms and conditions are non-discretionary and must be undertaken for the exemptions under section 10(a)(1)(A) and section 7(o)(2) of the Act to apply. If the IDFG or parties with a valid Certificate of Inclusion fail to adhere to these terms and conditions, the protective coverage of the section 10(a)(1)(A) permit and section 7(o)(2) may lapse.

6.2 Amount or Extent of Take Anticipated

Incidental take in the form of harass, wound, or kill caused by covered activities is expected to involve up to 20 individual grouse per year within the action area, as averaged over any five year period. However, maintenance of existing habitat and enhancement of marginal or unsuitable habitat to suitable habitat will far outweigh any short term negative impacts to individual grouse

caused by the covered activities. The covered activities most likely to adversely affect the species are associated with farm operations, livestock production and management, and recreational activities.

> Farm Operations: Incidental take of sage-grouse related to farm operation is often related to loss of habitat. Due to the importance of maintaining all existing habitat within the WCPA, future enrollees will be required to agree to a "no net loss" standard. Furthermore, the "fair share" standard is likely to result in increased amounts of sage-grouse habitat and corresponding increases in the population over the period of the Agreement.
>
> Crop cultivation may result in harassment and/or mortality of a few individual sage-grouse; however, the specific conservation measure requiring landowners to cultivate crops from the inside of the field to the outside of the field will allow both adults and young to escape harm and are intended to minimize the likelihood of take from this activity. Over the period of the Agreement, we do anticipate that some sage-grouse may be taken associated with this activity, most likely involving young sage-grouse that are unable to move quickly enough to escape machinery, even with the required precautions.
>
> Livestock Management: Incidental disturbance of some individual grouse may occasionally occur from feeding, calving, and herding of livestock. These effects are expected to rarely occur and will likely only result in birds being flushed a short distance. This will not likely have any adverse effect on the fitness of these individuals. [Please note that such effects are not take and will not be discussed further.] Conservation measures are expected to minimize the likelihood of adult grouse flying into new or existing fences. However, there is a possibility that occasional adult grouse mortality may occur from fence strikes, although we anticipate it will occur infrequently.
> Recreational Activities: Incidental disturbance of some individuals may occasionally occur from recreational activities (e.g., horseback riding, ATV riding, legal hunting). These effects are expected to rarely occur and will likely only result in birds being flushed a short distance. This will not likely have any effect on the survivability of these individuals. [Please note that such effects are not take and will not be discussed further.]

We acknowledge that there is uncertainty in trying to estimate the number of sage-grouse that will likely be injured or killed from the covered activities, but for the purposes of this agreement we assume that no more than 20 sage-grouse may be incidentally taken in any given year of the Agreement as averaged over any five year period. We made this assumption due to the uncertainty associated with likelihood of broods using alfalfa crops during early brood rearing. In the occasional year that it is especially dry and forage is limited, it is likely that more broods will be killed during farm operations. In these years, the amount of take may exceed 20 individuals. In other years there may be few or no individuals killed or harmed. Given the annual variability, we anticipate that the average take over a five year period will be below 20 individuals. We expect that the majority of incidental take will be in the form of "harass" or "kill" during crop cultivation and would most likely involve the loss of young chicks. However, as explained previously in the Agreement, it is highly unlikely grouse will be nesting in these locations, although they may be present there after the nesting period. We also note that the level of incidental take that is expected to occur under this Agreement is directly related to the number of landowners and the acreage covered under site-specific plans tiered to the Agreement, and the types of activities that occur on the enrolled lands. The fewer the number of site-specific

plans, the less incidental take is expected, although the maximum cumulative incidental take authorized across the WCPA is 20 sage-grouse per year, as averaged over any five year period. If any sage-grouse are determined to have been incidentally taken within enrolled lands during any calendar year, the Agencies and the participating property owner(s) will identify and consider the need for and feasibility of additional protective measures to minimize any further incidental take.

6.3 Effect of the Take

In the accompanying Conference Opinion, the Service determined that this level of anticipated take is not likely to jeopardize the continued existence of the sage-grouse across its range.

> Farm Operations: We anticipate that the majority of incidental "take" will result from the injury or death of sage-grouse chicks during mechanical harvest of irrigated alfalfa crops. Since sage-grouse chicks have a relatively high mortality rate during the first few months of life, a significant portion of this mortality will likely be compensatory. Given the conservation measures required under the Agreement, we anticipate only small numbers of sage-grouse could be harmed or killed during harvest activities. It is unlikely that the compensatory mortality of a small percentage of chicks will measurably reduce the population size or distribution of sage-grouse in the WCPA.
>
> Range and Livestock Management: Rare instances of injury and mortality will likely occur from fence strikes. Conservation measures have been designed to limit the risk of these losses and these cases are anticipated to occur very infrequently. If fence strikes occur, they will be to individual birds, will be infrequent, and will be dispersed throughout the planning area; thus any mortality will not measurably reduce the population size or distribution of sage-grouse in the WCPA.

Overall, given the habitat protection provided under the Agreement on enrolled lands, the long-term conservation of sage-grouse within the WCPA is expected to be enhanced by implementation of the Agreement and site-specific plans, even with some authorization of incidental take under the permit.

6.4 Reasonable and Prudent Measures and Terms and Conditions

All monitoring and compliance measures described in the Agreement, along with conservation measures identified in site-specific plans, together with the terms and conditions described in the section 10(a)(1)(A) permit issued with respect to the Agreement, are hereby incorporated by reference as reasonable and prudent measures and terms and conditions within this Incidental Take Statement pursuant to 50 CFR 402.14(i). The Service has determined that no additional reasonable and prudent measures or terms and conditions are necessary and appropriate to further minimize the impacts of the anticipated take on the sage grouse.

6.5 Conservation Recommendations

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to

minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery programs, or to develop new information on listed species.

No conservation recommendations are provided here because the Agreement has included conservation measures to promote the conservation of sage-grouse within the action area; additional recommendations are not necessary.

7. REINITIATION-CLOSING STATEMENT

This concludes formal conference on the effects of the Service's proposed permit action on the sage-grouse. Should the sage-grouse be listed, this Conference Opinion can be adopted as a Biological Opinion in response to an intra-Service formal request for such an adoption, provided no significant new information is developed and no significant changes to the Federal action considered herein are made that would alter the content of this Opinion at the time the sage-grouse is listed.

Should the sage grouse be listed and this Conference Opinion is adopted as a Biological Opinion, as provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this Opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

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