Programmatic Candidate Conservation Agreement With Assurances

For Greater Sage- and Columbian Sharp-tailed Grouse

In the

West Central Sage-Grouse Planning Area

DRAFT

Prepared for the

Idaho Governor's Office of Species Conservation

By the

West Central Working Group

And the

Northwest Natural Resource Group·LLC

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Contributors

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Stephen G. Leonard has over thirty-five years experience nationally and internationally in rangeland ecology and grazing management with the private sector, the Bureau of Land Management and various interagency teams. He has published more than thirty papers and references during this period. Before retiring from the BLM, Steve was the ecologist and grazing management specialist for the National Riparian Service Team, comprised of BLM and Forest Service personnel in cooperation with the Natural Resources Conservation Service, to assist agencies and private industry in the acceleration of cooperative riparian restoration. Prior to the National Riparian Service Team, Steve was the rangeland co-lead on the Interior Columbia Basin Science Assessment; range scientist on the National Soil-Range Team that participated in the development of several riparian assessment protocols; rangeland inventory and monitoring program lead in Utah; range conservationist in New Mexico and Colorado; and a ranch manager in Colorado. Leonard received his degree in Range and Forest Management from Colorado State University and has additional non-degree graduate studies in stream hydrology and range ecology from University of Nevada, Reno. He is a certified range management consultant and certified professional in rangeland management.

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Ms. Strand lives in Moscow, Idaho. In addition to her academic responsibilities at the U of I, her current interests include utilizing GIS and remote sensing applications in range management, as well as using GIS and wildlife habitat modeling as support in Candidate Conservation Agreements.

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List of Acronyms

BLM ..... Bureau of Land Management
CCAA ..... Candidate Conservation Agreement with Assurances
CRP ..... Conservation Reserve Program
DEM ..... Digital Elevation Model
ESA ..... Endangered Species Act
FLPMA ..... Federal Lands Policy Management Act
FWS ..... U.S. Fish & Wildlife Service
GAP ..... Gap Analysis Program
GIS ..... Geographic Information System
GPS ..... Global Positioning System
IDFG ..... Idaho Department of Fish & Game
IDL ..... Idaho Department of Lands
IDPR ..... Idaho Department of Parks & Recreation
LWG ..... Local Working Group
NEPA ..... National Environmental Policy Act
NMFS ..... National Marine Fisheries Service
NRCS ..... Natural Resources Conservation Service
OSC ..... Governor's Office of Species Conservation
PNVG ..... Potential Natural Vegetation Groups
SGPA ..... Sage-grouse Planning Area
USDA ..... U.S. Department of Agriculture
USFS ..... U.S. Forest Service
USFWS ..... U.S. Fish & Wildlife Service
USGS ..... U.S. Geological Survey
WCPA ..... West Central Planning Area
WDFW ..... Washington Division of Fish & Wildlife

Executive Summary

Sage-grouse have become an icon of the health of sagebrush ecosystems across the West. Once plentiful, their numbers have declined for a variety of reasons, many of them human caused. Invasions of exotic annual grasses that have modified fire regimes, conversion of sagebrush stands to agricultural use, and subdivision of rural lands into "ranchettes" have fragmented and reduced the large, secure expanses of habitat necessary to sustain wildlife. The well-documented declines in the number of sage-grouse and the human caused reasons for their decline make them an obvious species for potential listing as "threatened" or "endangered" under the federal Endangered Species Act. Similarly, there have been declines in Columbian sharp-tailed grouse, which share habitat with Greater sage-grouse in parts of southwest Idaho.

Since 1999, the U.S. Fish and Wildlife Service has received more than eight petitions to list the Greater sage-grouse as threatened or endangered. Although FWS published a finding of "Not Warranted for Listing" in 2005, Western Watersheds Project appealed that decision. In December 2007, Judge B. Lynn Winmill found in favor of the plaintiffs, ordering FWS to reconsider its decision. Sharptails, too, have been proposed for listing under the ESA. Listing of either species as threatened or endangered would create immediate challenges for those who enjoy sagebrush lands or depend upon them for their livelihoods. In recognition of these potential impacts, a host of state and federal agencies plus private interest groups have proposed a number of plans that, if implemented, would protect sage and sharp-tailed grouse and the species' habitat to the extent that there would be no need to list the species.

As part of these efforts, the state approved the 2006 Conservation Plan for the Greater Sage-grouse in Idaho. The Plan divides the state into thirteen separate planning areas where protection and recovery efforts will be guided by Local Working Groups (LWG) made up of representative stakeholders. One of these areas is the West Central Sage-Grouse Planning Area, extending north of the Payette River to the forested lands beginning near Council, and from the Snake River east to the forested lands that generally parallel Highway 55. The West Central Planning Area (WCPA) is unique in that it is isolated from other major blocks of sagebrush habitat, approximately 64% is privately-owned, and the private lands constitute important habitat not only for the greater sage-grouse, but also for one of the remaining populations of sharptails in the state.

The state Plan provides the scientific and management framework to help Local Working Groups develop grouse conservation plans that meet the needs and conditions unique to their regions. The West Central LWG generally supports Idaho's statewide Plan. However, due to the preponderance of private lands within the planning area, the group has decided to pursue a programmatic Candidate Conservation Agreement with Assurances (CCAA) as the best mechanism to achieve both the objectives of the statewide plan within the WCPA and the mission of the Local Working Group:

> The mission of the West Central Local Working Group is to conserve or enhance sage-grouse habitat necessary for their future survival and expansion while promoting cooperation in the conservation and knowledge of sage-grouse under our unique land ownership, land use patterns, and economy.

As the LWG began to formulate a plan for achieving this mission, members recognized the unique opportunity to simultaneously work to protect sharp-tailed grouse and their habitat as well. Therefore, the CCAA is written to address the needs of both sage-grouse and sharptails. The participating stakeholders believe that the programmatic CCAA lays out a plan of reasonable, achievable, and measurable actions to achieve this mission.

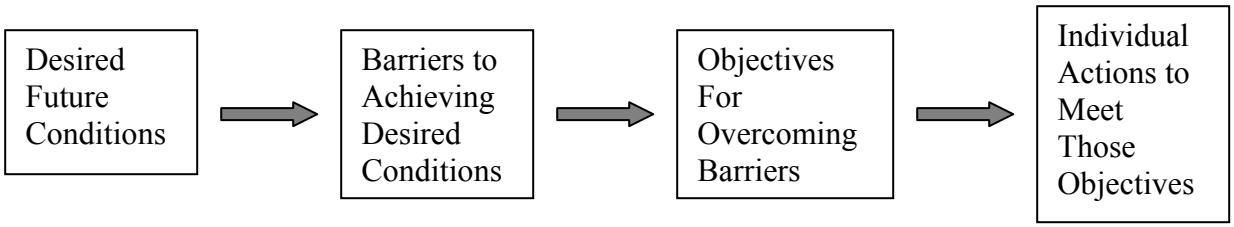
This document details the components of that programmatic CCAA:

- A general description of the area and activities to be covered under the agreement
- Background and status of the two grouse species to be covered
- Report on the ongoing radio telemetry monitoring of sage-grouse in the WCPA
- Discussion of sagebrush dynamics, including a comparison of expected natural vegetation to existing local conditions
- Threats and barriers that can be minimized and mitigated
- The general conservation measures needed to achieve desired future conditions
- Obligations of participating landowners and other parties to the agreement
- Expected benefits of prescribed actions in relation to the five threat factors that USFWS is required to evaluate when considering a candidate for listing
- Funding, assurances, duration of agreements, monitoring and reporting, and level of take

The assessment of Threats and Barriers to the desired conditions of grouse and their habitat within the WCPA, together with the prescribed Conservation Measures to address those threats, form the cornerstone of the CCAA. In February 2005, the Idaho Sage-Grouse Science Panel convened to identify threats to sage-grouse across the state. Steve Morey, USFWS, and Bob Ruesink, USFWS, retired, facilitated this panel that also included six scientists with expertise in sage-grouse, range, fire, and landscape ecology. The Science Panel prioritized the nineteen statewide threats previously identified by a subcommittee of the state planning group. Based on the average scores of the expert panelists, most important statewide threats include (1) wildfire, (2) infrastructure, and (3) annual grasslands. Much less significant threats include (by rank) (17) sport hunting, (18) mines and landfills, and (19) falconry.

The panel also identified specific geographic areas in Idaho and the relative likelihood of sage-grouse extirpation within them, assuming status-quo management and continued trends and trajectories of habitats, populations and threats. The West Central area ranked first in terms of sage-grouse extirpation risk, due to its isolated nature, 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. The panel felt sage-grouse populations in the WCPA could be extirpated within 25-50 years without active conservation efforts, a situation well-suited for the pro-active conservation actions envisioned in candidate conservation agreements.

Using the Science Panel's list of statewide threats as its starting point, the West Central LWG devised a process for characterizing threats most pertinent to this area and actions to address them. First, the Working Group described a set of desired future conditions for the area that, if achieved, would assure a stable, adequate and healthy population of sage and sharp-tailed grouse. To describe desired habitat conditions, the LWG relied upon the 2005 LandFire models of potential natural vegetation groups (PNVG) for this region as a way to compare existing vegetative cover and shrub density with those that might be expected in a naturally evolving ecosystem. Next, stakeholders identified barriers to achieving those conditions within the planning area, along with objectives that can be met by participating landowners through their individual plans. These, then, became the basis for the specific conservation actions included in the programmatic CCAA and individual landowner agreements that are tiered to this plan, as illustrated below:



Using this model, the West Central LWG determined the eight threats that, first, are relevant to the WCPA and, second, can be minimized or mitigated through management actions at the local level:

1. Wildfire that threatens a desirable grass-forb-shrub mixture and which promotes the expansion of annual grasses;

2. Improperly managed livestock grazing that prevents or hinders the maintenance or achievement of a desirable grass-forb-shrub mixture, a proper riparian/wetland function or which disrupts life cycles of the birds;

3. Potential modifications of grass-forb-shrub mixtures through plantings of exotic species or modifications to existing native cover types;

4. Infrastructure, including roads or powerlines, that disrupt habitat connectivity or unacceptably alter the birds' life cycles;

5. Human disturbances, including residential development or recreation that threatens habitat security or connectivity or reduces the size of habitat patches;

6. Poaching or accidental shooting;

7. Predation, where levels of prey/predators are out of balance or where limited patch size and habitat security increase predation levels;

8. Improper use of insecticides, particularly during the period when sage and sharp-tailed grouse are heavily dependent upon insects as a food source.

However, a programmatic CCAA is merely a recommendation without the second element, which takes the form of individual agreements between participating landowners, the FWS and appropriate state agencies. These individual CCAAs describe each ownership and specific conservation practices that will be implemented on enrolled lands to minimize and mitigate any unfavorable impacts to the species arising from the management and use of these lands. Such conservation agreements are authorized by Section 10 of the federal Endangered Species Act of 1973, as amended (ESA), as a means through which private landowners can meet their obligations under the Act for species listed as "threatened" or "endangered" and undertake proactive measures for species that might be listed in the future to minimize impacts from listings.

For ranchers whose operations include public lands grazing, these potential impacts in the event of a listing of either sage or sharp-tailed grouse take two forms: (1) possible allegations that the management of their private lands is unlawfully "taking" birds, and, (2) unfavorable modifications to their public grazing permits as a result of terms and conditions designed to avoid unlawful "jeopardy" of the species. A key aspect of the CCAA is the certainty it affords participating landowners. By entering into this contract with USFWS, ranchers can be confident that covered activities on their private lands will not be further restricted if either grouse species becomes listed. Furthermore, the relevant portions of this agreement can bring the Bureau of Land Management into the partnership, offering participating landowners the opportunity to tie their public grazing allotments into their individual site-specific CCAAs. This increases the possibility that their grazing on public lands can continue even if the birds become listed. Thus the CCAA provides powerful incentives for private individuals and public agencies to cooperate wholeheartedly in implementing effective conservation measures.

I. Introduction, Purpose and Need

Sage-grouse have become an icon of the health of sagebrush ecosystems across the West. Once plentiful, their numbers have declined for a variety of reasons, most of them human induced. Factors range from invasions of exotic annual grasses that have modified fire frequency and destroyed sagebrush stands to subdivision of rural lands into "ranchettes" at the expense of wildlife dependent upon large, secure expanses of habitat. The well-documented declines in the number of sage-grouse and the human caused reasons for their decline make them an obvious species for potential listing as "threatened" or "endangered" under the federal Endangered Species Act. Similarly, there have been declines in Columbian sharp-tailed grouse, which share habitat with Greater sage-grouse in parts of southwest Idaho. Sharptails, too, have been suggested by various groups for listing.

Listing of either species under the ESA would create immediate challenges for those who enjoy sagebrush lands or depend upon them for their livelihoods. While the most obvious group that might be impacted from such a listing is ranchers, the potential impacts also extend to energy exploration and mining, hunters, off-road vehicle riders and other recreational users, along with those who might develop their lands for recreational or residential purposes. In recognition of these potential impacts, a host of state and federal agencies plus private interest groups have proposed a number of plans that, if implemented, would protect sage-grouse or the species habitat to the extent that there would be no need to list the species.

Idaho has been a part of these West-wide efforts. In 2006, the state approved a comprehensive statewide management plan that was based upon division of the state into thirteen separate planning areas where protection and recovery efforts would be guided by "local working groups," ideally made up of representative stakeholders in the area. One of the planning areas is the West Central Sage-grouse Planning Area, generally the area extending north of the Payette River to the forested lands beginning near Council, and from the Snake River east to the forested lands that generally parallel Highway 55. This area is unique in that it is isolated from other major blocks of sagebrush habitat, approximately 64% is privately-owned, and the private lands constitute important habitat not only for the Greater sage-grouse, but also for one of the remaining populations of sharptails in the state.

This planning area is "cowboy country," characterized by sheep and cattle ranch operations that are dependent upon a mix of private lands and grazing permits on adjacent public lands. Here, the obvious holds true—listing of either sage or sharp-tailed grouse would have the greatest impacts on livestock operators. For them, these potential impacts take two forms: (1) possible allegations that the management of their private lands is unlawfully "taking" birds, and, (2) unfavorable modifications to their public grazing permits as a result of terms and conditions designed to avoid unlawful "jeopardy" of the species.

While the West Central Local Working Group supports Idaho's statewide plan, the group has decided to pursue a programmatic Candidate Conservation Agreement with Assurances as the mechanism to achieve the objectives of the statewide plan within the West Central Planning Area. This agreement has two basic elements. The first is a general description of the area to be covered under it, the status of the two grouse species to be covered, threats which must be reduced, and the general conservation measures needed to enhance the survivability of the species. This document includes those components. However, a programmatic CCAA is merely a recommendation without the second element, which takes the form of individual agreements between participating landowners and the US Fish & Wildlife Service, along with appropriate state agencies. These individual CCAAs describe each ownership and specific conservation practices that will be implemented on enrolled lands to reduce any unfavorable impacts to the species arising from the management and use of these lands. Such conservation agreements are authorized by Section 10 of the federal Endangered Species Act of 1973, as amended (ESA), as the primary means through which private landowners can meet their obligations under the Act for species listed as "threatened" or "endangered" and undertake proactive measures for species that might be listed in the future to minimize impacts from listings.

The Local Working Group believes implementation of a programmatic agreement accompanied by site-specific individual agreements will perpetuate the species while offering significant benefits to landowners within the planning area. First, the individual agreement acts as a long-term contract between the landowner and the government. Through this contract the landowner promises actions that will either reduce any negative impacts of his current activities on sage-grouse and sharptails or maintain or improve grouse habitat. In return, the government promises that the landowner's potential exposure to unlawful "take" allegations is reduced, should either species be listed. This greatly reduces the possibility that anyone else can make and win on such an allegation. The completed agreement, coupled with the implementation of its provisions, acts as a legal shield against "taking" allegations from either the government or a third party for the lands and activities covered in a CCAA.

Second, as part of the agreement, the federal government promises that the landowner will not be required to commit additional land, water or other resources to further benefit the species if it is ever listed, even if future knowledge indicates that such resources are important to its survivability. The government promises that "a deal is a deal," and the landowner has no further obligations, even in the face of new knowledge. Over time, the landowners and the agencies may learn more about the species and how to manage for it and wish to incorporate these adaptive management changes into the plan. However, if those measures would require more resources, the landowner is not obligated beyond the terms of the original agreement. The only exception to the obligations placed upon federal agencies by Section 10 is that if a specific project or land use within the area covered by the agreement is deemed to reduce the survivability or recovery of the species, then the agency can terminate the agreement. This is an extremely rare occurrence.

There is another aspect of Section 10 agreements that may benefit ranchers who have BLM grazing permits. The BLM is authorized to enter into "conservation agreements" that can include such efforts as this programmatic plan for the West Central Planning Area. In doing so, BLM would become party to an agreement with USFWS and landowners who have parallel CCAAs on their private lands, effectively allowing this agreement to cover BLM lands within the area. The BLM portion of the CCAA would include management goals and practices for the BLM grazing allotments, and it would spell out the actions that would reduce negative impacts from grazing activities just as though the species were listed and conservation measures were implemented through consultation. However, in place of formal consultation which can only take place after a species is listed, these actions would be analyzed through "conferencing" with the resulting findings and report identifying those conservation measures that will likely be required if the species were listed and through any future Section 7 consultations between the FWS and the BLM.

The CCAA approach offers an opportunity for private landowners and government agencies to work together voluntarily to identify and implement best management practices to preserve sage-grouse, sharptails and their habitat. At the same time, such agreements provide assurances that participating ranchers can expect to continue their operations on private lands without undue restrictions should either species become listed under the ESA. The overarching objective of this plan is to ensure sustainable populations of sage and sharp-tailed grouse that will preclude the need to list either species as threatened or endangered and to help manage the impacts on land uses should it become necessary to list either species.

Authorities and Purpose

Greater sage- and Columbian sharp-tailed grouse persist within the WCPA, but in numbers and with threats that may threaten their long term survivability. Consequently both species either have been or could be petitioned for listing as "threatened" or "endangered" under the Endangered Species Act. In 1995, the FWS received a petition to list the Columbian sharp-tailed grouse under the ESA. On October 26, 1999, the FWS found that listing the species may be warranted (USFWS 1999) and initiated a review of the species' status. The review found the petition to list Columbian sharp-tailed grouse "Not Warranted." A new petition to list sharptails was received by the FWS in 2005 but has not yet been reviewed. Between May 1999 and December 2003, the FWS received eight petitions to list various populations of the Greater sage-grouse under the ESA. In April 2004, the FWS found that listing the species may be warranted and initiated a review of the species' status. On January 7, 2005, the FWS published a finding of "Not Warranted" to list Greater sage-grouse as threatened or endangered. On July 14, 2007, Western Watersheds Project initiated further legal actions, asking the court to order the FWS to immediately list sage-grouse under the ESA. In December 2007, Judge B. Lynn Winmill ruled in favor of Western Watersheds Project in District Court in Boise, ordering Fish and Wildlife to reconsider its decision.

In recognition of the continuing question of whether to list as "threatened" or "endangered" either sage or Columbian sharp-tailed grouse, the parties to this

Agreement, including the Idaho Department of Fish and Game (IDFG), the Idaho Governor's Office of Species Conservation (OSC), and the FWS ("the agencies") wish to encourage proactive conservation measures by federal land managers and non-federal landowners for both species within the West Central Planning Area. The conservation measures would be implemented by the agencies and participating non-federal landowners (participating landowners) and would generally consist of habitat protection and enhancement measures. Consistent with the FWS's "Candidate Conservation Agreement with Assurances Final Policy" (64 Fed. Reg. 32726, June 17, 1999), the conservation goal of this Agreement is to protect and enhance sage- and sharp-tailed grouse habitat and populations on non-federal and federal lands within the planning area. The conservation goal will be met by giving both non-federal landowners and public land managers incentives to implement conservation measures through funding (should it be available) and, for private landowners, regulatory certainty concerning land use restrictions that might otherwise apply should either grouse species be listed under the ESA.

Sections 2, 7, and 10 of the ESA of 1973, as amended, and the Fish and Wildlife Coordination Act, allow the FWS to enter into this Agreement. Section 2 of the ESA states that encouraging parties, through federal financial assistance and a system of incentives, to develop and maintain conservation programs is a key to safeguarding the nation's heritage in fish, wildlife, and plants. Section 7 of the ESA requires the USFWS to review programs that they administer and to utilize such programs in furtherance of the purposes of the ESA. Section 10(a) of the ESA authorizes the issuance of permits to enhance the survival of a listed species. By entering into this Agreement, the USFWS is utilizing its Candidate Conservation Programs to further the conservation of the nation's fish, wildlife, and plants.

Section 2 of the federal ESA also provides authority to the BLM to enter into this agreement. In addition, the Federal Land Policy and Management Act (FLPMA, Sec. 307, 43 USC 1737), which provides overall direction to the BLM for conservation and management of public lands, allows the agency to participate in conservation agreements. The BLM manual, Section 6840 ("Special Status Species Management"), provides overall policy direction to BLM managers to conserve listed threatened or endangered species on BLM administered lands, and to assure that actions authorized on BLM administered lands do not contribute to the need to list federal, candidate, state listed or species deemed by BLM to be "sensitive." Finally, BLM's "Guide to Agreements" notes that "cooperative management agreements" are usually long-term agreements with other parties interested in joint management of wildlife habitats or other areas. They are appropriate when the primary objective is to provide the public with facilities and levels of use that may be provided with support from user groups (Guide to Agreements).

This Agreement is a programmatic plan covering lands within the project area in southwest Idaho (Figure 1). Upon approval of the Agreement, the IDFG would be issued a Section 10(a)(1)(A) permit by the FWS. Individual participating landowners would be formally included under the permit and Agreement upon approval of a Site-Specific Conservation Plan (site-specific plan) for their land by the agencies and completion of a

Certificate of Inclusion. A template site-specific plan is attached as Appendix A and a Certificate of Inclusion is attached as Appendix B. The Section 10(a)(1)(A) permit would authorize incidental take of sage and sharp-tailed grouse by participating landowners, should it occur, as long as the permit conditions, including implementation of the Agreement and site-specific plan, are followed. Incidental take would be authorized for farming and ranching related activities such as crop cultivation and harvesting, livestock grazing and production, farm equipment operation, and recreational activities (e.g., hunting, fishing, dog training, camping, hiking, and use of recreational vehicles on and off established roads). Consistent with Regional USFWS policy, incidental take of sage or sharp-tailed grouse as a result of pesticide or other chemical use would not be authorized under the permit. The Agreement would constitute a Candidate Conservation Agreement with Assurances consistent with the USFWS's final policy (USFWS and NMFS 1999). The permit would include ESA regulatory assurances for private landowners as set forth in 50 CFR §§ 17.22(d)(5).

The conservation measures under the Agreement are intended to reduce all threats to sage and sharp-tailed grouse that are controllable by participating landowners within the project area. Each site-specific plan will identify in detail how the applicable conservation measures would be implemented on an individual landowner's property, considering existing grouse populations and habitat conditions and the landowner's planned land use activities. For a participating landowner's site-specific plan to be approved, the site-specific plan must contain all conservation measures identified in the Agreement that are within the participating landowner's control.

Within the West Central Planning Area, which is 926,043 acres, 64% is in private ownership, while 30% is managed by public agencies, principally the BLM. Another 6 % is managed as state endowment lands (Table 1). The birds are dependent on both public and private land to meet their seasonal habitat requirements. The Agreement has two general biological objectives intended to conserve sage- and sharp-tailed grouse. First, habitat enhancement or protection measures are intended to maintain or increase habitat quality and quantity. Second, population management through protection of individual grouse populations is intended to reduce direct and indirect grouse mortality. The Agreement is intended to meet these biological objectives while also accommodating the specific land use objectives of each participating landowner. Combining the biological and land use objectives will be the basis for specific conservation measures identified in each site-specific plan.

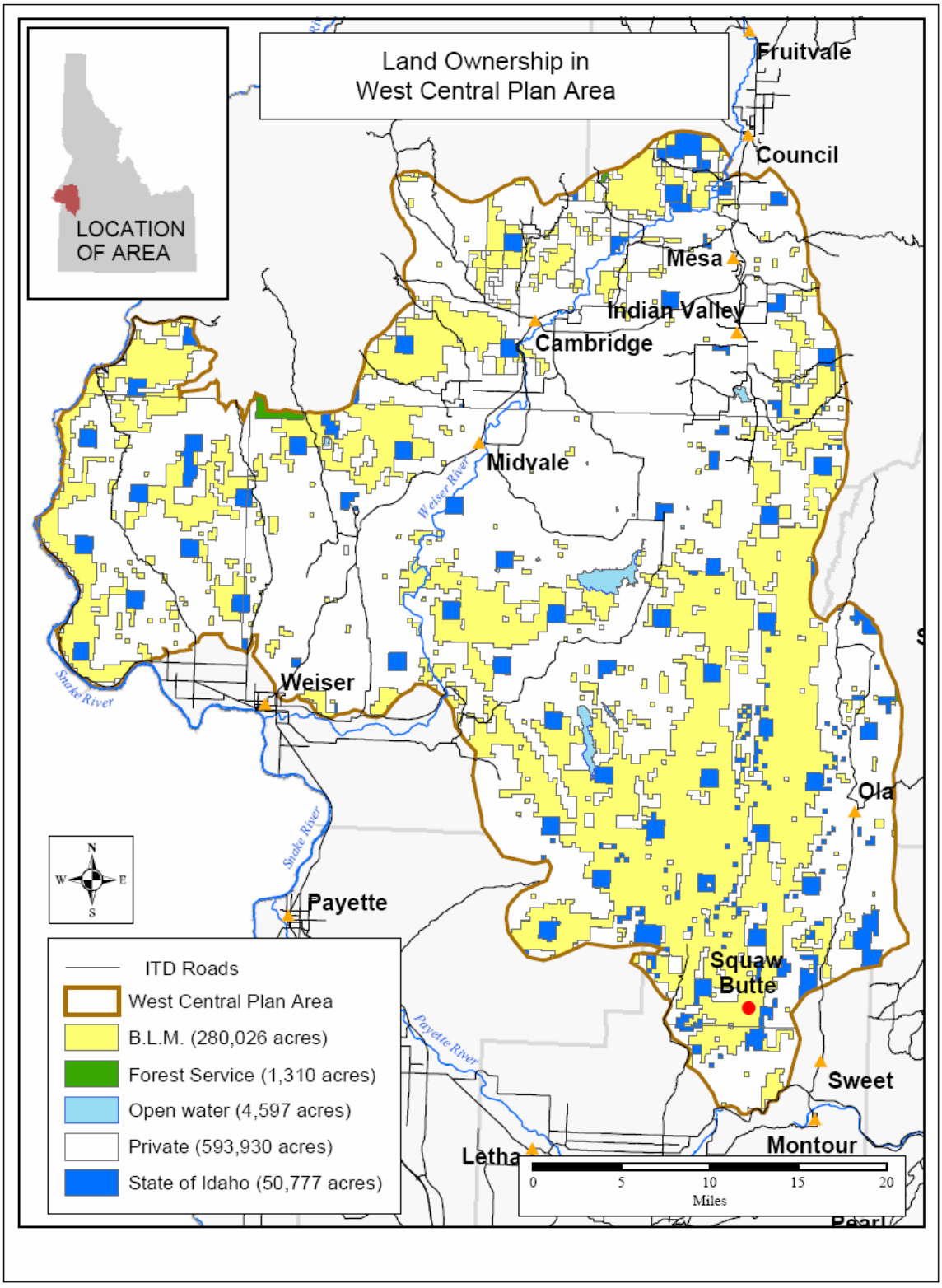


Figure 1—Location and land ownership of the West Central Planning Area.

II. Background and Existing Conditions

As noted previously, this agreement is intended to cover two separate species within the WCPA, Greater sage-grouse (*Centrocercus urophasianus*) and Columbian sharp-tailed grouse (*Tympanuchus phasianellus columbianus)*. Both are found within the area and they share many similar traits, particularly their reliance on sagebrush ecosystems and the barriers to a desired future condition that would assure sustainable populations of both bird species within the planning area. This section discusses the history of each species within the WCPA as well as the biology of each as a foundation for later assessments of threats to the birds and conservation actions to minimize and mitigate those threats.

The WCPA is unique compared to other areas in Idaho in several respects: (1) the sage- and sharp-tailed grouse populations are geographically isolated from all other known sage- or sharp-tailed grouse populations in Idaho and Oregon; (2) habitat use may differ compared to other areas; the non-farmed land within the WCPA is generally dominated by perennial grass and native forbs with scattered patches of xeric big sagebrush (*Artemisia xericensis*), with some areas of annual grasses, either as a primary vegetative type or a common understory species in shrub communities; (3) there has been no hunting season for either species for over twenty years; and (4) the area includes the largest proportion of private land of any other planning area in Idaho (Evans Mack and Commons-Kemner 2005). Thus, it seems prudent to develop a conservation plan for this region that addresses the needs of both Greater sage-grouse and Columbian sharp-tailed grouse (Figure 2).

The State of Idaho plays a major leadership role in sage-grouse conservation planning, monitoring and evaluation, and research activities. In 1997, the Idaho Sage Grouse Task Force, under direction of the Idaho Fish and Game Commission, completed the Idaho Sage Grouse Management Plan. This plan divided Idaho into sage-grouse management areas and called for the creation of Local Working Groups (LWG) that would develop sage-grouse management plans for each of Idaho's planning areas. Since 1997, local working group plans have been completed or drafted in five sage-grouse planning areas (SGPA). In 2003, a committee was appointed to draft a new, updated state conservation plan for Greater sage-grouse. The final document was signed by Governor Jim Risch on July 10, 2006. The state sage-grouse plan describes each of the 13 individual planning areas in Idaho, including the West Central Sage-grouse Planning Area, and is considered to be a "toolbox" or working reference for all the working groups. The Plan did rank the WCPA as first among Idaho's 13 planning areas in terms of sage-grouse extirpation risk, due to its isolated nature, 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 (IDFG 2006).

The description of the WCPA in the state plan is brief and, in the opinion of the Local Working Group, lacking in key data that would help in the implementation of the provisions of the state plan. According to the state plan:

> *The sage-grouse habitat within the West Central SGPA (Figure 3-19) is about*

875,000 acres in size. The Bureau of Land Management administers 32% of the sage-grouse habitat within the area, 62% is private, 6% is managed by the State, and less than 1% is administered by USDA Forest Service. Thirty-one percent of the area is classified as key sage-grouse habitat, 25% is dominated by perennial grassland, and 44% is classified as annual grassland. Much of the perennial grassland is dominated by native grasses with islands of sagebrush. A change in the classification from perennial grassland to key habitat may be appropriate for some portions of the SGPA, contingent on the extent of sagebrush cover, distribution of sagebrush islands or other factors. Field-level ground truthing of these areas in the near future is warranted because much of the native perennial grassland type does not need to be rehabilitated. The annual grassland type will need to be monitored for presence/absence of sage-grouse as some of the area may be unsuitable for rehabilitation to sagebrush habitat due to topography and terrain.

There are a number of refinements to this description that the Local Working Group suggests. First, there is a bit of a discrepancy in the size of the area and the ownership within it. The Local Working Group notes that the WCPA includes portions of Washington, Adams, Gem and Payette counties. Approximately 64 percent of the total acreage is privately owned. The BLM manages 30 percent, Idaho Department of Lands manages 5.5 percent as state endowment lands, and less than 1 percent is managed by the USDA, Forest Service (Table 1). The WCPA encompasses lands both east and west of Highway 95 from Weiser to Council and extends roughly from Council on the north to Squaw Butte on the south, and from the Snake River on the west to Ola on the east (Figure 1).

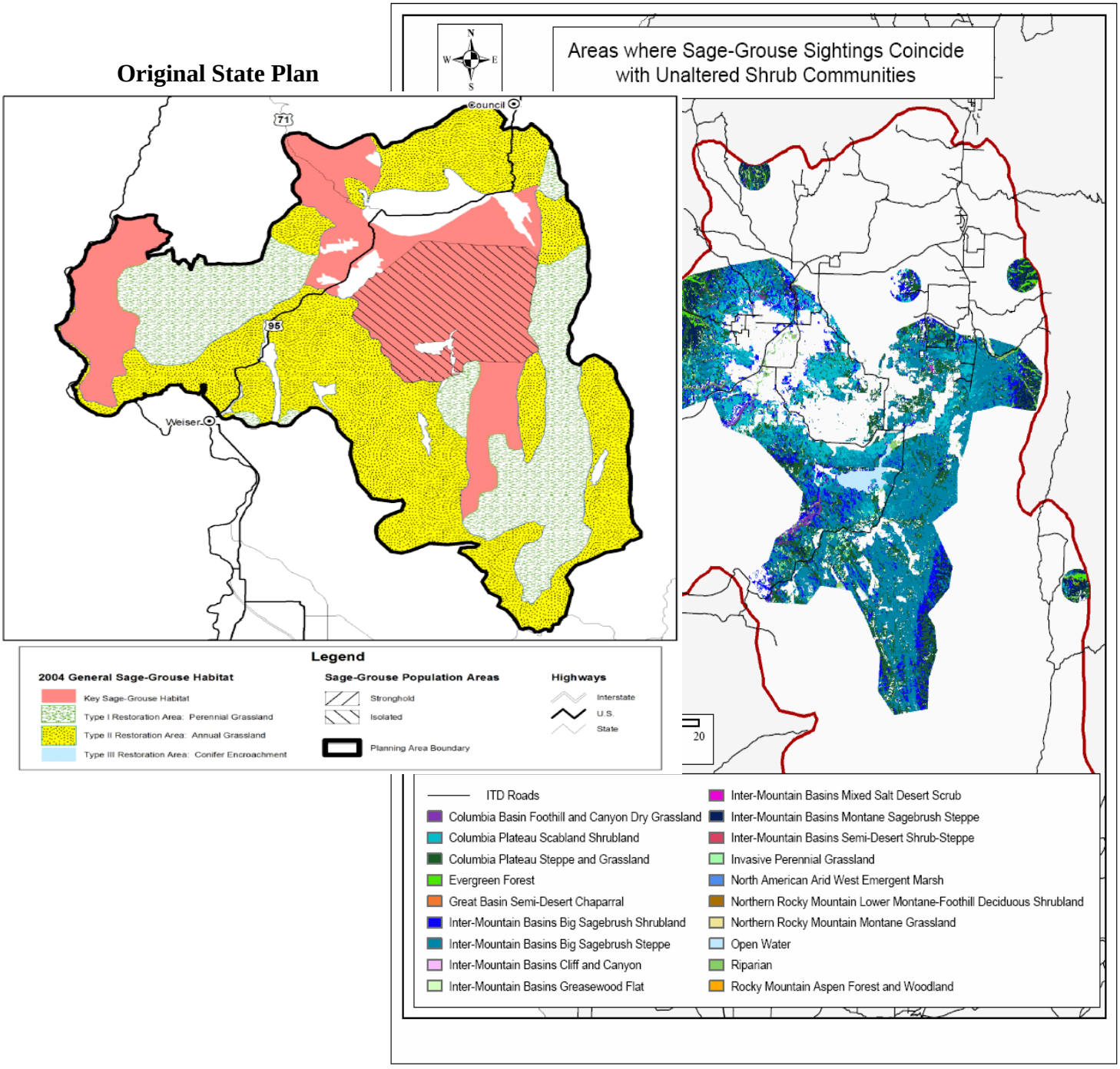
Owner/Managing Agency	Acres	Percent
Private	593,930	64.1
Bureau of Land Management	280,026	30.2
Forest Service	1,310	0.1
State Endowment Trust	50,777	5.5
Total	926,043	100.0

Table 1—Land Ownership within the West Central Planning Area

Second, analysis of the "Shrubmap" data indicates variances with the estimates of annual and perennial grasslands included in the state plan, 44% and 25% of the area, respectively. These data suggest that only about 12% of the area (115,762 acres) is classified as annual grasses, with perhaps 19% classed as perennial grasslands. This is not to say that annual grasses, particularly Medusahead rye, are not a problem. However, rather than massive, nearly pure stands of Medusahead or cheatgrass that may be found elsewhere, stands of these grasses within the WCPA are smaller and limited to lower elevations or clay soils, although Medusahead, particularly, is a common understory plant in shrub communities.

Finally, there is the issue of the area considered to be "key" sage-grouse habitat in the state plan. The state plan gives no indication of the parameters used to define this area. The Local Working Group suggests a more defensible delineation of important sage-grouse habitat within the WCPA is the combination of relatively intact shrub-bunchgrass communities and areas actually used by sage-grouse, as identified by the telemetry studies described elsewhere in this agreement. Figure 2 shows the area of the state plan depicted as "key habitat" compared with the Local Working Group's recommendation.

Figure 2. Comparison of Key Habitat in State Plan with Local Working Group Observations[1]



[1] Since the development of the State Plan, the West Central Planning Area description has been modified to include more "key habitat" and less annual grass cover types (M. Commons-Kemner, pers. communication 2007)

Sage-grouse

The Greater sage-grouse (*Centrocercus urophasianus*) is the largest grouse species in North America and can be distinguished by its long, pointed tail, white breast and black underbelly. Females are a mottled brown, black, and white color. Males are larger and have a large white ruff around their necks and bright yellow air sacks on their breasts that they inflate during their mating display. Adult males weigh 1.8-3.6 kg (4-8 pounds) and adult females 0.9-1.8 kg (2-4 pounds). Sage-grouse are highly dependent on sagebrush for food and cover. The sagebrush-dominated habitat that they require was once widespread throughout the western United States and Canada. Formerly abundant in some areas, sage-grouse currently occur in ten western states and two provinces (Schroeder et al. 2004). Throughout most of its range, the species is found at elevations ranging from 4,000 to over 9,000 feet. However, in the WCPA, the greatest portion of occupied grouse habitat appears to lie between 2,500 and 3,500 feet.

The Greater sage-grouse has historically been and continues to be an important species across the western rangelands. Centuries before European settlement, this bird was of ceremonial and subsistence significance to native peoples in the region. Lewis and Clark encountered the birds from the Great Plains to the Columbia Basin and, as the expedition waited out the winter at Fort Clatsop, Clark sketched and wrote a detailed description of the bird they called "the cock of the plains." Sage-grouse are an important part of the sagebrush community and are sometimes used as a measure of sagebrush ecosystem health (Connelly et al. 2004).

Even though sage-grouse have been monitored in Idaho since the 1950's, data on historical populations of sage-grouse in some areas of Idaho are not well documented. Prior to 1900, when the first sage-grouse hunting season was established in Idaho, sage-grouse were not protected in the Gem State. As early as the 1920s, wildlife managers voiced concern about the future of Idaho's sage-grouse populations. In a trend mirroring that seen in other western states, Idaho has experienced substantial alteration and losses of sagebrush steppe habitat since European settlement (IDFG 2006). Overall, from 1965-2003, Idaho's sage-grouse population declined at an average rate of 1.47 percent per year. The most dramatic decline occurred during 1965-1984, when the sage-grouse population declined by an average rate of 3.04 percent per year. Between 1985 and 2003, the average decline slowed to 0.12 percent annually. In general, Idaho sage-grouse numbers reached a low in the mid 1990's but have increased since that time (Connelly et al. 2004).

Historic population data on sage-grouse in the WCPA are limited. Total population at this time is not known; therefore, it is not known whether this local population is at risk from strictly a "numbers" standpoint. Lek counts during the 1970s through the mid-1990s were reportedly sporadic, and there has been no sage-grouse hunting season in the WCPA for

more than twenty years. Thus, production data are also lacking. Without consistent and reliable lek counts or hunter harvest information as a measure of production, it is difficult to identify population changes over time. The LWG and IDFG plan to conduct more thorough aerial lek surveys to gain more information on the current population.

Surveys of active, historical and potential leks, or breeding grounds, were conducted between 1999 and 2001. Nineteen known leks were found active during that period and 42 additional leks were surveyed but no grouse were observed. Four lek routes were established by the Idaho Department of Fish and Game in the late 1990s that provide data on 13 leks. A lek route is an established route among a number of known leks in close enough proximity that they can be observed 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.

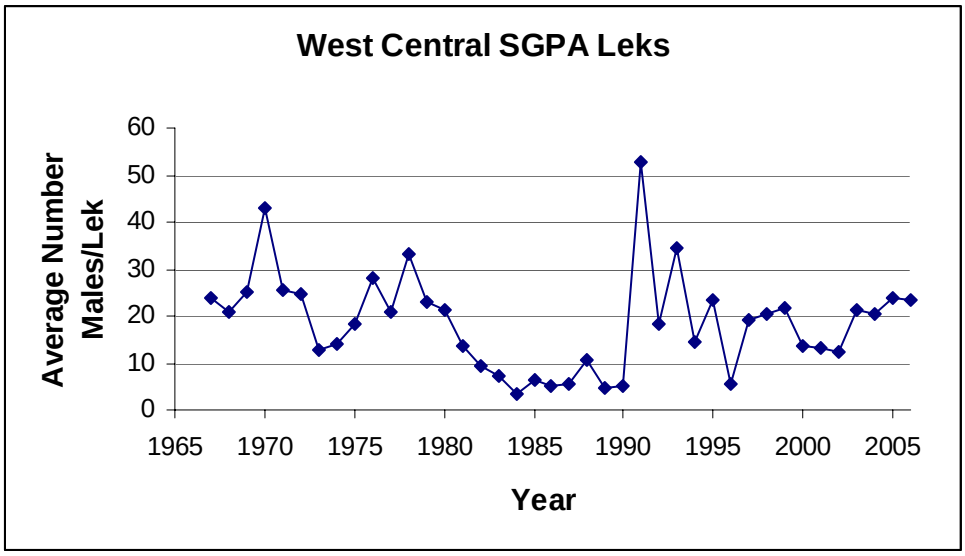


Figure 3—Average number of male sage-grouse per lek from 1967 through 2006 in the West Central Planning Area (IDFG 2006).

Greater sage-grouse are dependent on large areas of sagebrush/grassland habitats with 15-25 percent sagebrush canopy for breeding habitat and 10-30 percent canopy for winter habitat. But sagebrush without a healthy perennial grass and forb understory will not suffice. Recent research has shown that perennial herbaceous cover is particularly important for sage-grouse reproduction (Barnett and Crawford 1994, Gregg et al. 1994, Gregg 2006). The availability of a diversity of forbs rich in calcium, phosphorus and protein is important to pre-laying hens, and herbaceous understory increases access to insects and forbs by hens before breeding and by chicks (Gregg et al. 1994, Gregg 2006). Herbaceous understory also provides cover to hide nests, eggs and chicks from predators.

Three types of seasonal movement patterns have been described for Greater sage-grouse: (1) non-migratory: grouse do not make long distance movements [e.g., >10 km (6 mi)

one way]; (2) one-stage migratory: grouse move between two distinct seasonal ranges; and (3) two-stage migratory: grouse move among three distinct seasonal ranges (Connelly et al. 2000). Monitoring of radio-collared birds shows that sage-grouse in the WCPA exhibit all three stages of migratory patterns, although the vast majority of monitored grouse seldom ventured more than two miles from the areas with established leks. This would seem to indicate that sage grouse within the West Central Area are generally not migratory in nature.

During early March to mid-May, male sage-grouse gather at display grounds called leks. Using elaborate plumage displays and inflatable air sacs that produce a loud "plopping" sound, males attract females and protect their territory on the lek from other males. Leks are usually located on bare areas adjacent to stands of sagebrush. Many leks in the WCPA are found on old homestead sites and current livestock winter feeding areas. Most males and females remain within a mile of the leks during mating activities (Schroeder et al. 1999). Cocks establish territories on traditional strutting grounds in late February and early March, assembling on grounds an hour or so before dawn and strutting until approximately one hour after sunrise. Lek activity is greatest at the peak of hen attendance (last week of March in WCPA). The strutting display of sage-grouse has been described in detail by Scott (1942), Lumsden (1968), Wiley (1970) and Hartzler (1972).

Hens visit strutting grounds several days before copulating. They assemble in groups called "clusters" that vary in size. Hens arrive on strutting grounds after cocks and depart while males are still displaying. When a hen is ready to mate she invites copulation by spreading her wings and crouching motionless on the ground. Following copulation she vigorously shakes her body, ruffles her feathers and flies off, not to return until the next spring.

Once a hen is bred she normally moves into a vicinity close to the location of the final nest site and remains relatively sedentary until she nests. Nests are made by scratching out a shallow depression, usually beneath sagebrush, and then lining it with dead grass. Evidence suggests that nest sites are selected independent of lek location (Wakkinen et al. 1992). In Idaho, hens nest on average 3-5 km (2-3 mi) from their lek of capture but may move more than 18 km (11 mi) to nest (Connelly et al. 2004). Female sage-grouse return to the same area to nest each year (Fischer et al. 1993) and some may nest within 200 m (656 ft) of their previous year's nest (Lyon 2000). Within 7 to 10 days after breeding, the hens begin laying eggs at a rate of about one egg every 1.3 days (Patterson 1952). The peak of egg-laying and incubation varies from late March through mid-June depending on weather, elevation and plant phenology (Schroeder et al. 1999).

In Idaho, clutch sizes for greater sage-grouse average 6 to 7 eggs, relatively low for an upland game bird (Connelly et al. 1993, Apa 1998, Wik 2002). Incubation starts when the

last egg is laid or one to two days after. The incubation period is 25 to 29 days (Schroeder et al. 1999). Adult female sage-grouse (≥2 years old) nest about 80 percent of the time, while yearling females nest about 55 percent of the time. In Idaho, about 15 percent of sage-grouse hens that lose a nest will subsequently re-nest (Connelly et al. 1993, Wik 2002). The Greater sage-grouse has one of the lowest reproductive rates of any North American game bird, and its populations are not able to recover from low numbers as quickly as many other upland game bird species.

During the first week of life, sage-grouse chicks' diet consists primarily of insects, which can make up approximately 52 percent of the birds' diet. After the first week, insect consumption usually drops to less than 25 percent. However, insects remain a key component of sage-grouse early brood-rearing habitat. Sage-grouse chick survival is lower if insects are unavailable (Johnson and Boyce 1990), probably because of starvation and increased vulnerability to predation while searching for scarce food. The most productive sage-grouse brood-rearing habitat includes a perennial grass and forb canopy cover of ≥15 percent, as well as a 10-25 percent canopy cover of sagebrush (Connelly et al. 2000b). Late summer (July to September) brood-rearing habitat may include agricultural fields, meadows and riparian areas adjacent to big sagebrush communities. In years of above average summer precipitation, late summer brood-rearing habitat may overlap early summer brood-rearing habitat.

During their first ten weeks, chicks eat buds and leaves of these forb species: common dandelion (*Taraxacum* sp.), goatsbeard (*Tragopogon* sp), loco weed (*Astragalus* sp.), prickly lettuce (*Lactuca serriola*), common yarrow (*Achillea* sp.), pepperweed (*Lepidium* sp.), daisy (*Erigeron sp*.), aster (Aster, sp.), false dandelion (*Agoseris sp*.), hawksbeard (*Crepis sp*.), clover (*Trifolium sp.*) and alfalfa, among others. Sage-grouse chicks usually do not start consuming sagebrush or other shrub species until after the fourth week of life (Klebenow and Gray 1968). The average diet of juvenile sage-grouse consists of 76 percent vegetable and 24 percent animal matter (Wallestad 1975).

May and October are considered transitional months when sage-grouse exhibit major changes in food habits (Wallestad, 1975). In May they shift from a diet of sagebrush to one dominated by forbs, and in October they shift back to sagebrush. Palatability and availability of forbs appear to be the reason for shifts.

A Montana study determined that the year-round average diet of adult sage-grouse was 97 percent vegetable and 3 percent animal matter (Wallestad, 1975). In that study, sagebrush comprised 62 percent of the volume of all foods consumed throughout the year. During the months of December, January, and February sagebrush was the only food item found in all crops, and only during the months of June, July, August and September did sagebrush make up less than 60 percent of the diet. Patterson (1952) in Wyoming found that only during summer did sagebrush make up less than 80 percent of the volume of food consumed. In Utah, Griner (1939) found that crops of adult birds

collected from May through October contained almost 98 percent plant material, 77 percent of which was sagebrush. Studies in Wyoming (Girard 1937), Colorado (Dargan et al., 1942), Oregon (Nelson 1955), and California (Leach and Hensley 1954) also indicated the importance of sagebrush as a sage-grouse food item. If adequate sagebrush is available for winter food and cover, sage-grouse are seldom impacted by severe winter weather and sage-grouse gain weight during winter (Beck and Braun 1978). However, loss of sagebrush on winter ranges may severely impact sage-grouse populations (Beck 1977).

Crop samples have not been collected from wintering sage-grouse in the WCPA. However, their diet likely consists mainly of xeric big sagebrush and low sagebrush, as they have been observed foraging in these habitat types. Interestingly, birds in the WCPA have also been observed walking and loafing around winter livestock feeding areas and may be taking advantage of available forbs (oat hay), insects, or moist wheat seeds. Sage-grouse lack a gizzard and are not able to digest plant seeds. However, softened seeds such as moist wheat may be consumed if available.

Sage-grouse are long-lived for an upland game bird. Four- and five-year-old birds are not unusual, and 60 to 80 percent of adult females commonly survive each year. Survival rates of adult males usually range from 50 to 60 percent (Connelly et al. 2004). Sex ratios for adult sage-grouse are skewed in favor of females (Connelly et al. 2004), and the lower survival rate of males compared to females is the likely cause of this sex ratio. In contrast, most other upland game birds are characterized by populations with the majority of individuals less than one year-of-age and exhibit adult survival rates of about 30 percent each year.

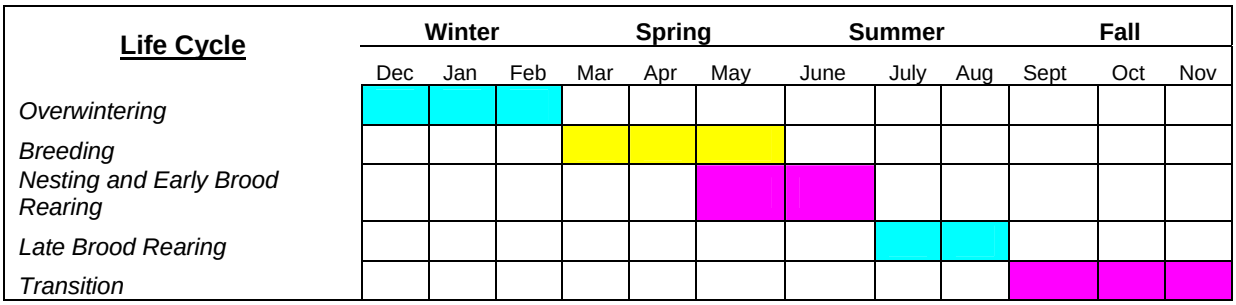


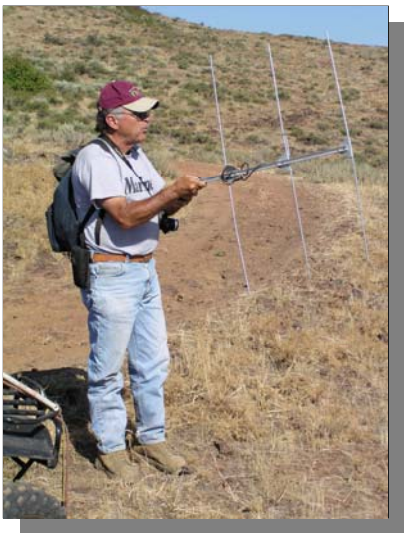
Figure 4—Summary of Sage-grouse Life Cycle.

Sage-grouse Telemetry Study

A lack of detailed information on lek data, distribution, habitat use, and numbers in the WCPA hampered the Working Group's ability to determine effective conservation actions. Specifically, the LWG needed to identify threats and opportunities to initiate habitat enhancements on the ground. Landowners active in the LWG expressed a strong desire to see baseline information established from which to evaluate progress in improving habitat or sustaining populations. The purpose of this project was to identify seasonal habitat use, movements, and vital rates of sage-grouse in west central Idaho.

The field component of the study began in late February 2005. Ten leks were selected as capture sites based on the following criteria: (1) an adequate number of displaying males to attract females (past lek counts documented 9 leks with more than 20 males); (2) geographic separation; (3) a mix of private and federal lands; and (4) a range of habitats within 5 km (3.11 mi) of the lek. From late February through early March, the leks were visited to confirm that an adequate number of males were present. Sage-grouse were captured at night using the spotlighting technique (Giesen et al. 1982) during spring and late summer of 2005 and spring of 2006. Captured sage-grouse were equipped with harness-mounted radio transmitters equipped with a mortality switch and marked with a uniquely numbered leg band. Age was determined for all captured birds, and hens were weighed to evaluate body condition.

The radio-marked birds were monitored about once per week from March through August and once per month from October through February. Monitoring considerations were nesting and brood rearing locations of females, summer habitat of males and unsuccessful females, fall habitat of all birds, and movements to wintering areas.



Most telemetry work was conducted from the ground. Aerial flights were conducted when birds could not be found on the ground. All locations were marked with a Global Position System (GPS) receiver. Suspected nests were not approached to avoid human-related depredation or disturbance. All radios detected on mortality mode were retrieved as quickly as possible to investigate the cause of death and to salvage the transmitter.

Vegetation measurements were conducted at all nest and brood-use sites and at nearby random locations. Grass and forb heights and canopy cover were ascertained at the nest spot, 500 meters from the nest site, and where the hen was observed with her brood.

Vegetation measurements began in June 2005. Vegetation measurements at nests were conducted May 11-24, 2006. Brood-use areas (2006 only) began after nest measurements were complete and continued through July 31. The overall objective was to describe general habitat associations by cover type. In addition, vegetation plots were established to document dominant shrub, forb, and grass species and to measure canopy cover and height of shrubs, forbs, and grasses. Basin big sage, xeric big sage, antelope bitterbrush, and hay fields are all important forage species annually. Other tree-like and shrub species are important through various times of the year. Chokecherry and hawthorn species are important for shade during hot summer months. Forb and grass species are important from April through September. The rolling topography of the area and numerous natural springs and irrigated hay meadows provide succulent forbs throughout the summer. Although some grouse used higher elevation sites further away from leks, most of the

radio-marked birds remained near ridges closer to the leks throughout the year (Appendix C).

Findings

The study team captured a total of 37 sage-grouse in 2005 and 2006. Twelve hens and 16 males were equipped with radio transmitters and leg bands, and 9 males were equipped with leg bands only. All but 4 females were captured on or near eight leks during spring 2005 and 2006. The 4 additional hens were captured during late summer 2005.

Broods immediately moved from nesting sites to mesic areas with concentrations of mule's ears (*Wyethia amplexicaulis*) following hatch. These areas are typically abundant with forbs and insects. Mule's ears began to desiccate in early July. Hens moved broods from these areas by mid-July to surrounding ridges. They moved back and forth between mesic sites and ridges during the remainder of the summer.

Figure 5—Early brood-rearing habitat.

Unsuccessful hens remained within the vicinity of their nests until late-June. They were most often located by themselves until mid-August. After mid-August they could be found in small, mixed flocks.

Brood survival in 2005 (n = 2) and in 2006 (n = 4) was 50%. Two hens (1 in 2005 and 1 in 2006) lost their broods within one week of hatch and were most likely weather related (heavy rains). The broods of three hens fledged, one in 2005 and two in 2006. Contact with the remaining 2006 hen was lost on 21 July 2006. She had a brood of 4 chicks.

Males generally remained within 4 km (2.49 mi) of their lek during summer (n = 16). The average distance from lek to summer use areas was 3.2 km (1.99 mi). Six males died less than 1 km (.62 mi) from the lek during the mating season and were not included in the average. Average distance males moved from summer to fall-use areas was 3.9 km (2.42 mi), and average distance moved from fall to winter-use areas was 2.7 km (1.68 mi).

All males remained around their respective leks between late February and mid-May. Following breeding they fanned out to ridges with little overall cover. Males descended from the ridges to lower areas during summer to forage and returned to ridges by mid-afternoon. Winter preferences were southeast and southwest facing slopes with mixtures of stiff sage and xeric big sagebrush. Southwest facing slopes were preferred when there was snow cover. These slopes are typically wind blown and offer snow-free areas for roosting and loafing.

Fifteen radio-marked sage-grouse (10 males and 5 females) were found dead during the study. Seven males and all 5 females were found depredated (Appendix C, Table 7). Signals for 6 males and 3 females were lost during the study. By October 2006, 3 females and 1 male were known to be alive.

Greater sage-grouse in west-central Idaho are similar to other populations of sage-grouse across the west. Hens were found nesting in greater overall shrub, forb and grass cover and taller shrubs, forbs, and grasses compared to random sites. Broods were most often located in areas with greater forb cover and height compared to nesting and random sites. This is similar to results reported across the range of greater sage-grouse (Fisher 1994, Gregg et al. 1994, Holloran and Anderson 2005, Lyon and Anderson 2003, Haustleitner 2003).

Average nest success reported for Greater sage-grouse across their range is 47% and average reported chick survival is 34% (Connelly et al. 2004). Nest success in west-central Idaho was 100% (n=2) in 2005 and 80% (n=6) in 2006. Chick survival during both years was at least 50%. Barnett and Crawford (1994) and Gregg (2006) discussed the importance of early season forbs for pre-laying hens. They suggested that greater access and availability of forbs during early March increases egg production, nest success, and brood survival. Further, sage-grouse have been observed frequenting winter feeding grounds where hay was being fed to livestock. If sage-grouse were actually foraging on moistened hay, they may have had access to a forb source much earlier than other sage-grouse populations. Although sage-grouse were observed on these winter feedlots, they were never observed actually foraging. However, they were observed foraging on xeric sagebrush during winter.

Although nest success and chick survival was higher compared to other sage-grouse populations (given the small sample size), overall survival of our radio-marked birds was quite low (32%). Cause of death was mainly predation. However, 2 males died of pneumonia within 2 months of capture and 2 radios attached to hens were retrieved along the edges of roads. There was no sign of depredation, and the radios were completely intact. There is abundant upland bird hunting opportunity in the area for valley quail, chukar, grey partridge, and ring-necked pheasant. The hens may have been poached or accidentally shot by a hunter, although the hunting season for both sage and Columbian sharp-tailed grouse has been closed for over 20 years. In addition, West Nile virus was detected in one unmarked sage-grouse in 2006. Low survival in birds during August and September may have been due to WNV. It is easiest to detect WNV in relatively intact birds. By the time a bird with a mortality signal was reached, it had already been scavenged.

There were no patterns of movements from lek to nest sites or lek to summer-use areas. Some sage-grouse nested within a km (.62 mi) of the lek of capture, while others nested up to 15 km (9.3 mi) from the lek of capture. Most male sage-grouse remained within 5 km (3.1 mi) of their lek of capture throughout the year. However, some males were located greater than 5 km (3.1 mi) from their lek.

Three radio marked sage-grouse were still being tracked as of February 4, 2007. One female, marked on the Shoepeg lek northwest of Midvale, had moved 48.6 km (30.2 mi) to an area south of Huntington, Oregon. A second female marked on the Sutton lek east of Midvale wintered 39.58 km (24.6 mi) west in the Hog Creek drainage of western Washington County. A male marked on the Craig lek east of Little Crane Creek

Reservoir moved 54.4 km (33.8 mi) to winter on a ridge above Brownlee Reservoir on the Idaho side.

Sharp-tailed Grouse[2]

The Columbian sharp-tailed grouse (*Tympanuchus phasianellus columbianus)* is one of six recognized subspecies of sharp-tailed grouse that occur in North America (Miller and Graul 1980). Gallinaceous birds related to turkey, quail, partridge, pheasant and the domestic chicken, sharptails have a mottled light brown appearance and are frequently mistaken for hen pheasant. Distinguishing features include a short, pointed tail; white spots on the wings; and dark V-shaped markings on the breast. Adults weigh about 1.5 pounds and the sexes are similar in appearance. Historically, the Columbian sharp-tailed grouse range extended westward from the continental divide in Montana, Idaho, Wyoming, and Colorado to northeastern California and eastern Oregon and Washington; southward to northern Nevada and central Utah; and northward through central British Columbia (Figure 6).

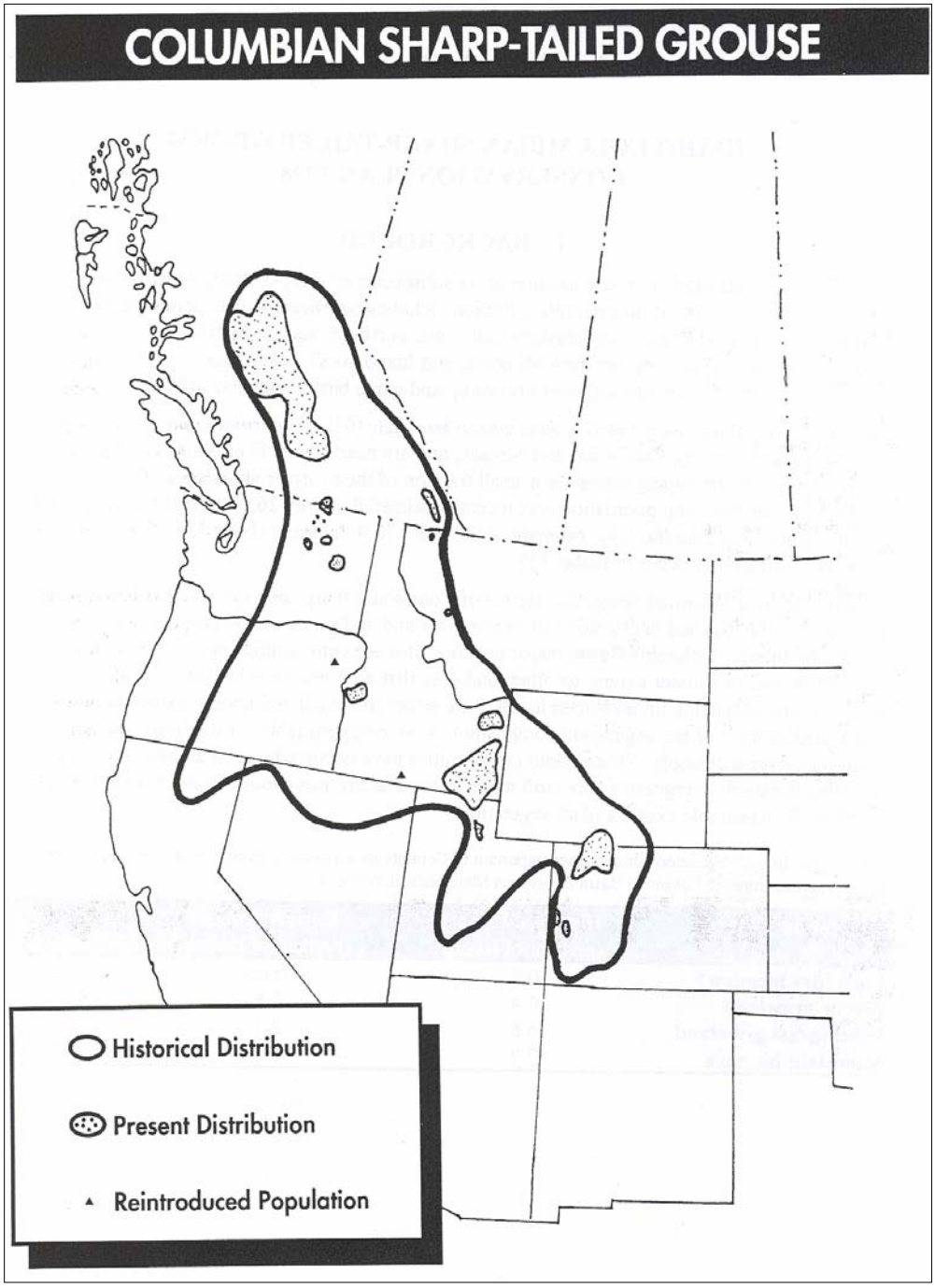
Columbian sharp-tailed grouse were once abundant throughout their range where suitable habitats occurred (Hart et al.1950; Buss and Dziedzic 1955; Washington Division of Fish and Wildlife 1995). Excessive hunting in the mid- to late-19th century is thought to be a major contributing factor to the early extirpation of local populations and the initial reduction of the subspecies' range (Hart et al. 1950). Since the turn of the century, the conversion of native habitats to crop production and areas of improper management of livestock grazing are thought to be the primary factors in further population declines and range reduction (Hart et al. 1950; Buss and Dziedzic 1955; Miller and Graul 1980; Marks and Marks 1987; Braun et al. 1994; WDFW 1995; McDonald and Reese 1998). Threats to the species throughout its range also include past and current activities such as rural and suburban development, dam construction, road and highway development, mineral exploitation, chain removal of native shrubs, herbicide spraying, and fire (Miller and Graul 1980; Wood 1991; Giesen and Connelly 1993).

Most of the areas that currently are, or may potentially be, used by sharptails occur on privately owned lands (USFWS 1999). Some portions of these privately owned lands have been withdrawn from crop production and planted to native and non-native cover under the Federal Natural Resources Conservation Service (NRCS) Conservation Reserve Program, established in 1985 (USDA 1998). CRP lands have become important to Columbian sharp-tailed grouse in Colorado, Idaho, Oregon, Utah, and Washington for the stable habitat they provide (USFWS 1999). A number of CRP contracts have expired since 1995, and more are scheduled to expire each year. While new contracts for CRP lands continue to be accepted and some expired contracts have been renewed, it is

[2] Much of the discussion on sharp-tailed grouse is courtesy of documents provided by Alan R. Sands, (BLM retired).

unclear what effects these changes have had, or will have, on Columbian sharp-tailed grouse populations (USFWS 1999).

Figure 6—Historic and current range of Columbian sharp-tailed grouse (Marks and Marks 1987).



Spring-to-fall home range sizes of Columbian sharp-tailed grouse are relatively small, generally less than 2.0 square km (0.8 square mi.), and the areas used are usually within a few kilometers of a lek or traditional breeding area. Seasonal movements to wintering areas from breeding grounds are typically less than 5 km (3.1 mi) (Giesen and Connelly 1993). The area within 2.5 km (1.6 mi.) of a lek is believed to be critical to the management of Columbian sharp-tailed grouse and this area should contain, or provide access to, suitable wintering habitats (Saab and Marks 1992; Giesen and Connelly 1993). Because of their importance, leks—including their surrounding area—may be viewed as the principal units affecting the demographics of Columbian sharp-tailed grouse.

During the spring, sharptail males gather on the leks or dancing grounds to attract females. Leks are typically located on low knolls, benches, and ridge tops that are elevated from the surrounding terrain. Established leks may be used for many years, although their exact locations may shift over time, and smaller satellite leks often form in the vicinity of historic leks. The display area for an average sized lek of 12 males occupies an area of about 100 feet in diameter. The vegetation is usually grass or a sparse shrub/grass community to facilitate visibility and unrestricted movement, although they are not as open as sage-grouse leks. Leks contain as few as 2 males to as many as 45 or more males. Males go through elaborate courtship displays and vocalization to attract a female for breeding and to defend their territory on the lek from other males. The males who occupy the center of the lek do most of the breeding. Breeding predominately occurs in April.

Females typically nest and rear their broods within 1.6 kilometer (1.0 mi.) of an active lek (Saab and Marks 1992; Giesen and Connelly 1993). After breeding, females locate and construct a rudimentary nest on the ground and lay about 12 eggs over a 13-14 day period. Once the clutch is complete, the hen will incubate the eggs for about 23 days. Chicks hatch in May or June. If the first clutch is destroyed before hatching, the hen will often return to the lek for breeding and establish a new nest. Nest loss rates up to 50 percent are normal for this bird.

Sharptails show a great degree of flexibility in the proportions of grasses and shrubs that make up suitable nesting habitat. They use grasslands with virtually no shrubs as well as shrub/grass rangelands with up to 40 percent shrub cover. They will also make some use of cultivated fields such as irrigated pasture, alfalfa, grain and dryland seedings, especially for brood rearing. The common denominator appears to be a preference for overhead cover provided by either grasses or shrubs and the amount of cover within the first 12 inches from the ground, whether it's herbaceous, shrub or a combination of both. Good quality nesting and brood habitat has relatively dense cover within the first 8-12 inches. An area that averages less than 6 inches of cover is of little or no value to sharptails for nesting and brood rearing. Areas dominated by short grasses such as bulbous bluegrass (*Poa bulbosa*), Sandberg bluegrass (*Poa secunda*), cheatgrass (*Bromus tectorum*), or Medusahead rye (*Taeniatherum caput-medusae*), except for above normal precipitation years, do not provide sufficient cover for sharptails.

When the chicks first hatch, they are vulnerable to weather, shortages of food, and predation. An extended cold, wet period during this time can cause considerable rapid mortality. Lack of food (often caused by drought conditions) or predation usually results in a slow attrition of the brood. However, chick losses up to 65 percent are not considered excessive to maintaining a population. Brood habitat cover is similar to nesting habitat cover, but brood-rearing areas need to have a relatively abundant forb composition.

Like sage-grouse, sharptail chicks are highly dependent on insects for the first several weeks of life when they are growing very rapidly. After that, the flowering parts and leaves of broad-leafed plants, referred to as forbs, make up a significant part of their diet. As summer transitions, the consumption of berries increases and that of insects and forbs may decline. In Idaho, the fruits of chokecherry, serviceberry, hawthorn and snowberry are used heavily. Bluebunch wheatgrass and crested wheatgrass are more favorable to sharptails than sod-forming grasses such as intermediate wheatgrass or smooth brome. Moreover, bunchgrasses that are denser, such as native bluebunch wheatgrass, provide better cover than thinner bunchgrasses such as crested wheatgrass. Where available, sharptails will use cultivated plants, especially alfalfa, wheat, barley and corn.

As the berry crop is depleted, crops are harvested, and snow covers the ground, the birds switch to the buds of deciduous shrubs and trees, especially chokecherry and serviceberry. In the winter, many sharptails occupy livestock feedgrounds, eating spilled grain and corn, leaves of alfalfa hay, and picking through manure for remnants of livestock feed. Feedgrounds may also represent a relatively safe haven from predators, but this is an unknown.

Sharptails will move to shrubby riparian zones and patches of mountain shrubs and often move to higher elevations where moister conditions support greater amounts of these communities (Ulliman, M.J.). When birds are required to use tall deciduous shrubs to survive winter conditions, this type of vegetation generally needs to be available to them within four miles of a lek, although some birds are known to travel up to twelve miles to obtain suitable winter habitat. Winter habitat generally occurs in the landscape in stringers and small patches that are well distributed over the rangeland landscape and cover at least 1.5 percent of the land. Coverage of 5-10 percent provides better habitat conditions, with 10 percent estimated by some researchers as the optimum where birds are using the area for both wintering and breeding/nesting/brood-rearing. If winter conditions are mild, or there is available food in the form of ranching operations, the sharptails often stay in the open grassland and shrub/grassland communities that they use for breeding, nesting and brood-rearing (Alan Sands, personal comm.).

West Central Population

West Central Idaho sharptails are isolated from other populations in Idaho, Oregon and Washington. Prior to the recent reintroduction of Columbian sharptails in northeastern Oregon, the nearest direct line distance to other populations for many decades was

southeastern Idaho and eastern Washington. The northeast Oregon population is not known to intermingle with the West Central population due to distance.

Due to the scarcity of birds, sharptail hunting was closed statewide in 1940. In 1974 and 1975 a two-bird bag limit in aggregate with sage-grouse was allowed. The allowance for sharptail hunting in 1974 and 1975 was likely a consideration to allow for mistaken identity by sage-grouse hunters rather than based on population data that justified harvest. In a 1952 report, an IDFG biologist summed up the situation: "The history of sharp-tailed grouse in Southwestern Idaho has been one catastrophe. A species once numbering in the hundreds of thousands has been decimated to a relict population of a few scattered flocks totaling at the most a few hundred birds" (IDFG 1952). Today, as has been the case for the past several years, hunters can harvest two sharptails per day in eastern Idaho, with a possession limit of four birds. There is no open season for sharptails in or near the West Central Planning Area.

In spite of the marked reduction of hunting in Idaho in 1940, sharptails continued to decline. During the harsh winter of 1949, a population of several hundred birds between South Crane Creek and Ola was lost (Weldon Branch, pers. comm.). IDFG personnel annually monitored numbers of birds at three leks during the 1950s but abandoned the effort in 1961 when annual attendance was very low. One of these leks was located at the top of Midvale Hill in the current location of the gravel pit; the others were east of Midvale. These three remaining leks became vacant but the exact year is not known. It appears that the low point in the population in West Central Idaho likely occurred in the late 1970s and early 1980s. At that time the spring breeding population in West Central Idaho was down to an estimated 150-300 birds (Alan Sands, personal communication).

In 1977 a small lek (12 males) was accidentally discovered by a BLM employee near Fairchild Reservoir located between Mann and Sage Creeks. That discovery stimulated a program of interviewing local ranchers and wildlife enthusiasts and conducting intensive searches by biologists and biology students from the College of Idaho, located in Caldwell. Over the next several years three additional leks were located, two near the first lek in the area between Mann Creek and Sage Creek, and one between Rock Creek and Little Rock Creek near Brownlee Reservoir. A few birds also were seen in the Thousand Springs area east of the Mann Creek store and south of C. Ben Ross reservoir, but no leks were discovered despite intensive search efforts.

From 1983-85 a research project was undertaken on the Mann Creek/Sage Creek population to determine their year-round distribution and habitat selection. That research found that sharptails were using healthy native rangeland for nesting and brood rearing and hawthorn riparian zones and mountain shrub patches such as chokecherry and serviceberry during the winter (Marks 1986).

With the advent of the Conservation Reserve Program in 1985, which replaced thousands of acres of dryland grain farming with perennial grasslands, the sharptail populations in Washington and Adams counties increased significantly (BLM 1992). New leks have been discovered, at least one of which was in the same location as a traditional lek that

had been vacant for more than twenty-five years. Currently there are eleven known active leks in Washington and Adams Counties (Figure 8). There are likely other leks that have not yet been discovered. Figure 7 shows an increasing trend as measured by annual lek counts at the Hixon sharptail reserve near Mann Creek Reservoir, but it is not known whether this is indicative of trends throughout the WCPA.

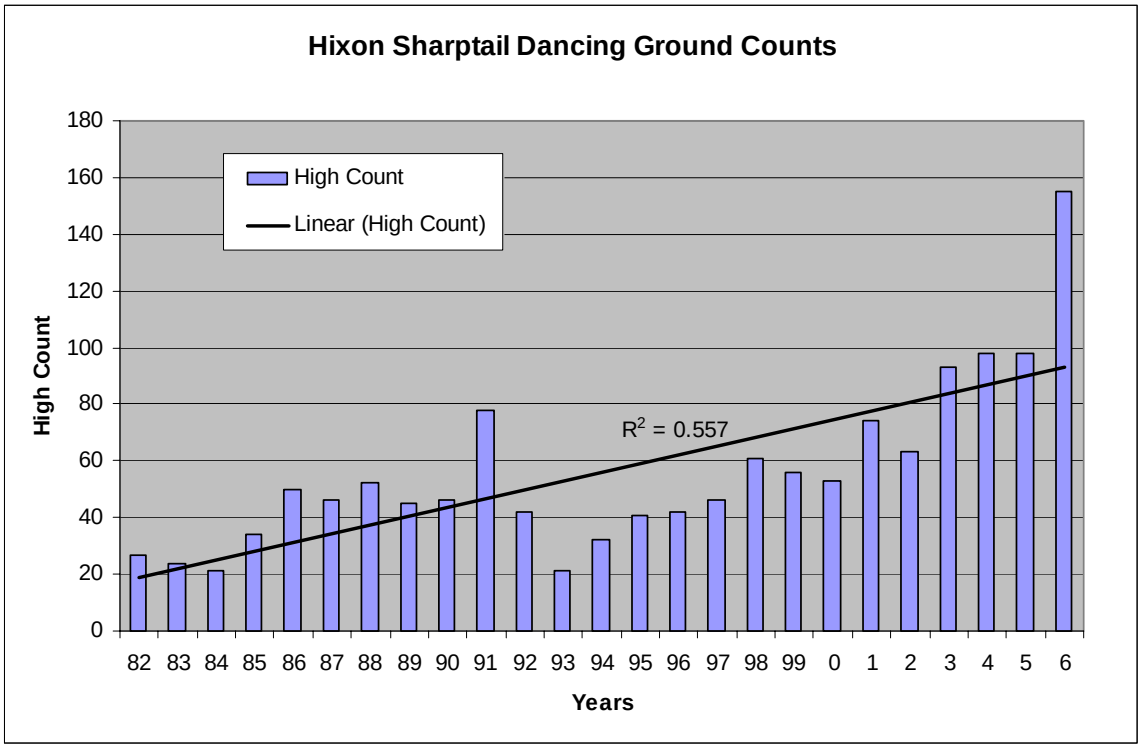
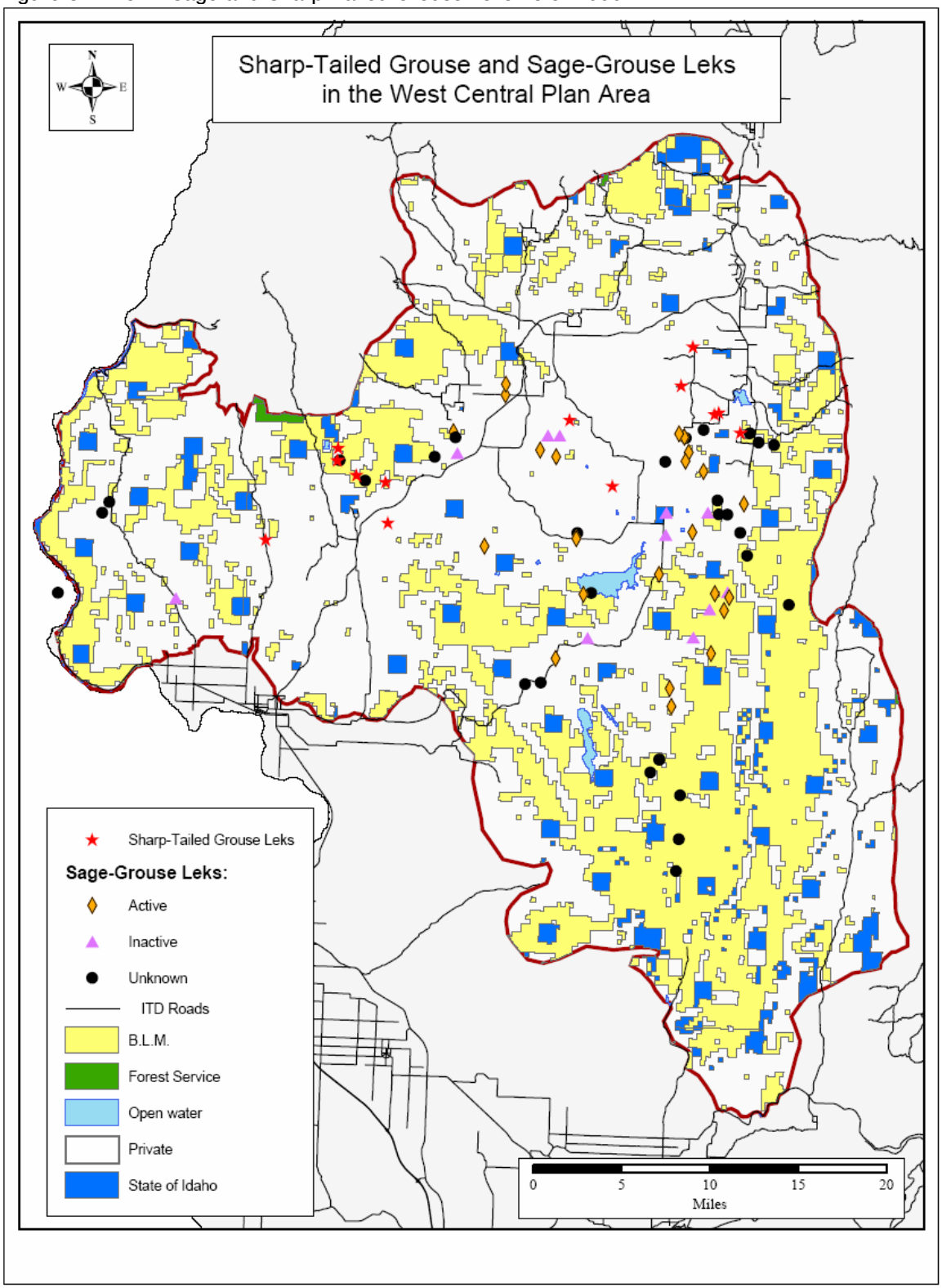


Figure 7—Sharp-tailed grouse lek counts for Hixon Sharptail Grouse Management Area within the West Central Planning Area (BLM 2006)

Figure 8. Known Sage and Sharp-Tailed Grouse Leks As of 2006



III. Description of Lands Eligible for Enrollment and Covered Activities

General Description

The WCPA is 926,043 acres. It is characterized by valley farmlands surrounded by extensive rolling hills of sagebrush-grassland and mountain foothills. Elevations range from about 2070 feet at the Snake River near Brownlee Reservoir to slightly over 4000 feet at Sugarloaf Peak and the southern Payette National Forest boundary. The greatest portion of the area and of occupied grouse habitat lies between 2500 feet and 3500 feet elevation.

The climate is characterized by cold, wet winters and hot, dry summers. Mean annual precipitation is about 11 inches at lower elevations near Weiser but rises quickly with elevation to over 20 inches over much of the planning area. Only about 29 percent of annual precipitation falls in April through September. In two years out of ten, rainfall during this summer dry period is less than 5 inches (USDA 2001).

The West Central Planning Area is predominantly rural in nature. Actual town sites and populations of Midvale, Cambridge, and Indian Valley have not grown substantially in recent years. In fact, the population of Adams County has decreased slightly (Table 2). However, the rural nature, recreation opportunities, and geographic proximity to larger population centers have resulted in an increase in land speculation and "ranchette" properties, potentially fragmenting the formerly expansive rangeland and agricultural landscapes. Ranchette subdivision has been particularly noticeable in the Mann Creek, Cambridge, Mesa, Midvale and Indian Valley areas.

County Population Estimates, 1996-2005

County	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Adams	3,693	3,572	3,531	3,517	3,467	3,439	3,475	3,472	3,503	3,591
Gem	14,052	14,422	14,803	15,052	15,219	15,442	15,580	15,782	15,962	16,273
Payette	19,531	19,792	20,029	20,374	20,635	20,840	21,196	21,475	21,577	22,197
Washington	9,651	9,887	10,018	10,010	9,975	9,969	9,961	9,999	10,039	10,098

Table 2—Population growth in the West Central Planning Area counties (US Census Bureau).

Hunting is probably the most popular recreational activity in the area. Deer, elk, and a wide variety of game birds, including pheasant, quail, Hungarian partridge, chukars, ruffed grouse and turkey, all occur within the area. A variety of furbearers and non-game species also exist. Fishing is popular on the Snake River, at a few of the smaller streams, on several irrigation reservoirs, and on Brownlee Reservoir. Hiking, horseback riding, motorcycle and ATV riding, camping, bird watching and other outdoor recreation take place to a lesser degree (IDPR 2004).

Settlement of the WCPA began primarily in the 1870's. By the late 1800s, pioneers in the Weiser River country were raising a variety of cattle, sheep, hogs, and horses (Kathy

Hodges, Idaho State Historical Society, personal communication). Rapid growth and development occurred during the Homestead Acts of 1903 and 1916. As a result of these laws, much of the arable lands transferred to private ownership. Homestead requirements and perhaps the relatively high precipitation of the area prompted most of the more gentle sloped uplands to be dry farmed in small grain crops. Native rangelands generally supported livestock, occasionally in large numbers which depleted much of the native range (NRCS Soil Survey 2000). Following the 1940's, many small farms were incorporated into larger ones and marginal farmlands were generally re-seeded to domestic forage grasses (USDA 2001). While approximately 13,486 acres of seeded grassland was enrolled in the USDA Conservation Reserve Program (CRP), no data exists for the remaining land area that may have been farmed, re-seeded and not entered into the CRP. Today most of the privately owned land is managed as part of various agricultural enterprises. Cattle and to a lesser extent sheep are still the primary agricultural commodities. Deeper soils of the valley bottoms are generally irrigated farmlands in hay or small grain crops. These feed crops are grown primarily to over-winter livestock, although some hay and small grains are exported from the area.

Many of the native rangelands in the higher precipitation areas have improved in terms of cover, density and composition of native species with adjusted stocking rates and better management practices (Steve Leonard, personal communication). However, bulbous bluegrass, an introduced species, still dominates the understory of shrub communities in many other areas. Cheatgrass and Medusahead rye had already established in the lower precipitation areas, presumably from contamination of early wheat crops (Dr. James Young, ARS, personal communication), and the spread of these invasive, exotic annual grasses has limited the potential for re-establishment of many native species in those areas.

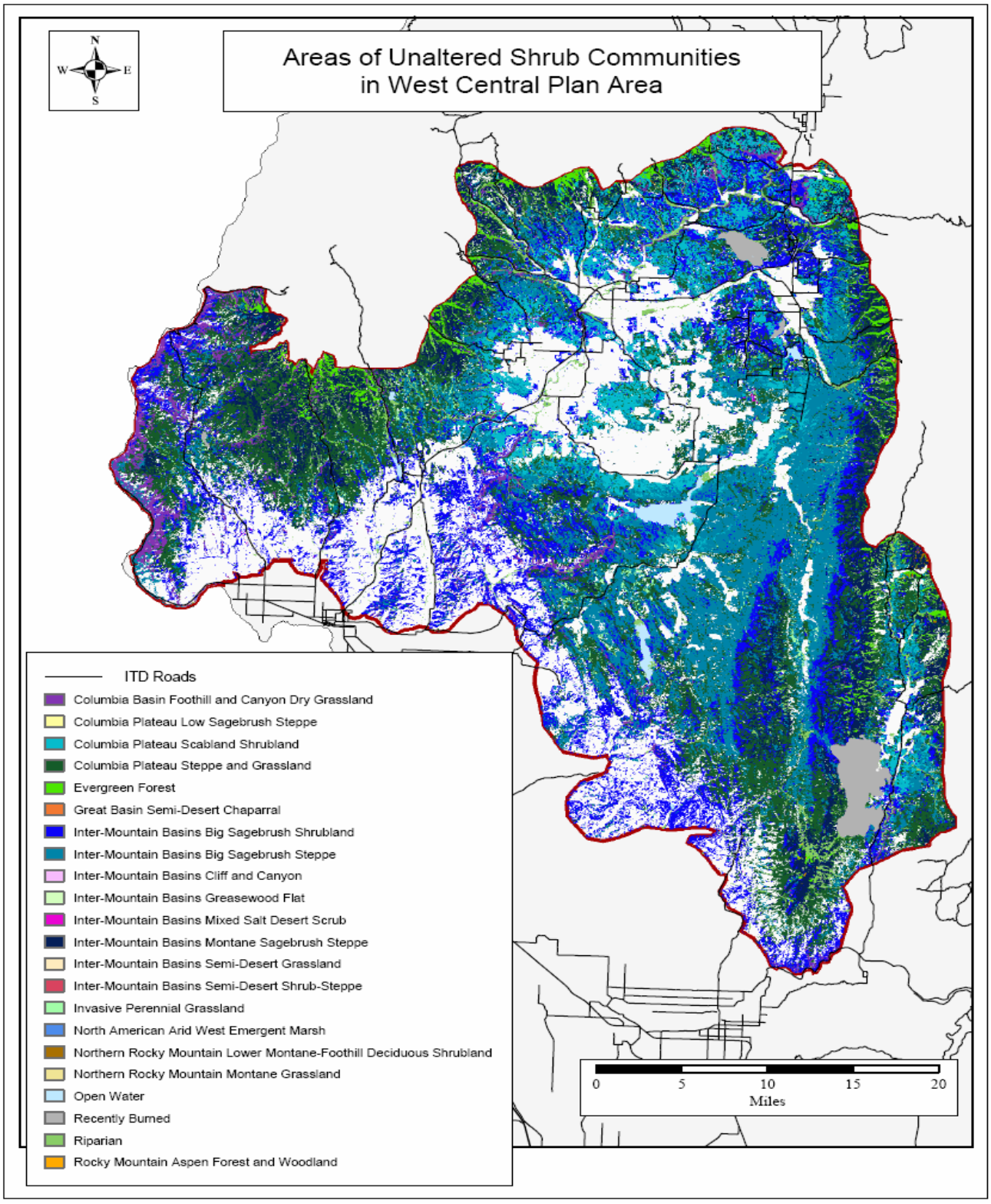
It is worth noting that despite over a century of settlement accompanied by conversions of both land uses and cover types, 75% of the WCPA remains in intact shrub and bunchgrass communities. There have been incursions of invasive annual grasses within these communities, but those have been limited to either relatively small areas or as understory plants within a native shrub community. Table 3 summarizes the land uses and vegetative cover types within the WCPA, while Figure 9 illustrates the area and cover types of the remaining shrub-bunchgrass communities that exist here.

Vegetative Cover, Land Uses, West Central Planning Area

Cover Type, Native Vegetative Communities	**Acres**	**% of WCPA**
Columbia Basin Foothill and Canyon Dry Grassland	25,642	3.7
Columbia Plateau Low Sagebrush Steppe	19	0.0
Columbia Plateau Scabland Shrubland	59,115	8.5
Columbia Plateau Steppe and Grassland	176,456	25.2
Evergreen Forest	14,271	2.0
Great Basin Semi-Desert Chaparral	3	0.0
Inter-Mountain Basins Big Sagebrush Shrubland	129,696	18.6
Inter-Mountain Basins Big Sagebrush Steppe	157,815	22.6
Inter-Mountain Basins Cliff and Canyon	159	0.0
Inter-Mountain Basins Greasewood Flat	410	0.1
Inter-Mountain Basins Mixed Salt Desert Scrub	241	0.0
Inter-Mountain Basins Montane Sagebrush Steppe	79,138	11.3
Inter-Mountain Basins Semi-Desert Grassland	138	0.0
Inter-Mountain Basins Semi-Desert Shrub-Steppe	49	0.0
Invasive Perennial Grassland	4,924	0.7
North American Arid West Emergent Marsh	99	0.0
Northern Rocky Mountain Lower Montane-Foothill Deciduous Shrubland	425	0.1
Northern Rocky Mountain Montane Grassland	302	0.0
Open Water	5,832	0.8
Recently Burned	12,031	1.7
Riparian	32,209	4.6
Rocky Mountain Aspen Forest and Woodland	84	0.0
Total	***699,059***	
Cover Type, Land Uses, Altered Portions		
Agriculture	114,666	49
Developed, High Intensity	6	0
Developed, Low Intensity	199	0
Developed, Medium Intensity	1,573	1
Developed, Open Space	4	0
Invasive Annual Grassland	115,762	50
Total	***232,210***	

Table 3. Vegetative Cover and Land Uses

Figure 9. Remaining intact shrub-bunchgrass communities in WCPA



Lands Eligible for Enrollment in this Agreement

Within the WCPA, enrolled lands must be formally identified in each landowner's site-specific plan. Typical enrolled lands will be rangelands and adjacent agricultural lands that currently or potentially are able to provide habitat for sage-grouse and/or sharptails. Emphasis will be placed on "whole ranch operations" that may include BLM grazing permits and IDL grazing leases as well as private lands. Where landowner's site-specific plans include permits or leases, all parties must agree to the conservation measures and obligations in the CCAA in order to provide operational stability for the term of the plan.

The dominant agricultural activity within the WCPA consists of cow-calf beef operations. Ranches range in size from a few hundred deeded acres to a several thousand acres per owner/operator. Many of these ranches remain in the hands of the families who originally homesteaded here in the late 1800s. In addition to their deeded lands, a majority of ranchers utilize grazing allotments on public land, including BLM, Forest Service, and IDL. At the time the BLM published its Cascade Resource Management Plan in 1987, the Resource Area that encompasses the WCPA provided 66,424 AUMs of forage for livestock, with a plan to increase to 70,536 AUMs over a 20-year period. The Idaho Department of Lands administers some 50,000 acres of land that provides nearly 9,000 AUMs of livestock forage within the WCPA (Rick Belnap, IDL, pers. comm.).

Cattle spend about half of each year on pasture or range and about half of the year on feedgrounds. Depending on weather and forage, ranchers typically begin feeding hay in late November and continue to feed until grasses green up in the spring. Calving occurs from early February until April; cow-calf pairs usually move to deeded pasture by mid-April. Cattle move onto public lands grazing allotments at various times, depending on terms of the permit. Some permits allow early spring grazing in April and May. Others, particularly those at higher elevations or on Forest Service allotments, allow grazing after July 1st. Gathering cattle from public lands and returning to deeded range or pasture also varies according to permits and range conditions, but livestock typically are off public lands by early November. Calves customarily are weaned in early October and pre-conditioned for shipping. Livestock not being shipped to market remain on deeded pasture until winter feeding begins again. For the most part, cattle raised here "have never seen the back of a truck"—ranchers generally trail their herds to and from pastures and grazing allotments (personal comm. with area ranchers).

The WCPA used to be home for tens of thousands of sheep, with some of the state's largest sheep outfits either headquartered or operating here. Now there are only two range sheep operations, with approximately 11,000 ewes in total. Generally, the sheep spend summers in the higher elevations, almost exclusively on national forest or state-owned lands. In late summer or early fall, the lambs are shipped and the ewes are trailed down to lower elevations, often grazing croplands or orchards en route. Across the state, some operators take their bred ewes to Arizona or California for the winter, while others keep them in Idaho, grazing on various winter ranges. However, most sheep in the WCPA spend their lives there and are not trucked long distances. Lambs are generally born between January and late April, either in lambing sheds or on the open range. By June,

the heat and drying vegetation dictate a move north and to higher elevations, following green feed and thus completing the annual cycle for bands of sheep.

Water from the streams and impoundments of the planning area provides irrigation for pastures and hayfields. Ranchers typically begin irrigating in late April and continue well into September. Haying generally begins by mid June, with first cutting completed by mid July and second cutting by early August. A few operators take a third cutting of hay, finishing their harvest by mid September.

Covered Activities

As described above, lands to be enrolled under this agreement 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":

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; gathering and shipping cattle; general stewardship and animal husbandry practices; fence and corral construction, repair and maintenance.

Farming operations: Cultivation of fields; planting, cultivation and harvesting small grain, corn, seed and hay crops; irrigation by flooding or sprinklers; weed control within fields and along ditch banks by burning; application of manure.

Recreation: Legal hunting for various waterfowl or upland birds, small and big game species; legal fishing; use of recreational vehicles both on and off established roads; horseback riding.

General ranch operation and maintenance: Road maintenance; legal burning of scrap wood and unwanted vegetation; maintenance of houses, barns and sheds; maintenance and repair of vehicles and machinery; trimming of fruit and shade trees; construction or maintenance of firelines and firebreaks including disking and blading such areas; maintenance of fences and corrals.

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" and no incidental take coverage is being sought for their use as a part of this agreement. This is consistent with the USFWS policy regarding chemical use in conjunction with Sec. 10 agreements. However, nothing in this agreement confers any additional regulatory authority to any state or federal agency with respect to the otherwise lawful use of these chemicals.

IV. Sagebrush Dynamics

In order to develop a plan to maintain and enhance suitable grouse habitat, it is necessary to understand not only the food and cover needs of sage-grouse and sharptails, but also the historic vegetative cover and how that compares with existing conditions in the WCPA. This section compares historic and potential vegetation communities with current conditions and includes a brief explanation of the scientific tools and models that the Local Working Group used to make its assessment. It is important to note that a static, unbroken sea of sagebrush is neither the natural state of this landscape nor the desired future condition for the grouse. Rather, a mix of development stages is needed to maintain a healthy, reproductive sagebrush/grassland mix for sustainable grouse habitat as well as forage production.

One can assume that in pre-settlement conditions, the landscape of the WCPA would have included a mosaic of vegetative types, characterized by sagebrush of varying ages and developmental stages, bunchgrasses and forbs in the understory and in areas recently burned, and riparian shrubs along watercourses and perhaps at the edges of wetter meadows. Fire was the major disturbance and probably occurred often, perhaps every 20-70 years on a given site (LandFire), a product of hot, dry summers and lightning storms. Fire and soil types were the primary determinants of the vegetative community (Figure 10 [Soil Type], and Figure 20 [Fire History]).

Settlement obviously brought lasting changes to the landscape. Areas of deeper soils with higher amounts of precipitation and those that could be irrigated were cleared of native vegetation and farmed. Private lands with shallower soils and/or steeper slopes and lands administered by the federal and state governments generally remained as native rangelands. While such introduced species as cheatgrass (*Broma tectorum)* or Medusahead (*Taeniatherum caput-medusae)* took a toll on native bunchgrasses, there has not been the large scale conversion to these invasive exotic species that other parts of the West have experienced. Today, much of the land in the planning area retains the sagebrush/bunchgrass community that was the hallmark of pre-settlement conditions (Figure 9).

A preponderance of rangeland soils within the area can produce an overstory of sagebrush, or bitterbrush mixed with sagebrush, with a substantial understory of grass and some forbs. Xeric big sagebrush, thought to be a cross between basin big sagebrush and mountain big sagebrush, is by far the most common sagebrush in the WCPA and is endemic to this area. Bluebunch wheatgrass and Idaho fescue dominate the understory in terms of potential production but have been severely reduced in much of the area from early (and in some places continuing) improper grazing practices (NRCS 2001).

Stiff sagebrush is common on very shallow soils (less than 10 inches deep). Stiff sagebrush sites are interspersed with xeric big sage sites throughout much of the area. They are extremely low producing in annual biomass with a sparse understory of Sandberg bluegrass and forbs. Soil saturation during the early spring, followed quickly by

complete drying, lends to low overall productivity, but these sites often have a high composition of early season forbs.

Wyoming sage and low sage are locally common in lower precipitation areas with potential understories of Thurber needlegrass, Sandberg bluegrass, and/or bluebunch wheatgrass. Low sagebrush sites also tend to produce a higher composition of early season forbs for the same reasons as on stiff sage sites as explained above. Basin big sagebrush with a potential understory of Basin wildrye or bluebunch wheatgrass can occur throughout the area on deeper soils of stream terraces or "run-in" sites that receive additional moisture from overland flow. Mountain big sagebrush with a potential understory of bluebunch wheatgrass and Idaho fescue occurs in a limited extent at higher elevations.

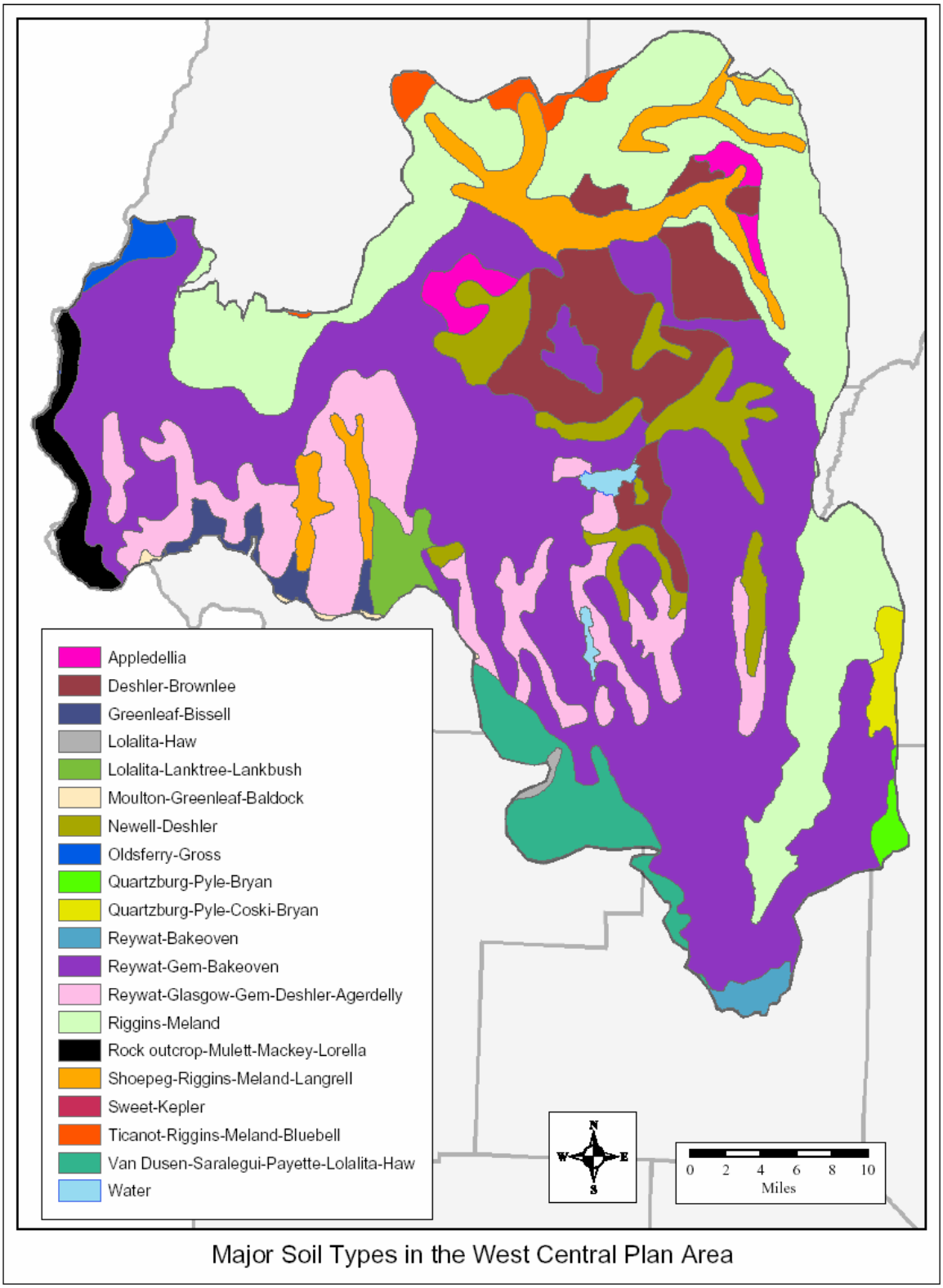


Figure 10—Major Soil Types of the West Central Planning Area (Based on NRCS data 1988)

Historical Sagebrush Communities

Sagebrush sites are dynamic by nature. Fire, drought, insects, disease and grazing pressure all affect this ever-changing mosaic. In order to understand how to improve grouse habitat within the WCPA, one must understand the natural succession of the vegetation. General succession vectors and time frames are described for a variety of vegetation types, including major sagebrush types, by the Nature Conservancy, USDA Forest Service, and Department of Interior in LandFire Rapid Assessment Models (2005). Basically, with fire as the dominant disturbance factor, there are predictable changes. First, forbs may greatly increase or even dominate a burned site, along with fire-tolerant shrubs such as rabbitbrush and residual grasses in the first growing season after the burn. These predominately herbaceous communities are highly productive in terms of biomass for a short time. Over time, forbs give way to increasing perennial grass production, while the forb component diminishes. Ultimately, sagebrush and other more fire-intolerant shrubs seed in and dominate the site, shading out many remaining forbs and some of the grasses as the shrubs grow in age and size. This vegetative community will remain in place until the next fire or stand replacing event renews the process. Figure 11 shows the relative productivity of each component of vegetative communities typical of the West Central Planning Area.

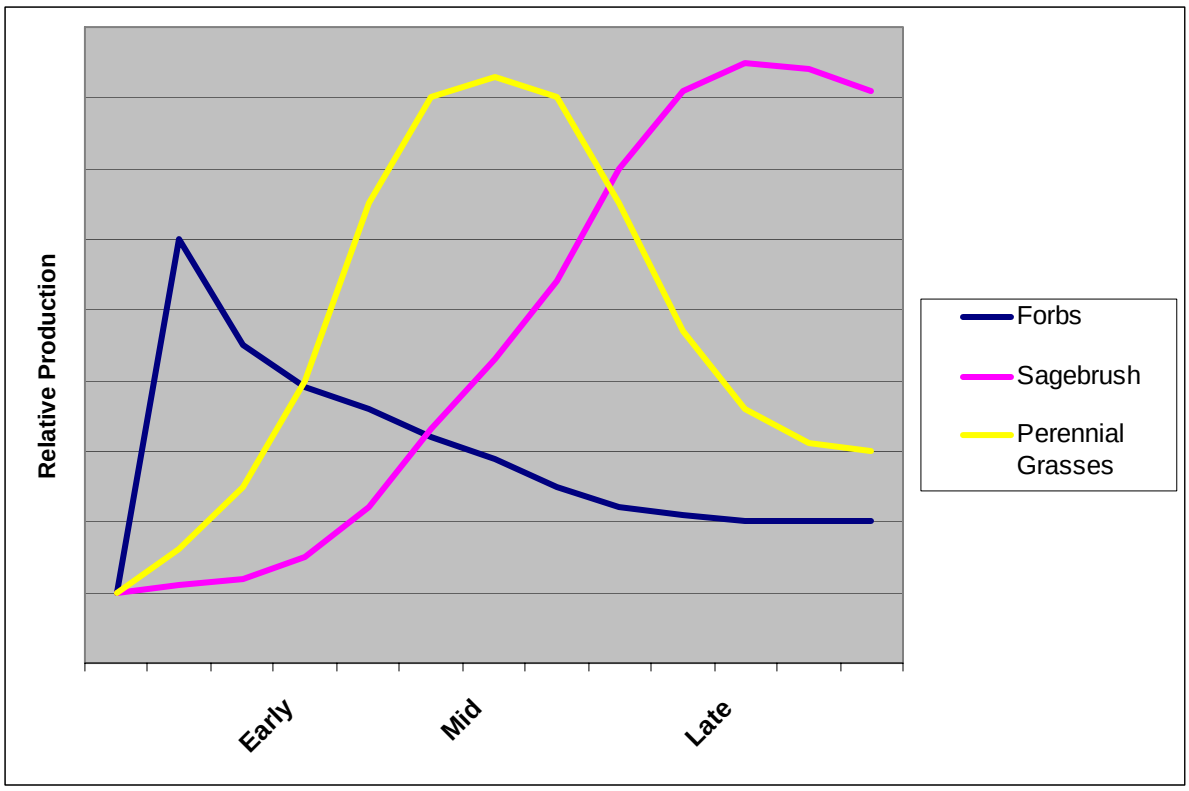


Figure 11.—Typical sagebrush site dynamics

Some ecologists such as Winward (1991) suggest that understory vegetation is suppressed when sagebrush canopies exceed 25 to 30 percent, while others cited in Welch (2005) suggest that some big sage sites support good understory vegetation with as high as 46 percent canopy (mountain big sage). These apparent disparities may be due in part to the wide difference in site conditions upon which big sagebrush species are able to grow. However, most ecologists agree there is a point at which canopy closure and/or competition does reduce understory production until natural or induced disturbance occurs. The stochastic nature of natural disturbance allows some proportion of sagebrush sites to reach late development stages with predominantly old sagebrush and generally reduced understory in the big sage sites. Low sage sites may not experience an appreciable reduction in understory because of the lower overall canopy cover and naturally low production.

The LandFire models help to synthesize the best available knowledge of vegetation dynamics and quantify the natural range of variability in vegetation composition and structure. They describe vegetative conditions only and do not describe wildlife habitat in terms other than dominant vegetation. Models consist of two components: (1) a comprehensive description and (2) a quantitative, state-and-transition model (Appendix D). Models were developed in 2004-2005 during workshops across the United States where regional vegetation and fire ecology experts synthesized the best available data on vegetation dynamics and disturbances for vegetation communities in their region. A peer review process that followed these workshops garnered additional expert input and offered an opportunity to refine models.

LandFire Rapid Assessment vegetation models were based on a simple process that combines three generic developmental stages (early, mid, late) with two canopy cover classes (open and closed). Each class is specifically defined for individual habitat types based on such factors as fire frequency and severity, the probability of other disturbances, and the rate of vegetation growth, which were derived from literature review and expert input during and after modeling workshops. Models simulate several centuries of vegetation dynamics and produce outputs such as the percent of the landscape in each class and the frequency of disturbances.

Model descriptions and quantitative outputs help define and map potential natural vegetation groups (PNVG), or the vegetation communities that are likely to exist under the natural range of variability in biophysical environments and ecological processes, including fire and other disturbances. Models may be used as reference conditions to calculate Fire Regime Condition Class, a standardized, interagency index to measure the departure of current conditions from reference condition. For this agreement, the models provide some insight into the developmental stages that each cover type could be expected to exhibit under pre-settlement conditions and thereby act as a gauge against which to measure current developmental stages at a broad scale. As such, the models can help determine which developmental stages need to increase or decrease in order to achieve some approximation of conditions as they might naturally occur across the landscape.

Intense fires remove sage and shrub cover, resulting in grass and forbs with little or no shrubs in the early stages.

Over time, sage, bitterbrush and other shrubs begin to occupy the site in the "mid" developmental stage.

With normal fire cycles, sage and shrub stands become more dense, with more of the area covered by their canopies. This reduces grass and forb productivity, but, inevitably, "late" shrub stands become fuel for the fires that renew the successional process.

Figure 12. Developmental stages of sagebrush communities

Within the West Central Planning Area, LandFire identifies four PNVG: basin big sage, mountain big sage, Wyoming sage and low sage. In addition, the Working Group identifies two others as important components of the planning area, xeric big sage and stiff sage, that are not specifically identified in the LandFire models and for which the Working Group estimated cover and density values. The description of each of these groups, the percentage of the dominant species for each group and the percent of the area that would be covered by for each developmental stage are summarized in Table 4.

Approximately 20 percent of mountain big sage and Wyoming big sage PNVG would be expected to be early development (open grassland), where there would be less than 6 percent sagebrush canopy. About 15 percent of the Basin big sage type and 10 percent of the low sage types would be expected to be open grassland. Basin big sage may have up to 15 percent canopy of sage and low sage types up to 10 percent canopy in the early development stage. The very shallow stiff sage sites in the WCPA may be less than 10 percent in the early development stage because of the very low productivity affecting the ability to carry fire. Early development components are important because they provide the highest forb composition as well as regeneration sites for young sagebrush.

Mid-development stages generally provide the highest grass production in conjunction with mixed height sagebrush. Young and middle-aged big sagebrush types have more branches close to the ground; coupled with abundant grasses, this stage may provide the best hiding and nesting cover. Sharp-tailed grouse appear to prefer only 4 to 9 percent sagebrush cover, while sage-grouse appear to use 10 to as high as 38 percent sagebrush cover, depending on the season (Marks and Marks 1987). About 45 to 55 percent of the Wyoming and mountain big sage sites are expected to be in the mid-development stages with sagebrush canopies ranging from 6 to 25 percent. Basin and low sage types may have up to 70 percent of the sites in the mid-development stage. Basin big sage cover may be as high as 75 percent, but low sage types only produce about 10 percent sage cover in mid-development stages. About 30 to 35 percent of Wyoming and mountain big sage sites are expected to be in late development stages. Only 15 to 20 percent of Basin and low sage sites are expected to be in late development stages.

Little is known of the dynamics of xeric big sagebrush, which appears to be the predominant sage here, as indicated in NRCS soil surveys and by local observations. However, its derivation from Basin big sage and mountain big sage, understory vegetation, susceptibility to fire and to Aroga moth infestation suggest that approximately 20 percent should be in the early development category (Dr. Alma Winward, pers. comm., 2006).

The proportion of area in mid- and late-development stages for xeric big sagebrush is more difficult to estimate. Understory composition, production, and position on the landscape suggest that proportions closer to mountain big sage sites might be appropriate (45 percent mid- and 35 percent late-development stages, with sagebrush canopy between 6 and 25 percent for mid and up to 45 percent for late). However, the precise mix may be more academic than functional for management, given natural ranges of variability. The important point is that a mix of development stages is needed to maintain a healthy,

reproductive sagebrush/grassland mix for sustainable grouse habitat as well as forage production. A well designed vegetation monitoring strategy can help determine when, where, and to what extent either sagebrush or grass becomes limiting for one species or another.

Potential Vegetative Groups and Developmental Stages

		Percent Area/Sagebrush Cover					
	Potential Natural Vegetation Group	**Early Development**		**Mid Development**		**Late Development**	
		Percent Area	**Percent Cover**	**Percent Area**	**Percent Cover**	**Percent Area**	**Percent Cover**
LANDFIRE Models	Basin Big Sage	15	0-15	70	15-75	15	15-50
	Mountain Big Sage	20	0-6	45	6-25	35	26-45
	Wyoming Sage	20	0-4	50	5-25	30	26-35
	Low Sage	10	0-6	70	6-10	20	11-20
Working Group Est.	Xeric Big Sage (est.)	15-20	0-6	45	7-25	45	26-45
	Stiff Sage (est.)	10	0-6	70	6-10	20	11-20

Table 4—Expected developmental stages and sagebrush cover for the WCPA from LandFire models.

Current Conditions

LandFire's prediction of the potential vegetative groups and the percent sagebrush cover that might be expected in a natural condition raises the obvious question of the vegetative communities that now exist and how those expected and existing conditions might compare. The comparison cannot be made directly. Over time, humans have cleared fields for agriculture and pastures and grazed livestock on open ranges. While these approximate the recently disturbed "early" development stage, the grass and forb species are very different from those that might have been found in a pre-settlement state. In some areas, annual exotic grasses have replaced native bunchgrasses. Despite these changes, however, it is possible to make some general comparisons between expected vegetative conditions and those that now exist within the planning area.

There are two components of the current vegetative cover to be compared with that which LandFire would predict. The first is the existing mix of shrub species, and the second is the density of shrubs. With that information, it is possible to develop estimates of areas remaining in shrub cover within the planning area, shrub species, and the density of significant "patches" of shrub cover across the landscape.

Information from the USGS's "GAP" analysis provides data on shrub cover, including species:

> "The purpose of the Gap Analysis Program (GAP) is to provide broad geographic information on the status of ordinary species (those not threatened with extinction or naturally rare) and their habitats in order to provide land managers, planners, scientists, and policy makers with the information they need to make better-informed

decisions. To achieve this, GAP is the first state and national-level effort to complete the following:

- Map existing natural vegetation to the level of dominant or co-dominant plant species;
- Map predicted distribution of native vertebrate species;
- Map public land ownership and private conservation lands
- Compare distributions of any native vertebrate species, group of species, or vegetation communities of interest with the network of conservation lands;
- Provide an objective basis of information for local, state, and national options in managing biological resources.

Vegetation is mapped from satellite imagery and other records using the National Vegetation Classification System (FGDC 1996). These data are combined and displayed with a computerized geographic information system (GIS) at a cartographic scale of 1:100,000. Maps of vegetation types, individual species, or selected suites of species are overlain on maps of land ownership and land management.

The Gap Analysis Program is sponsored and coordinated by the Biological Resources Division of the U.S. Geological Survey. Additional support at the national level has been provided by the Department of Defense and the Environmental Protection Agency. The program has a close working relationship with the National Mapping Division of the U.S. Geological Survey and with The Nature Conservancy. Mapping and analysis is conducted by GAP projects within each state. Additional analyses are conducted for large multi-state regions in partnership with state governments, federal agencies and other cooperators. Presently, GAP is made up of over 445 contributing organizations in 44 states. Contributors include business, universities, state and federal agencies, tribes, and non-government organizations."

Since the development of GAP, USGS has further identified vegetative cover through the "Shrub Map" effort. According to the USGS website, Shrub Map represents a new regional dataset to show vegetative cover produced using decision tree classifier and other techniques to model landcover. Multi-season satellite imagery (Landsat ETM+, 1999-2003) and digital elevation model (DEM) derived datasets (e.g. elevation, landform, aspect, etc.) were utilized to derive rule sets for the various landcover classes. Eleven mapping areas, each characterized by similar ecological and spectral characteristics, were modeled independently of one another. An internal validation for modeled classes was performed on a withheld 20% of the sample data to assess model performance. Mapping area models were linked in a mosaic to create the Columbia Basin Regional Dataset (Idaho, Oregon and Washington), which was subsequently combined with the Southwest Regional Gap Landcover Dataset to create the final seamless 8 state regional landcover map. The final map contains 126 Landcover classes (103 NatureServe Ecological Systems, 7 National Land Cover Data and 16 non-native vegetation classes) and has a minimum mapping unit of approximately one acre.

While Shrub Map represents an updated vegetative classification system, it does so by identifying "ecological system classes" as opposed to classes of dominant vegetation (Figure 14). For this reason, the older GAP data, which rely upon dominant species provide a clearer match with the "potential natural vegetative groups" which are the basis for the LandFire models. Figure 13 shows GAP data on the distribution of current shrub species across the West Central Planning Area. As noted previously, GAP data do not indicate shrub density. GAP can define existing shrub patches with accuracy associated with 30-meter photography (each pixel is 30 meters square). However, it provides no information on whether shrub cover within those patches is of "low," "medium" or "high" density. For this determination, additional information is needed.

In 2006, scientists from the University of Idaho developed a methodology that employs color aerial photography (NAIP) data combined with LandSat satellite imagery to identify current vegetative cover at a much finer scale than GAP provides. This technology was based upon either on-the-ground sampling points or expert knowledge of the existing vegetative cover at known points on the ground. With this vegetative data in hand, bands 4 and 7 of Landsat imagery were recalibrated to 1 meter (3 ft) resolution and stacked with 1 meter (3 ft) resolution color aerial photography through "ENVI" image analysis software. The result provides a much finer graphic representation of vegetative cover—at 1-meter resolution versus 30 meters (Dr. Eva Strand, pers comm.).

This same technology was employed to estimate shrub density within the areas shown in GAP to be occupied by one of four shrub types found throughout the planning area: bitterbrush, mountain big sagebrush, basin and Wyoming big sagebrush and low sagebrush. "Areas of interest" for shrub densities at 13 locations on the ground within the planning area were used to "train" the ENVI software to find all similar sites with identical characteristics for the pixels that made up the training image using a maximum likelihood classification procedure. As a result, we now have imagery that indicates "low," "medium" and "high" shrub density for the previously identified areas occupied by shrubs across the landscape (Figure 15). Originally, each category was defined by visual estimates as opposed to measured densities. However, subsequent field plots resulted in these measured densities: "low", 0-10 percent, "medium", 10-20 percent and "high" 20-50 percent. These are consistent with the categorizations used in the Land Fire models and displayed in Table 4 and for the comparisons between existing and expected conditions outlined in Table 5.

It should be noted that there are many areas of various perennial grass types where the PNVG is shrubs, if they were allowed to evolve naturally. Some of these areas remain in perennial grasses because current grazing practices may inhibit shrub recruitment and growth. Others may have been recently burned and will likely revert to shrub cover over time. In addition, there are alfalfa and irrigated meadows which are actually former shrub areas that were cleared and farmed. These are readily identifiable through GAP, although they cannot be compared with cover types in the LandFire models since they are no longer an identifiable shrub community. Even though these areas can no longer be classed as shrub areas, they can function as those shrub areas in the "early"

developmental stage, providing a rich source of insects that are key to the early life stages of grouse chicks.

GAP analysis indicates that of the 926,000 acres in the planning area, 476,512 remain in largely intact shrub communities of sufficient size to be identified in the GAP imagery. Another 344,220 acres are classified as various perennial grass or forb types. These types most likely occupy sites that would support shrub communities as the potential natural vegetative groups, were it not for fire, intensive grazing or other disturbances which have retarded shrub re-establishment. However, these types could also accurately be classed as "early" or "low density" shrub communities. The remaining lands have been unalterably converted to irrigated agriculture or other land uses. Among the intact shrub communities, GAP identifies the following specific types:

Shrub Type	Acres
Bitterbrush	203,848
Mountain Big Sagebrush	4,599
Basin and Wyoming Big Sagebrush	190,427
Low Sagebrush	77,638
Total	***476,512***

There is some difference in the way GAP classifies shrub types versus the PNVG included in the LandFire models. LandFire, for example, does not include bitterbrush as a separate vegetative group, and, in reality, bitterbrush seldom forms pure large stands, but is most often a component of basin and Wyoming big sage stands. Further, GAP makes no distinction between low and stiff sage. However, allowing for those differences and combining shrub types in the data as they occur naturally, it is possible to compare shrub densities by shrub type, both as they actually occur within the planning area and as they would be predicted by LandFire. Table 5 summarizes those comparisons.

	Potential Natural Vegetation Group	Early Development		Mid Development		Late Development	
		Percent Expected	Actual	Percent Expected	Actual	Percent Expected	Actual
LANDFIRE Models	Basin Big Sage	15	N/A	70	N/A	15	N/A
	Mountain Big Sage	20	2	45	48	35	50
	Wyoming Sage	20	13	50	62	30	25
	Low Sage	10	11	70	65	20	24
Working Group Est.	Xeric Big Sage (est.)	15-20	13	45	62	45	25
	Stiff Sage (est.)	10	11	70	65	20	24

Table 5—Comparison of LandFire's expected developmental stages of sagebrush communities with GAP estimates of current actual conditions within the WCPA.

Riparian areas comprise less than 2% of the area, a figure that is consistent throughout most of the arid West. However, their value greatly exceeds their geographic extent for

water, forage, recreation and wildlife, including sage-grouse and sharp-tailed grouse. Sage-grouse use riparian areas for brood-rearing, and sharp-tailed grouse often depend on riparian shrubs as a winter food source. No assessment of riparian conditions has been conducted in the area to our knowledge. However, personal observations by Leonard indicate a wide range of conditions exist from near potential to severely impacted. Future efforts might include more detailed assessments of riparian conditions as a component of individual agreements.

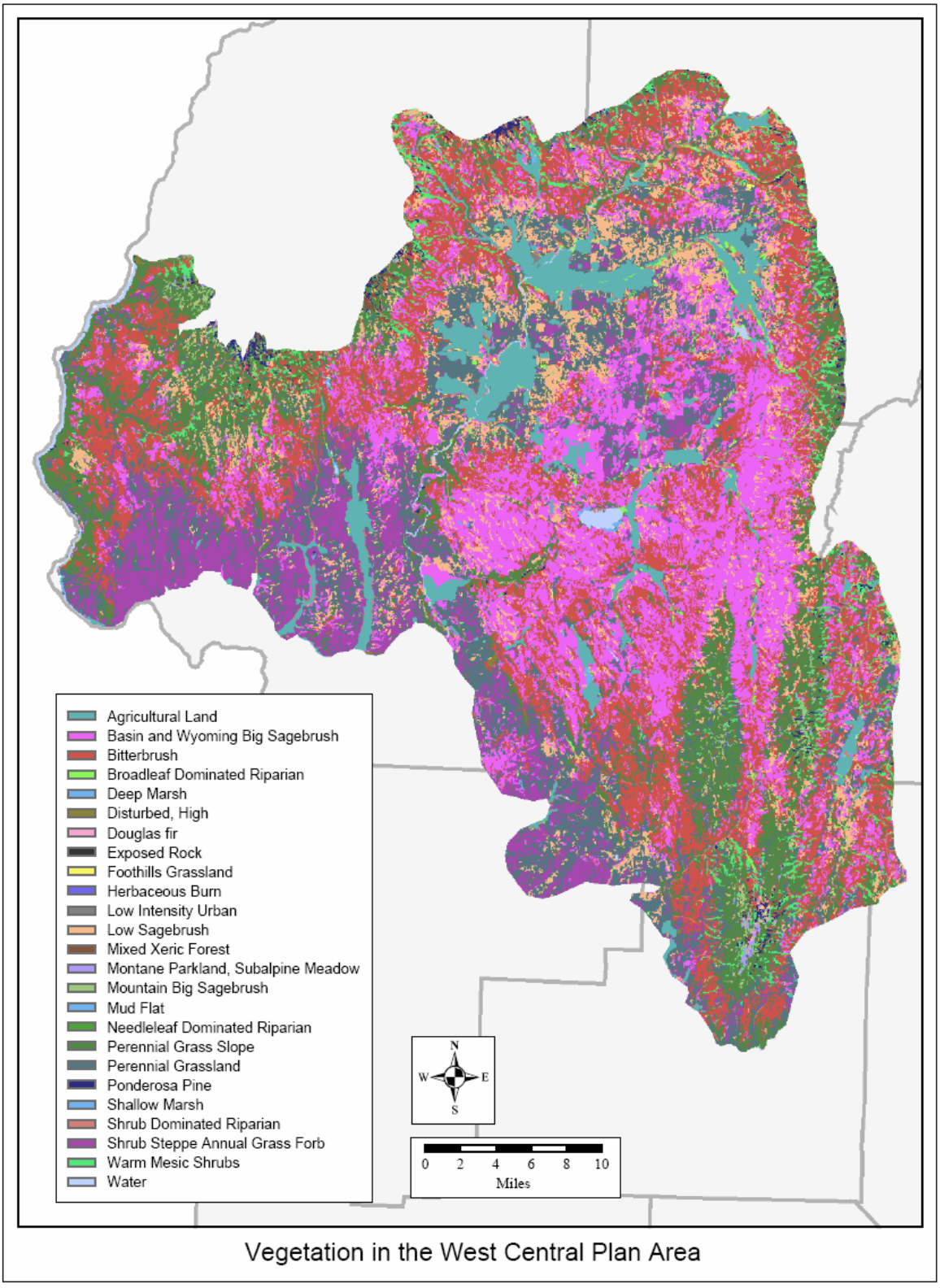


Figure 13—Major vegetation types in the West Central Planning Area, GAP Data.

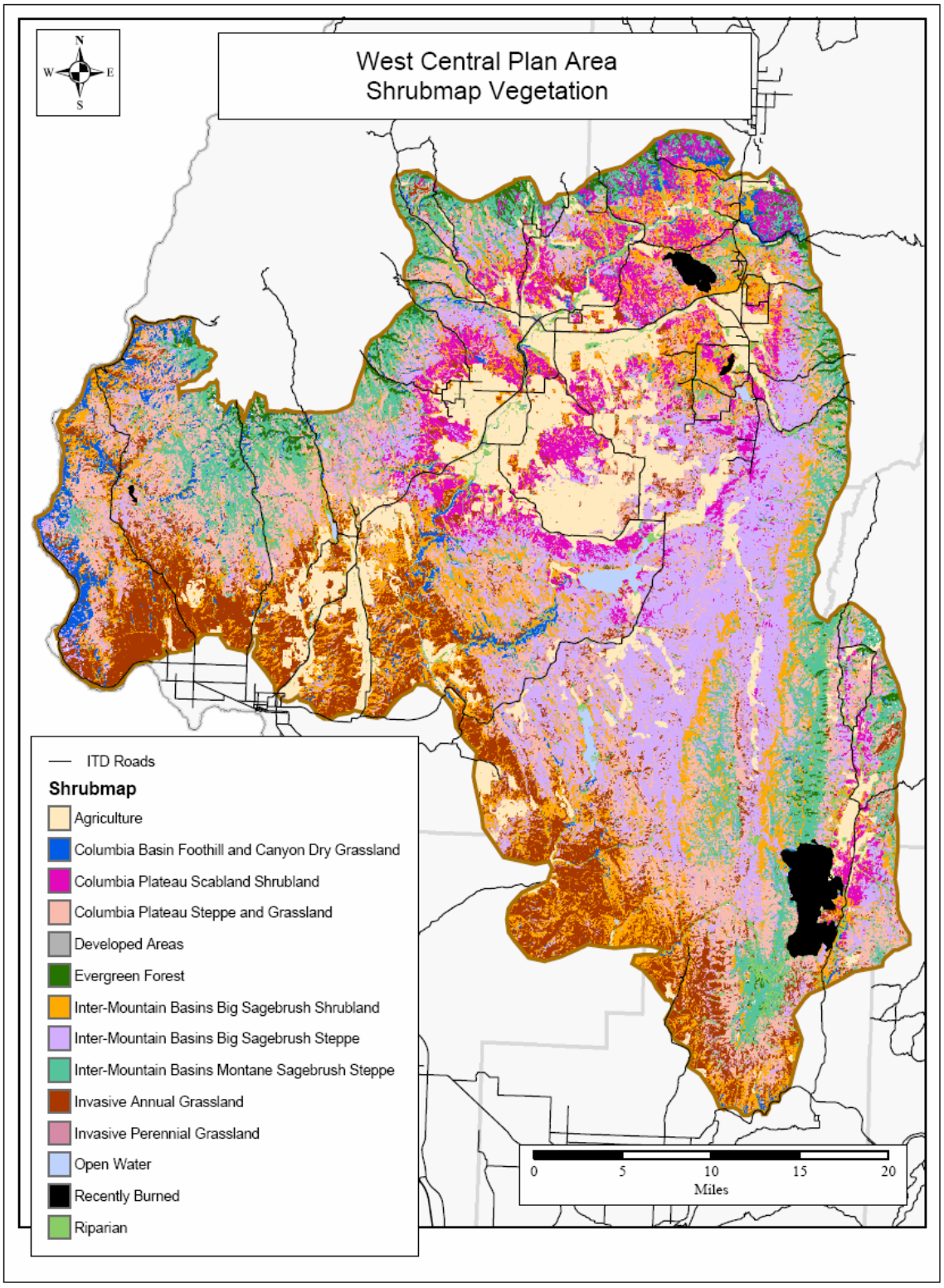


Figure 14. "Ecological System Classes" as identified by Shrub Map

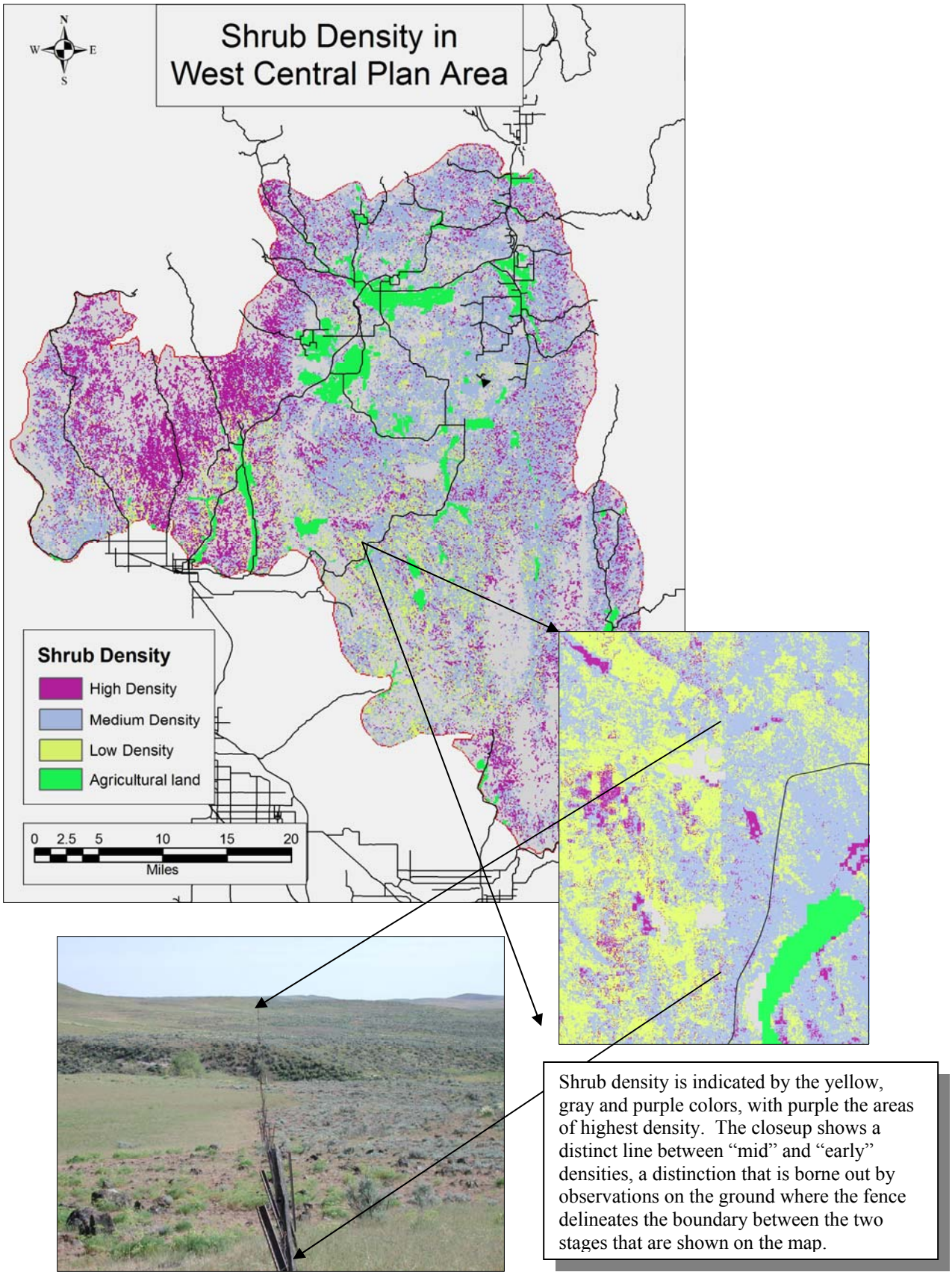


Figure 15. Shrub density as calculated by the University of Idaho

Implications for Sage Grouse Management

The combination of physical factors, land uses and historic land management has inevitably resulted in areas that have greater value for sage and sharp-tailed grouse than others. It is possible to identify such areas through GIS analysis. Figure __ shows the combination of known sage grouse leks and medium to high shrub density within a two-mile buffer of those leks. Assuming that most sage grouse live their lives within that area and that they tend to nest in areas of medium and high shrub density, then the nesting habitat circles indicated on the map in Figure 16 should represent most nesting habitat within the Planning Area with a fair degree of certainty.

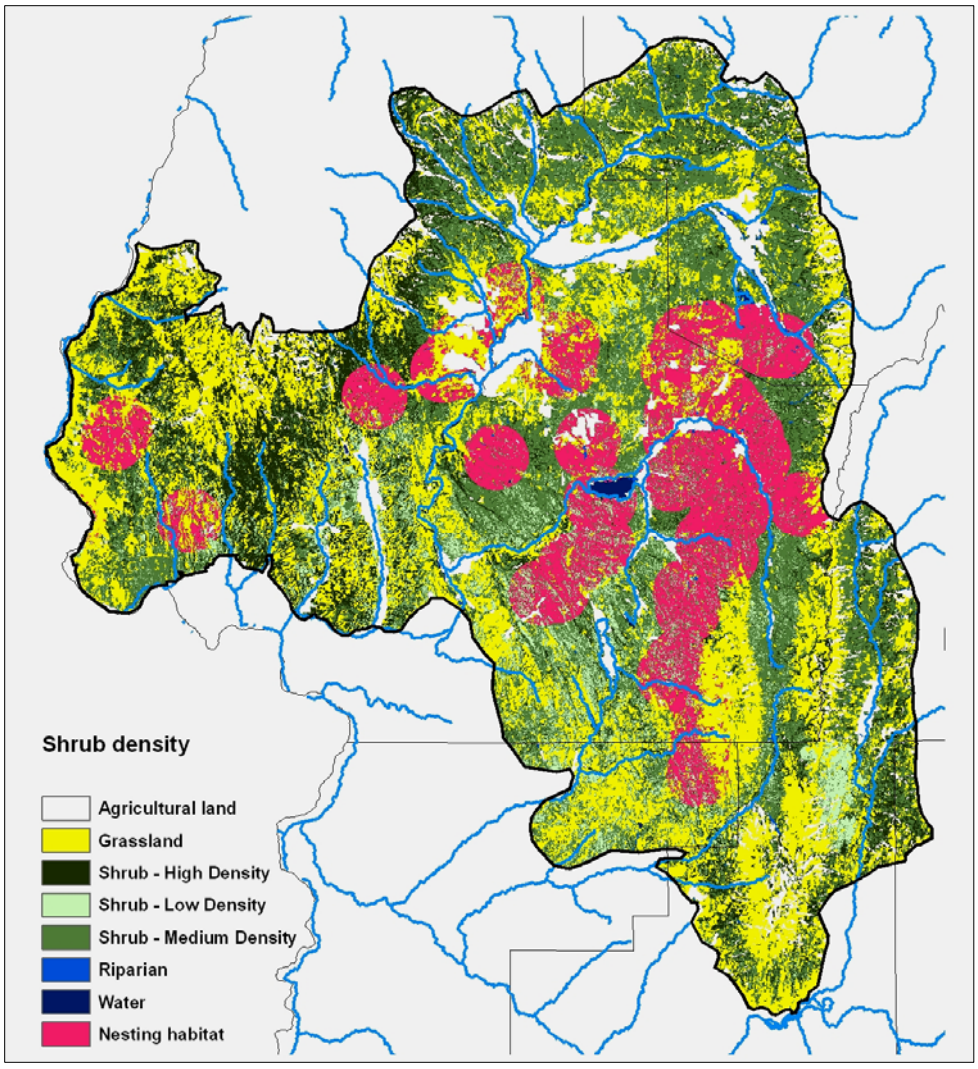


Figure 16. Sage grouse nesting areas (depicted in red) within the West Central Planning Area

The combination of established leks, nesting areas and the area where telemetry data indicate frequent use by grouse allows for the identification of general "important" areas. It is important to note that such areas depict present conditions, but does not identify areas where land uses or historic events have reduced habitat values so that they are no longer "important" by this analysis. However, their inherent physical factors and proximity to currently "important" areas may make them candidates for restoration efforts that could recreate more favorable habitat conditions. Figure 17 depicts currently "important" areas within the West Central Planning Area.

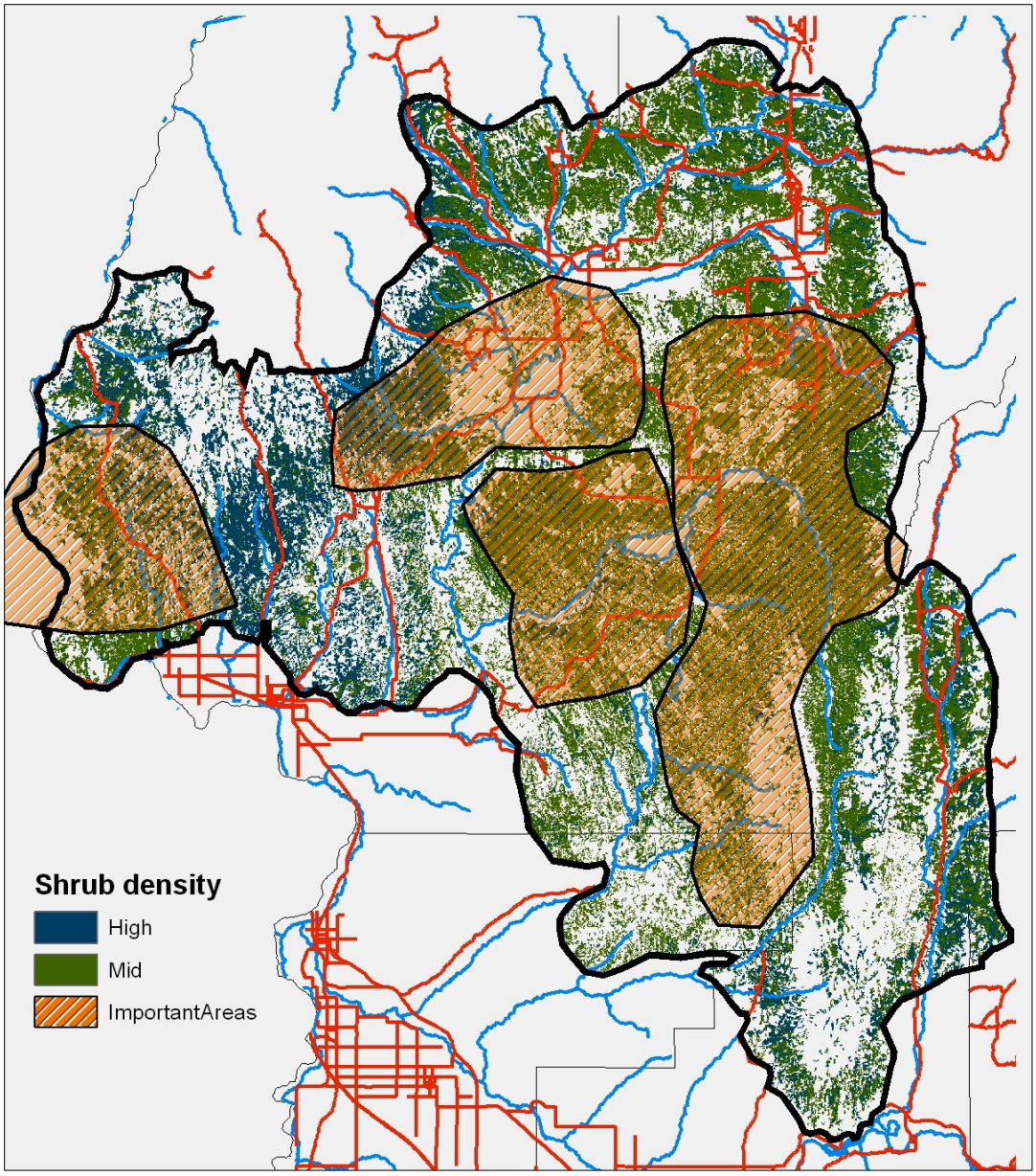
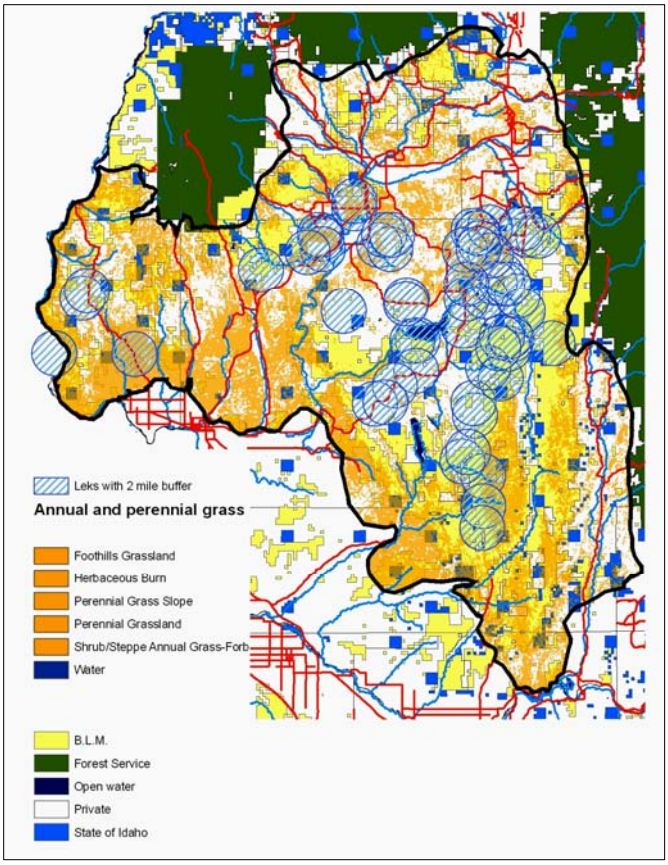


Figure 17. Areas of relatively high importance for sage grouse management efforts in the West Central Planning Area

Finally, it is possible to use the "important" areas as a basis for management decisions and for setting management priorities. Figure 18 combines the currently important areas with grazing allotments, fire history, high shrub density (i.e., high fuel loads) and areas of annual grasses. This should point out both areas where it will be more productive to focus management efforts to reduce threats and create conservation benefits along with those areas where such efforts or additional regulations would have little benefit.



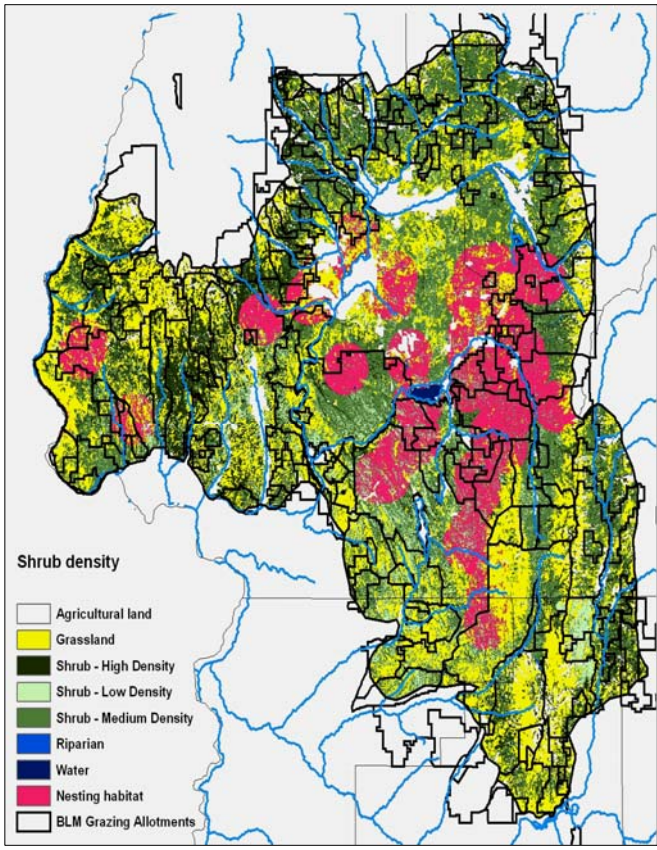


Figure 18. Areas of extensive annual grasses and BLM grazing allotments within the West Central Planning Area

VI. Threats, Barriers and Conservation Actions

Statewide Perspective

In a trend mirroring that seen in other western states, Idaho has experienced substantial alteration and loss of sagebrush steppe habitat since European settlement (IDFG 2006). Overall, from 1965-2003, Idaho's sage-grouse population declined at an average rate of 1.47 percent per year. The most dramatic decline occurred during 1965-1984, when the sage-grouse population declined by an average rate of 3.04 percent per year. Between 1985 and 2003, the average decline slowed, to 0.12% annually. In general, Idaho sage-grouse numbers reached a low in the mid 1990s but have increased since that time (IDFG 2006).

To help better understand this trend in Idaho, the Idaho Sage Grouse Science Panel, facilitated by Steve Morey, USFWS, and Bob Ruesink, retired USFWS, convened in February 2005 to identify threats to sage grouse across the state. Panelists included six scientists with expertise in sage-grouse, range, fire, and landscape ecology: Dr. Steve Bunting, University of Idaho; Dr. Jack Connelly, Idaho Department of Fish and Game; Dr. Steve Knick, U.S. Geological Survey/Biological Resources Division; Dr. Karen Launchbaugh, University of Idaho; Dr. Kerry Reese, University of Idaho; and Dr. Mike Scott, University of Idaho. Others in attendance included Steve Huffaker, IDFG; Jim Caswell, Office of Species Conservation; K Lynn Bennett, Idaho BLM; Ruth Monahan, Sawtooth National Forest Supervisor; and several agency staff members.

This group prioritized the nineteen statewide threats previously identified by the planning subcommittee; their conclusions are shown in the following chart (Figure 16). As the chart indicates, the top three ranking threats as scored by the panel were (1) wildfire, (2) infrastructure, and (3) annual grasslands. Wildfire ranked highest due to potentially large-scale impacts to already reduced habitat, its link with expanding annual grasslands, climate change and drought, and length of recovery times. Annual grass dominance and infrastructure development also ranked high, as these factors can constitute essentially irretrievable losses of habitat. Infrastructure threats to the species also include past and current activities such as rural and suburban development, road and highway development, and utility structures.

Livestock impacts ranked fourth in relative magnitude, with the relatively high ranking partly because of the widespread extent of this factor on the landscape. It was also noted that proper livestock management can provide habitat supportive of sage-grouse, and that if grazing unfavorably impacts habitat conditions or poses a threat to the security of nests or broods, livestock management practices can be adjusted to minimize negative impacts.

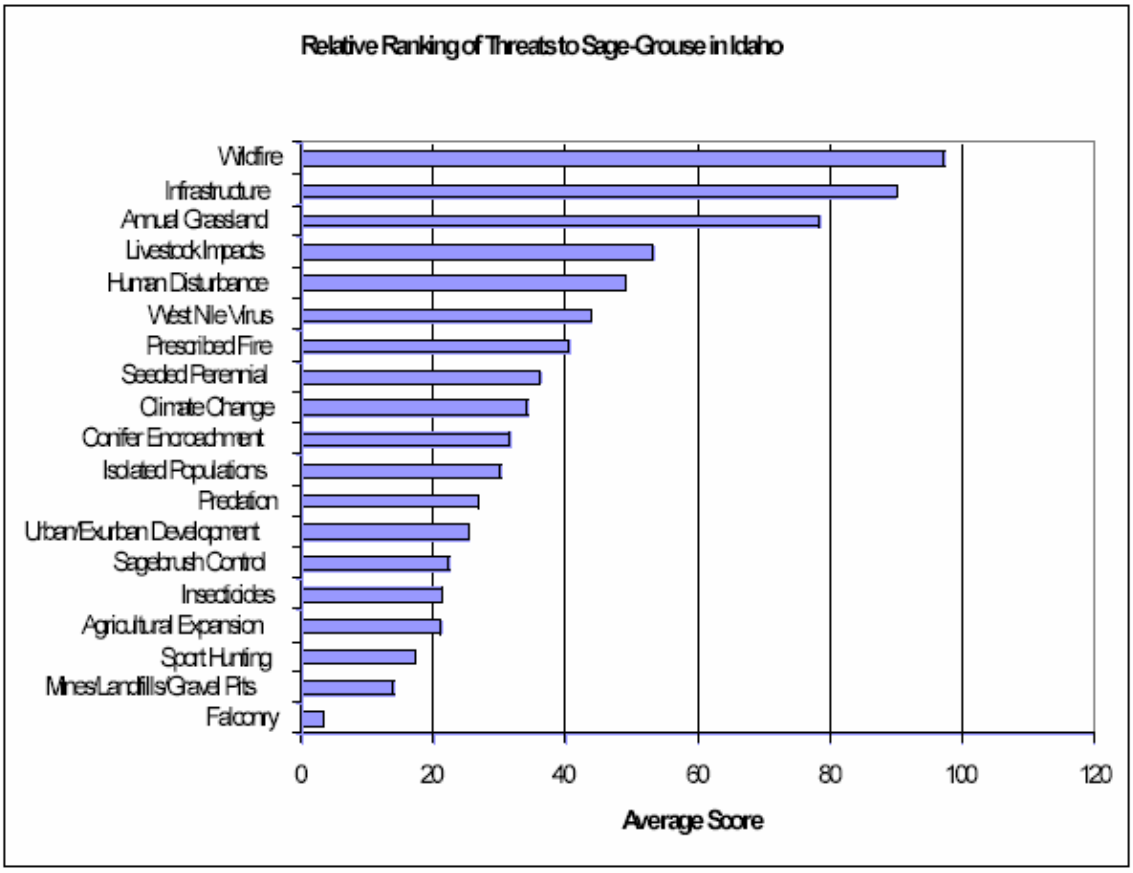


Figure 19—Summary ranking of threats to sage-grouse in Idaho, representing an average of scores assigned by six panelists (State Plan 2006).

The panel also identified specific geographic areas in Idaho and the relative likelihood of sage-grouse extirpation within them, assuming status-quo management and continued trends and trajectories of habitats, populations and threats. The West Central Planning Area ranked first in terms of sage-grouse extirpation risk, due to its isolated nature, high proportion of private property, low sage-grouse population numbers, large amount of annual grasslands, and lack of connectivity with sage-grouse populations in Oregon. The Panel felt sage-grouse populations in the WCPA could be extirpated within 25-50 years without active conservation efforts.

West Central Planning Area Perspective

The statewide plan for sage-grouse lists 19 specific threats to adequate populations of the species. Some of these threats are relevant within the West Central Planning Area; others are not. For example, "conifer encroachment" is a mid-level threat within the state plan, but is not deemed to be a limiting factor to sage-grouse habitat in the West Central area. In addition, some threats manifest themselves on individual ownerships, while others, even if they did exist, are outside the control of any single landowner or land managing agency. Overcoming the limitations posed by "isolated populations" is probably not something that is neither manifested on an individual ownership nor within the power of

an individual landowner to effectively address. Therefore, one of the major purposes of this programmatic agreement and the individual site-specific agreements completed under it is to "break down" the threats and corresponding conservation actions in the state plan into manageable actions that can be completed at the "working group" level and which are effective in mitigating or minimizing the threats as they appear at that level.

As a first step in identifying specific actions to reduce unfavorable impacts to sage and sharp-tailed grouse within the WCPA and increase their survivability, the Working Group has identified a desired future condition for this area that, if achieved, would assure a stable, adequate and healthy population of sage and sharp-tailed grouse. The elements of this condition include the following:

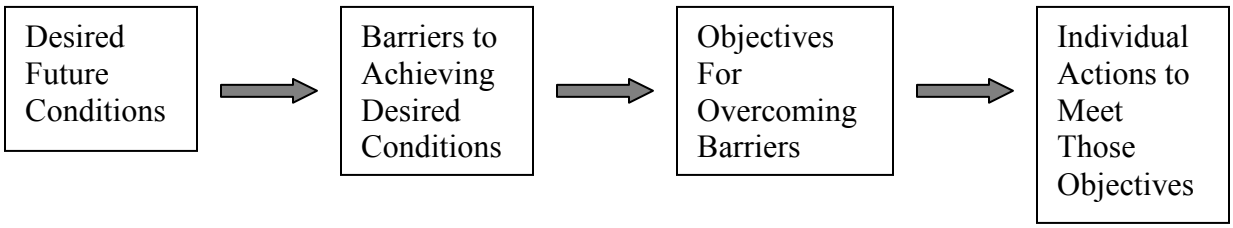
- A landscape where the mixture of vegetative cover approximates the early, mid and late stages of grass-forb-shrub development that the LandFire models indicate as likely for our habitat types (see Section IV).

- Habitat that is largely intact, where future intrusions by roads and human alterations of current land uses are minimized.

- "Connected" habitat where important "patches" are connected to other important patches and where particular attention is given to those activities which might disrupt that connectivity.

- Secure habitat in which any physical impacts to birds are minimized.

Defining a set of future conditions that should result in stable and adequate populations of sage and sharp-tailed grouse allows the identification of barriers to achieving those conditions within the planning area, along with objectives that can be met by participating landowners through their individual plans. These, then, become the basis for the specific conservation actions to be included in the individual landowner agreements that are tiered to this programmatic plan, as illustrated below:



The West Central Local Working Group believes there are eight of these threats that, first, are relevant to the planning area and, second, can be reduced through management actions at the local level, as opposed to a more general threat like "climate change" that cannot be effectively addressed locally:

1. Wildfire that threatens a desirable grass-forb-shrub mixture and which promotes the expansion of annual grasses;

2. Improperly managed livestock grazing that prevents the achievement of a desirable grass-forb-shrub mixture or which disrupts life cycles of the birds;

3. Potential modifications of grass-forb-shrub mixtures through plantings of exotic species or modifications to existing native cover types;

4. Infrastructure, including roads or powerlines, that disrupt habitat connectivity or unacceptably alter the birds' life cycles;

5. Human disturbances, including residential development or recreation that threatens habitat security or connectivity or reduces the size of habitat patches;

6. Poaching or accidental shooting;

7. Predation, where levels of prey/predators are out of balance or where limited patch size and habitat security increase predation levels;

8. Improper use of insecticides, particularly during the period in which sage and sharp-tailed grouse are heavily dependent upon insects as a food source.

These eight "threats" or barriers to a desired future condition for the WCPA become the basis for the conservation actions that are included in both the programmatic and individual landowner agreements. In the judgment of the Local Working Group, these actions, if applied across the planning area by private landowners and public land managers, would result in stable sage and sharp-tailed grouse populations that are achievable for the WCPA and for which threats have been reduced or eliminated. The menu of potential conservation actions that might be applied across the WCPA, the responsibility for implementing those actions and how they compare to the actions envisioned in the state plan are included in Appendix E.

The CCAA Handbook published by the USFWS clearly states the "CCAA standard" against which all CCAAs are to be evaluated:

> "Before entering into a CCAA, however, the Service must determine that the benefits of the conservation measures to be implemented, when combined with the benefits that would be achieved if it is assumed that conservation measures were also to be implemented on other necessary properties, would preclude or remove any need to list the covered species. 'Other necessary properties' are other properties on which conservation measures would have to be implemented in order to preclude or remove any need to list the covered species."

As noted in the draft CCAA Handbook, "the development of a CCAA is generally guided by what is needed for a particular CCAA to meet the CCAA standard. With some

species, meeting the CCAA standard may require habitat restoration and a corresponding increase in the number and/or size of the covered species' population, while other species may require only the removal of existing threats." (CCAA Handbook (draft), 2003). The Handbook further identifies four situations for which conservation measures in the CCAA can meet the CCAA standard:

- *Existing Situation Meets the CCAA Standard*
  In this situation, a property owner may have property that is already in suitable condition for the covered species or may already be doing the necessary conservation measures that will maintain its populations or provide habitat such that the CCAA standard is already met.

- *Existing Situation Needs Improvement to Meet the CCAA Standard*
  Lands have suitable and perhaps occupied habitat, but where improvements would be necessary for the habitat values to meet the CCAA standard.

- *Ongoing Take*
  In this situation, a property owner with a candidate species on his/her property is regularly engaged in an activity that results in what would be considered "take" of that species if it were listed.

- *Voluntarily Forgoing an Action That Would Harm a Candidate*
  Landowners agree to forego or delay actions that might otherwise "take" a species if it were listed.

The combination of this guidance from the draft Handbook and the array of conservation actions described in the state plan paves the way for a West Central Planning Area strategy that includes specific actions to either "conserve" habitat that is already suitable, "enhance" that in which improvements can be made or "restore" habitat that has values for sage and sharp-tailed grouse but which have been greatly reduced by past actions. There are also opportunities to reduce direct "take" and to forego harmful activities in the West Central conservation actions.

Several of the barriers to a desired future condition deserve special mention. Exurban development, in the form of rural subdivisions and small acreage "ranchettes," is rapidly becoming a major factor on the landscape. Figure 17 shows new domestic wells (a surrogate for new houses, since virtually all rural residences in the planning area are associated with a well), together with sage grouse telemetry locations through 2006. The increase in wells over the past decade illustrates the threat that rural residential development poses to maintaining large grouse habitat patches and the connectivity between them.

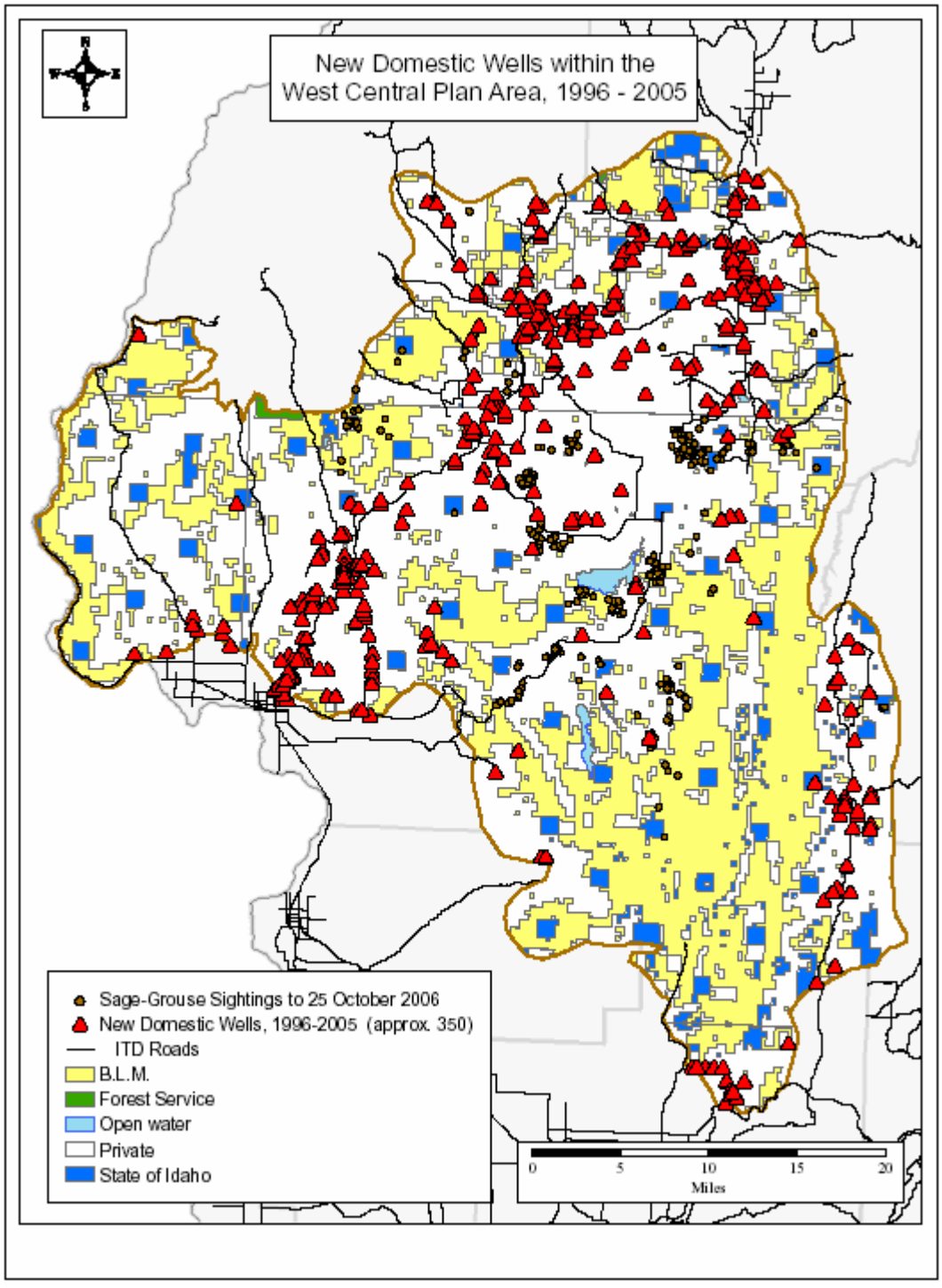


Figure 20—Growth of ex-urban development within the West Central Planning Area.

Another potential threat to sage-grouse is the confirmation of West Nile virus within the WCPA. Numerous human and equine cases of the virus have been confirmed in 2005 and 2006, and at least one sage-grouse within the WCPA fell victim to the disease as of January 2007. During the summer of 2006, Idaho had more human cases of West Nile virus than any other state. In the Owyhee SGPA in the southwest corner of Idaho, sage-grouse mortality due to West Nile prompted IDFG to close the 2006 sage-grouse hunting season west of the Bruneau River (IDFG 9-2006).

Grazing

Grazing of cattle and sheep are perhaps the dominant land use within the WCPA. Indeed, the relatively large ranching landscapes have helped create habitat that is largely intact and without the roads, powerlines and human intrusions attendant to more intensive land uses that have degraded habitat in so many areas throughout the range of sage and sharp-tailed grouse. However, there have been unfavorable impacts as well, particularly in areas where intensive grazing coupled with purposeful removal of shrub communities have altered native vegetation and the normal distribution of successional stages in sagebrush-bunchgrass communities.

The challenge in managing grazing impacts lies with the ability of ranchers to readily identify unfavorable conditions and to rectify them. This is not always easy—sagebrush-bunchgrass communities are inherently arid, and changes in vegetative composition are subtle, often not recognizable until the adverse trend is well-established. From a rancher's perspective, he or she is limited in his ability to change vegetative conditions over time by the management of his herds, specifically where and when they graze, for how long and in what numbers. These decisions, coupled with fences, gates and herding techniques, constitute the vast majority of what is available in the ranchers' toolbox.

In order to help ranchers readily identify when grazing duration or numbers might be unfavorably impacting sage-grouse nesting and brood-rearing habitat, Steve Leonard, a retired BLM range scientist and member of the team of authors of this plan, devised a simple tool to "eyeball" when grazing is beginning to have an impact. Shrubs, particularly those that are young and vigorous, invariably have grass growing within their shade or the "dripline" defined by the shrub's canopy cover. This grass grows amidst the dead twigs of the lower portion of the shrub. For a cow, pushing under shrubs to get this grass is difficult. It is the grass of last resort, for the dead branches stick the cow's tender nose. But this grass and the cover afforded by it and the shrub itself also constitute important nest and hiding cover for sage-grouse. Therefore, there is a mutual benefit to both cows and grouse if grass within the dripline of these shrubs can be left ungrazed and cattle rotated to another pasture when they begin to push under the shrubs for this last bit of grass.

Figure 18 illustrates the grass under shrubs and how its density and height compare with relatively heavily grazed areas between the shrubs. So long as landowners and managers monitor the condition of the grass under the shrubs and move cattle as this dripline forage begins to be grazed, most of the requirements for adequate nesting and brood-rearing of sage-grouse, in particular, will likely have been met. In fact, there is probably some

benefit to relatively intense utilization of the grass between shrubs, since these become insect forage areas for grouse chicks and tall grass would impede their movements within these areas. While this monitoring method is open for additional scientific scrutiny, it may be a useful field guide to grazing intensity, particularly in the absence of other, perhaps more scientifically tested methods.

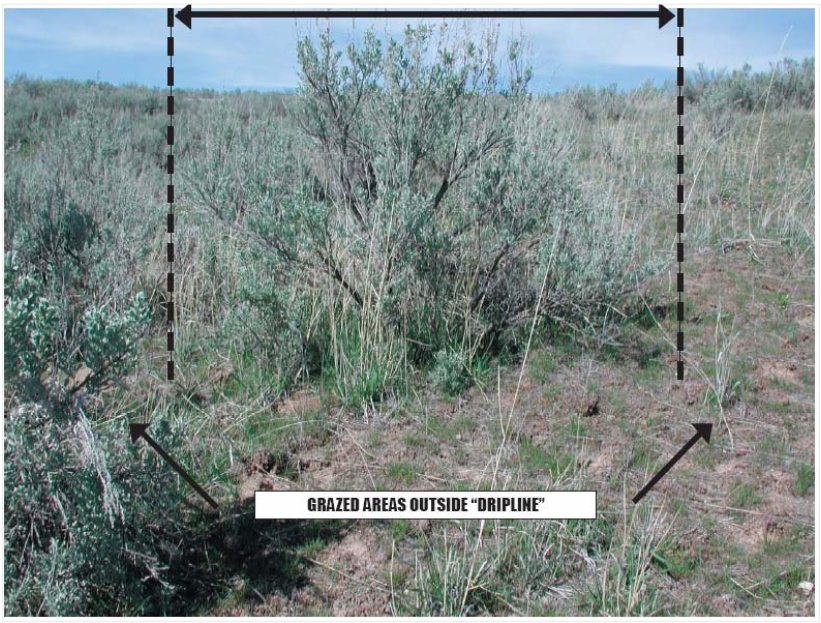


Figure 21. Grass under shrubs should be maintained for nesting and brood-rearing habitat.

Fire and Restoration

Fire is a perennial threat to grouse habitat. However, the effect of fire can be both transitory and beneficial by helping to maintain a mosaic of vegetative conditions that, across a wide landscape, support various seasonal and life cycle needs of the grouse. The larger threat posed by wildfire is the potential for burned areas to become colonized by noxious weeds and annual grasses. Between 1990 and 2003, more than 48,200 acres of sage-grouse habitat within the WCPA burned (Figure 20). This acreage constitutes 6 percent of the potential sage-grouse habitat in the area (State Plan 2006). GAP classification (coarse scale) shows 9 percent of the nearly one million acres in the West Central Planning Area as annual grasslands. Rehabilitation of annual grasslands found in the drier areas (12-14" precipitation) with poor soils and difficult terrain involves high economic cost with low probability of success.

USGS GAP vegetation data indicate the WCPA is currently about 32 percent perennial grassland and perennial grass slope (Figure 13). Much of the difference between potential and present condition may be due to re-seeding of early marginal farmlands. In addition, many of the GAP classified grassland types appear to have patchy sagebrush scattered throughout and the apparent difference simply may be due to differences in classification criteria.

The GAP classification describes about 9 percent of the area as Shrub Steppe Annual Grass Forb. Much more area is affected by annual grasses to some extent. Cheatgrass and Medusahead are the primary annuals. Both of these grasses are flammable exotics that can increase the fire return interval to as little as two years (Whisenant 1990), thereby creating annual grass monocultures of little economic or ecological value.

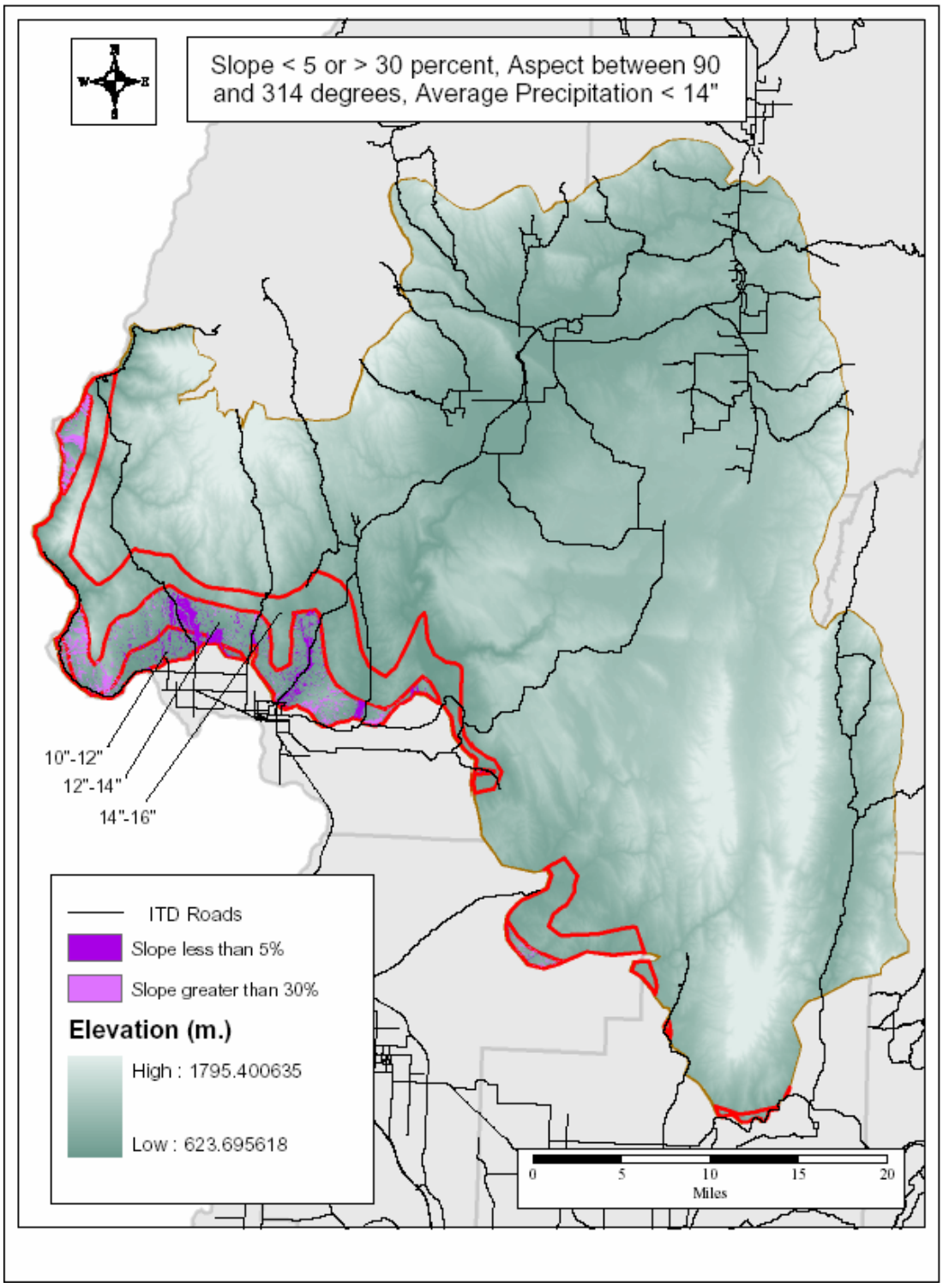
Cheatgrass and fire effects

Suring and others (2005) propose a model for the risk of cheatgrass displacement of sagebrush and other native vegetation in the Great Basin. The rapid and aggressive spread of cheatgrass has been facilitated by a number of ecological traits that allow it to out-compete native species for water and nutrients on sites where it is adapted. Model parameters include slope, aspect, elevation and landform. The higher precipitation at similar elevations and lower elevations encountered for similar vegetation cover types in the WCPA suggest that the model parameters for elevation would have to be lowered considerably but that general relationships would likely remain similar.

Professional opinion based on empirical observations in the WCPA suggests that cheatgrass—and Medusahead on some soils—displacement of native perennials is of greatest concern in the drier areas below 12 to 14 inches of precipitation. Flat areas are especially susceptible. South and west exposures are also more susceptible to invasion than northern exposures, especially at slopes greater than or equal to 30%. The combination of slope and aspect may raise the elevations expected to be at risk according to Suring and others (Figure 19).

Response of native perennial grasses to fire is highly variable depending on fire conditions (intensity, timing, etc.) Great Basin wildrye, bottlebrush squirrel-tail, and bluebunch wheatgrass are most fire tolerant but may still take two years or more to recover to pre-fire cover and production (Monson and others 2004). Idaho fescue appears to have moderate fire tolerance but varies widely with fire conditions. Sandberg bluegrass can be fire sensitive (varies widely), but post-burn recruitment is usually high. Needle-grasses, including Thurber needle-grass, are most sensitive but some may have high post-burn recruitment.

Figure 22—Areas of WCPA susceptible to cheatgrass displacement of native species, based on slope, aspect and elevation (Based on model by Suring 2005).



Sites currently dominated by fire-tolerant species in the understory are most likely to maintain a natural dynamic associated with sagebrush developmental stages, but cheatgrass displacement may still be possible, especially in times of additional stress by drought, disease or excessive grazing. Recruitment from seed is often required for recovery of plant diversity even when dominance of fire-tolerant species is maintained. Natural recruitment of native species in arid and semi-arid environments can best be described as episodic. Successful reestablishment of native perennial grasses in more arid regimes is often dependent on two or more successive years of favorable precipitation, a condition that occurs only about once per decade on average in the Pacific Northwest (Leonard, personal investigation of Western Regional Climate Center data). Competition from exotic annuals such as cheatgrass and Medusahead further exacerbates establishment and maintenance of young stands of native species, even in favorable years.

As precipitation increases, the ability of cheatgrass to out compete natives for moisture and nutrients decreases. The higher potential productivity and density of native understory grasses may also allow for faster recovery rates of fire-tolerant species. Greater escapement of less tolerant species to provide a viable seed source along with a proportionally higher soil seed bank may also lead to faster recovery of understory diversity. Natural dynamics associated with sagebrush development stages become more dependent with pre-fire vegetation composition and post-fire management.

Because the invasive nature of cheatgrass (and Medusahead) is further facilitated by fire below the 12- to 14-inch precipitation zone, wildfire and prescribed fire to a great extent must now be considered a threat to achieving natural ecological dynamics associated with sagebrush community development stages and associated habitat. In higher precipitation zones, both wildfire and prescribed fire are probably best considered as management options, considering habitat needs as well as infrastructure and economic sustainability of the agricultural land base.

Potential restoration

Artificial seeding establishment of native perennial species in lower precipitation zones has been problematic at best because of generally low germination and viability of many adapted native plant seeds, uncertain precipitation, ability to provide proper seed bed preparation, equipment limitations and, of course, competition from exotic annuals. Some large scale success such as that documented by Thompson and others (2006) provides some optimism that native seed mixes can provide similar weed suppression to traditional seed mixes of introduced perennials such as crested wheatgrass when applied after wildfire. Substantially greater costs were incurred in the native seed treatments and precipitation was favorable during the establishment period. Control of annual exotics appears to be necessary for establishing native perennials after the invasive annuals already become established.

Control of annual exotics has been costly and unreliable during the establishment period for perennial grasses. Establishment of sagebrush with proper site preparation is

somewhat more successful in terrain that allows tire presses or other mechanisms to press broadcast seed into the soil surface, but stand maintenance is unlikely in light of increased fire probabilities as long as flammable exotics dominate the understory.

The most cost-effective and potentially successful reclamation may involve the use of introduced perennial grasses such as crested wheatgrass. Crested wheat grasses can out-compete the annual exotics and reduce fire probabilities when seeded to appropriate sites. This introduced grass at least approximates the growth form and structure of native species, and both sagebrush and perennial native grasses can be inter-seeded with greater probability of success, given proper site preparation. Grazing management must then follow prescriptions suitable for native rangelands rather than for tame pasture as traditionally practiced (Pellant and Lysne 2005). Cox and Anderson (2004) demonstrated greater native plant establishment under four different treatments in established crested wheatgrass than in areas dominated by cheatgrass, even in normal to below normal precipitation. Continued use of introduced perennial grasses appears prudent on a limited basis until more reliable and cost-effective reclamation techniques are developed for native species in the more arid environments.

Restoration of higher precipitation zones is more often a matter of management for desirable native perennials than direct intervention with seeding unless sites have become invaded by noxious weeds such as Rush skeletonweed, knapweeds or Scotch thistle. Weed control followed by seeding competitive species and management is then necessary. Seeding suitable native grasses and/or sagebrush species may also be a viable option where these species have become scarce from historical farming or grazing practices and if support can be garnered to offset high seed and planting costs.

Intermediate wheatgrass has been seeded extensively for livestock forage and soil stabilization at higher precipitation zones with good success. Intermediate wheatgrass has high viability, low cost, is resistant to grazing pressure and can provide suitable dryland hay as well as providing some habitat value as demonstrated on CRP lands. Intermediate wheatgrass, like crested wheatgrass, is a very competitive perennial and well established stands require control in the form of tillage or herbicides to introduce native perennials if desired. However, native grasses such as bluebunch wheatgrass and Idaho fescue might also be a viable option if support can be garnered to offset higher costs.

Restoration efforts that rely upon prior establishment of non-native grasses as an intermediate step toward full restoration of native grass/shrub/forb communities may have promise. However, there are cautionary notes. First, “intermediate step” is an important concept and landowners must commit to the subsequent actions of planting native shrubs and grasses rather than remain content with a stand of the introduced grass. Second, potential impacts on other sensitive species like southern Idaho ground squirrels should be considered. Third, it will be important to evaluate existing and recent efforts to make sure that the approach is likely to succeed in a given situation.

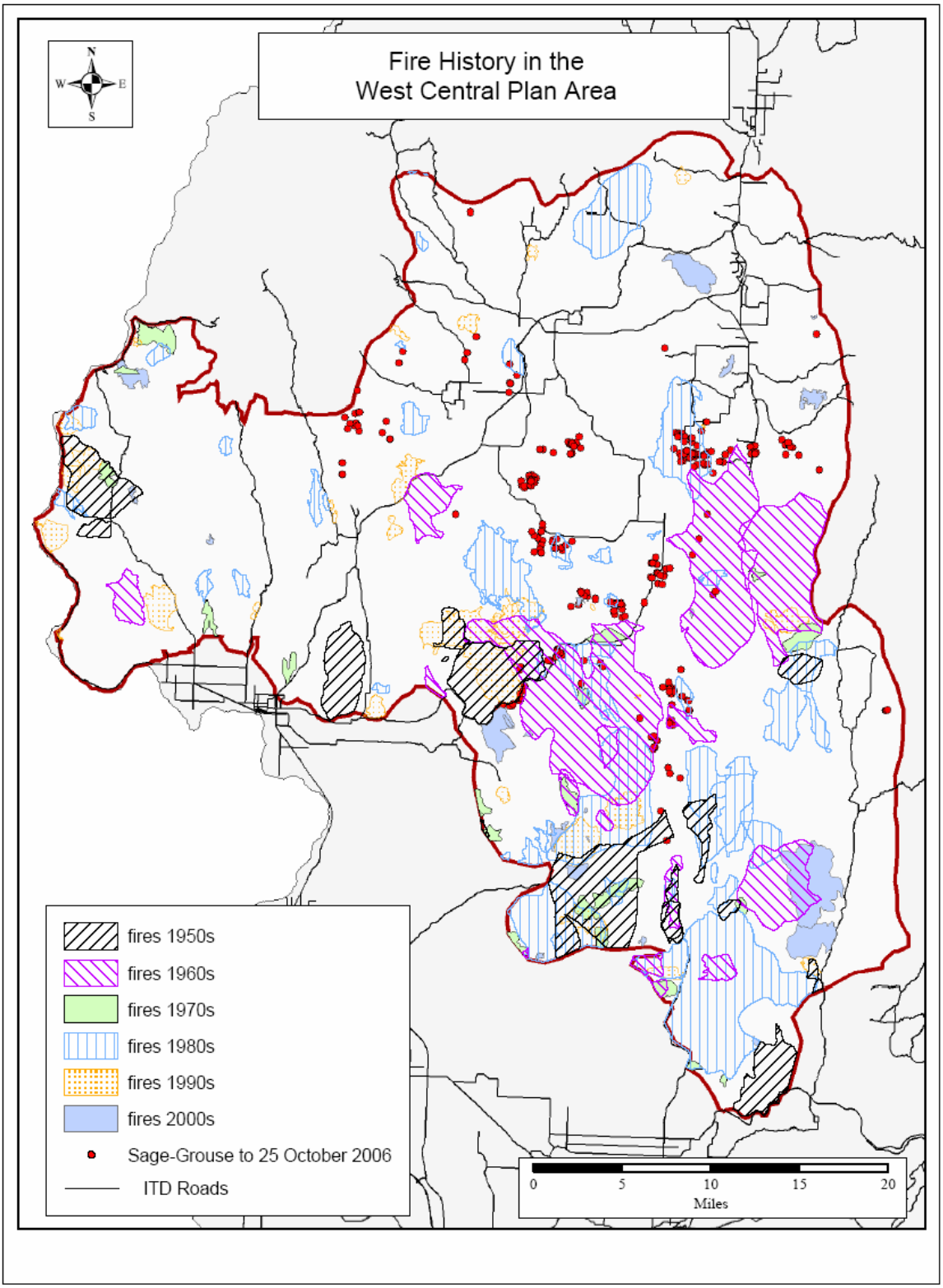


Figure 23—Wildfire history of the West Central Planning Area (Based on BLM data 2006).

VII. Conservation Measures and Obligations of the Parties

The Nature of a Landscape Agreement

As noted earlier in this agreement, the West Central Planning Area is a complex mix of land ownerships, land uses and habitat types. Coupled with the wide ranging characteristics of sage-grouse, particularly, it becomes virtually impossible to effectively provide for all the needs of the species within the bounds of a single ownership. Rather, the survivability of the bird is ultimately a function of maintaining the variety of habitat types it needs over the entire landscape. In this regard, the LandFire models described in Chapter 3 can provide a valuable guide to habitat types and shrub density at the landscape scale. However, the use of these models should not imply that it is reasonable to expect a replication of these predicted conditions at a finer scale such as an individual ownership within the larger landscape where the conditions described in LandFire might reasonably be expected.

In a practical sense, successfully managing sage-grouse (and to a lesser extent sharptails) on a given ownership often depends on assuring that proper habitat exists on the adjoining lands. For example, an irrigated pasture, in isolation, provides little in the way of nesting or brood rearing habitat and the owner of it is probably not inclined to convert it back to the shrubs and bunchgrasses that might "correct" this condition. However, if suitable nesting and rearing habitat exists nearby on other lands, then that irrigated pasture might well serve a very important role as a producer of the insects and forage area that is equally necessary for chick survival and growth. Therefore, the West Central LWG has chosen a programmatic CCAA for the entire planning area as the proper way to address the interdependency of habitat types and management actions necessary to meet the goal of a stable and adequate population of sage and sharp-tailed grouse across the landscape of the planning area.

Within this landscape, public lands are dispersed and intermingled with private ownerships, with no way to easily distinguish the two in many areas. There are few fences that delineate public and private ownerships and, generally, both ownerships are used for identical purposes, usually livestock grazing, and managed identically. It must be noted, however, that the inability to readily differentiate between the two ownerships on the ground does not result in any relaxation of the requirements of the Endangered Species Act. Indeed, very different standards apply to each, with private landowners responsible to assure their actions refrain from "taking" a listed species, while BLM and Forest Service managers must avoid all "jeopardy" to the same species.

This situation poses real management challenges to both public agencies and private landowners, should a species be listed as "threatened" or "endangered." In that case, BLM and the Forest Service would have an immediate duty to enter consultation with the US Fish and Wildlife Service and devise the terms and conditions under which existing activities like grazing could continue in a manner that avoids "jeopardy" of the newly listed species. It is not unlikely that those terms and conditions would be different from current practices and create conflicts for those who either use the public lands or who

have adjoining, unfenced private lands. For example, consultation might result in a June 1 livestock turnout date to better protect grouse nests and young broods. If the traditional, range-ready turnout date is March 15th and the adjoining landowner has no desire or plans to modify his turnout on the adjoining but unfenced private lands, then there will be conflicts.

One approach to minimize these conflicts and maximize benefits to sage and sharptailed grouse is for the BLM, which manages over 30% of the planning area, to become an active cooperator in both the programmatic plan and the site-specific agreements with individual landowners. This inclusion of the BLM lands will comprise, (1) Identification of those conservation measures that are most applicable for public lands and those which other entities might undertake, but in which BLM will have a substantive role; (2) Analyzing those conservation practices as they apply to BLM lands within the planning area through the NEPA analysis that accompanies this agreement; and, (3) Incorporating appropriate conservation actions in cooperation with the Local Working Group and participating landowners as provisions of grazing management plans or individual grazing permits. The application of the relevant conservation practices in this plan will be made either through request of individual participating landowners or through BLM's normal review and revision of its management plans for grazing allotments. The following subsection of this agreement further details the relationship of the agreement and the management of BLM lands (page 77).

Conservation Actions and Who Can Best Implement Them

There is the question of the proper entity to assume responsibility for implementing the conservation actions at the "working group" level that are identified in this plan, including public agencies, the LWG or individual landowners. In some cases, each may have some role. For example, in the state plan there is a conservation action stating that "LWGs, land management agencies, IDFG and other partners should work closely together to identify and prioritize annual grassland areas for restoration. Work cooperatively to identify options, schedules and funding opportunities for specific projects." This action anticipates efforts by various agencies and the LWG but doesn't mention individual landowners, probably because it is impossible for individual landowners to complete, per se. This programmatic agreement, however, accepts this general proposal, but recasts it in terms of how it might actually be implemented in the planning area. As such, the implementation steps under this agreement might include:

Landowner Level
Participating landowners will have detailed GIS-based maps of the vegetative cover on their lands, along with shrub density, soils, slope and aspect and topographical features. From these data and the landowner's experience, it will be possible to identify possible areas for restoration at the "pasture" scale.

Working Group Level
The programmatic agreement includes GIS-based identification of relatively large areas of annual grasslands and the ownerships where they exist. Such data,

coupled with areas identified by individual landowners, represent a "first cut" at the extent and location of the problem locally.

Public Agency Level
With the input of the Local Working Group and individual landowners, areas that have the highest priority for successful restoration and which would have the greatest benefit to sage and sharp-tailed grouse can be identified with accompanying efforts to secure funds for individual projects.

The threats and the menu of accompanying conservation measures that might address them as identified in the state plan and those which are most relevant for the WCPA are summarized in Appendix E. In addition, the analysis presented in Appendix E also describes conservation actions identified in the state plan and the implementation of those actions that are most relevant for the WCPA, including the entities responsible for those implementation actions.

It is equally important to note that simply maintaining landscapes where there are already relatively large populations of grouse is, in itself, a conservation action, and entirely consistent with the guidance found in the draft CCAA Handbook (page 63 *"Existing Situation Meets the CCAA Standard"*). The LWG recognizes that one of the major barriers to achieving a desired future condition in the planning area is human disturbance, particularly actions which purposefully change existing land uses from farms and ranches to developed residential or recreational sites. Such changes must be viewed as permanent and preemptive of all habitat conditions that are vital to sage- and sharp-tailed grouse. While it might be argued that such traditional uses of rural lands as farming and ranching might diminish the value of grouse habitat, those uses seldom extinguish it. However, if those farmers or ranchers choose to discontinue those operations in favor of land uses that include various developments, then no incentive program or mitigative action can ever fully compensate for that impact.

For that reason, an overarching conservation action include creating a climate in which existing farmers and ranchers find it attractive to continue their current operations and to pass them along to future generations who want to maintain them. Since most ranching operations in this planning area are dependent upon public lands grazing as a vital component of their operation, the provisions of this agreement that encompass the management of the BLM lands in the area and which increase the certainty that ranchers can continue to rely upon these lands become an important component of what is necessary to achieve the desired future conditions.

The conservation measures referenced in the preceding chapter and further identified in Appendix E are intended to reduce threats to sage- and sharp-tailed grouse habitat and populations that are controllable by non-federal landowners and federal land managers within the WCPA. Each site-specific plan will identify in detail how the applicable conservation measures would be implemented on an individual landowner's property, considering the existing grouse population and habitat conditions and the landowner's planned land use activities. In the site-specific plan, participating landowners must agree

to implement specific measures applicable to their specific lands and land uses under all of the conservation categories identified below that are within their control on their property.

In order to qualify for approval, the participating landowner's site-specific plan must result in the reduction or elimination of threats to grouse habitat or populations on the enrolled lands, coupled with actions to conserve suitable habitat, or enhance or restore habitat where values have been diminished. These conservation benefits must be such that, if one assumed that comparable conservation measures were implemented on all necessary properties, the combined benefits would preclude or remove the need to list sage-grouse and sharptails as a threatened or endangered species under the ESA (CCAA Handbook). Specific implementation details would be developed cooperatively between each participating landowner and the agencies and identified in the site-specific plan based on the dual purposes of satisfying the landowner's land use objectives and providing for grouse conservation needs. The conservation and other measures identified in this agreement are general obligations and will be identified in greater detail in each participating landowner's site-specific plan. In addition to those conservation measures, as specified in Appendix E, each party to this agreement accepts the following general obligations.

Participating landowners

1. Implement habitat maintenance or enhancement measures on the enrolled lands to benefit sage- or sharp-tailed grouse as agreed upon in the site specific agreement. These measures could include, but are not limited to, maintenance of vegetation currently providing adequate grouse habitat, seeding plant species, prescribed burning, and actions designed to create or maintain a mix of early, mid and late developmental stages of habitat which approximates the mosaic of native habitats that would be anticipated by the LandFire models or other best available information as it becomes available.

2. In a manner consistent with existing law, prohibit sage- and sharp-tailed grouse shooting, trapping, or poisoning to protect individual grouse and grouse populations.

3. Implement measures to minimize the effects of land use activities on individual sage and sharp-tailed grouse populations as agreed upon in the site-specific agreement, including measures to minimize direct mortality of sage or sharptailed grouse from farm and ranch operations.

4. Consider translocation of sage- and sharp-tailed grouse into unoccupied suitable habitat if necessary for grouse population conservation purposes.

5. If appropriate, assist in the control of predators of sage- or sharp-tailed grouse.

6. Allow agency access to the enrolled property to identify or monitor sage- and sharp-tailed grouse leks and nesting areas, document habitat conditions, implement conservation measures, and monitor effectiveness and compliance with the Agreement and site-specific plan. Landowners will be personally notified 48 hours in advance by the agency biologist with a time, location, and name of all persons entering the property. Landowners are always allowed and encouraged to accompany agency personnel during monitoring. Nothing in this agreement means the enrolled lands are open to public access for hunting or any other purpose.

7. Actively pursue available funding, if necessary, to implement the site-specific plan; for example, providing in-kind cost-share or application for funds under the Farm Bill, Partners for Fish and Wildlife Program, or the Private Stewardship Grants Program.

8. To the extent feasible, record dates, locations, and numbers of sharptails and/or sage-grouse found on their property to be included in the annual report and for study purposes.

9. Encourage and support appropriate local efforts to protect grouse populations and habitat through adequate fire protection, land use planning and zoning, mosquito abatement, weed control and insect control which recognizes and minimizes the potential impact on sage or sharp-tailed grouse.

10. If needed and feasible, participate in revegetation efforts after wildfires, particularly in the case of fires that are inordinately large or which hold the potential for invasions of unwanted annual grasses. This participation includes applying for available grants and other support programs.

11. Consider non-development agreements or conservation easements as may be available through applicable state or federal law.

12. Report observed mortalities to either IDFG, BLM or FWS within five days of such discovery.

Idaho Department of Fish and Game

1. Administer the Section 10(a)(1)(A) permit issued in association with the Agreement.

2. Develop mutually agreeable site-specific plans in cooperation with participating landowners and agencies.

3. Carry out any responsibilities for implementing conservation or other measures assigned to IDFG under this Agreement and in any site-specific plan, as well as continued studies of grouse habitat, numbers and life cycles, including any studies

of grouse distribution within the planning area and how grouse distribution and anticipated seasonal habitat use corresponds to property owned by individual landowners. This may involve review and updating of the current information on sharp-tailed grouse distribution in the WCPA plus additional fieldwork to obtain new sharptail and sage-grouse distribution and habitat information.

4. Carry out responsibilities for effectiveness and compliance monitoring assigned to IDFG under this Agreement and in any site-specific plan.

5. Provide necessary available state funding to support implementation of the Agreement and any site-specific plan. Actively pursue funding, if necessary, to implement the Agreement and each site-specific plan. For example, such funding could be in the form of ESA Section 6 or other related funding programs or other IDFG programs.

6. Prepare annual reports in accordance with the Agreement and the site-specific plans.

Governor's Office of Species Conservation

1. Develop mutually agreeable site-specific plans in cooperation with participating landowners, USFWS, and IDFG.

2. Actively pursue funding and provide necessary available state funding to support implementation of the Agreement and any site-specific plan.

U.S. Fish and Wildlife Service

1. Develop mutually agreeable site-specific plans in cooperation with participating landowners, the OSC, and IDFG.

2. Upon approval of individual agreements developed subsequent to the approval of this programmatic agreement, issue IDFG a Section 10(a)(1)(A) permit, in accordance with 50 CFR 17.32 (d), that would provide participating landowners authorization for limited incidental take of sage and sharp-tailed grouse and provide regulatory "no surprises" assurances should the species be listed under the ESA. The term of the permit shall be included as part of the site specific agreements. Consistent with Regional USFWS policy, incidental take of sage and sharp-tailed grouse as a result of any pesticide use would not be authorized under the permit.

3. Carry out any responsibilities for implementing conservation or other measures agreed to by the USFWS under this Agreement.

4. Carry out responsibilities for effectiveness and compliance monitoring assigned to USFWS under this Agreement.

5. Provide necessary available USFWS funding to support implementation of the Agreement and any site-specific plan. Actively pursue available funding, if necessary, to implement the Agreement and each site-specific plan. This could be in the form of ESA-related funding or other USFWS funds, for example.

6. Assist the IDFG in reviewing annual reports, prior to their finalization, in accordance with the Agreement and the site-specific plans.

Bureau of Land Management

1. The Bureau of Land Management, in the course of periodic rangeland evaluations and/or grazing permit renewal efforts, will cooperate with permittees to the extent possible in implementing the CCA/A.

2. Consider further participation in this agreement as a party to site-specific agreements if the participating landowner also has BLM grazing permits on lands that are adjacent to the enrolled private lands or within the WCPA as further described in Chapter XIV of this document.

3. Provided the agency does participate in the individual site-specific agreements, incorporate before the beginning of the next grazing season where feasible the provisions of that site-specific agreement as terms and conditions of the grazing permits of the landowner for the BLM lands to be enrolled in the site-specific agreement.

4. In the event either greater sage-grouse or Columbian sharp-tailed grouse is listed as "threatened" or "endangered," evaluate and seek the approval of the provisions of any site-specific agreement, including any resulting terms and conditions included as part of the participating landowners' grazing permits, relative to those that are necessary to prevent "jeopardy" to the species as described in the ESA and any relevant implementing regulations. If it is determined that additional terms and conditions are necessary to preclude jeopardizing the species, document these, why they are necessary and provide this documentation to all the parties to this Agreement, as well as participating landowners.

5. In cooperation with the Idaho Department of Lands, Forest Service, local fire districts and the relevant units of local government, identify areas of mid to late developmental stages of vegetative cover (primarily sage and bitterbrush areas) which are important to maintaining large, important and connected areas of habitat which should be protected from wildfire. Modify fire management plans as needed to incorporate these areas as high priorities for pre-suppression and suppression activities

6. If desirable and feasible, revegetate grouse habitat after wildfires, particularly those that are inordinately large or which hold the potential for invasions of

unwanted annual grasses. In such cases, BLM will work with the other parties to this agreement to determine seed mixes and revegetation methods.

7. Review and incorporate all relevant conservation actions from either the state plan or this agreement in the land management plans pertinent to the West Central Planning Area.

Responsibilities of those Entities Not Party to this Agreement

This Agreement envisions measures which imply actions by various entities that may not be a party to it, but which have responsibilities and missions that are important to the success of the agreement. These might include the Idaho Department of Lands or the Forest Service with fire protection responsibilities for lands within the planning area. In addition, local governments have responsibilities for mosquito abatement, weed and insect control, fire protection and planning and zoning, all of which carry major implications for the success of this Agreement. Finally, such groups as the University of Idaho or the Idaho Rangeland Resources Commission have information or could help with communications activities that would be helpful to achieving the objectives of this agreement. Those who are party to this Agreement will help assure that other entities understand and accept their potential roles in implementing the Agreement.

General Provisions for Site-Specific Agreements

1. Enrollment under the Agreement and coverage of the enrolled lands under the permit would be from the date the participating landowner's lands are enrolled under the Agreement until the end of the permit term by signing the Certification of Inclusion (Appendix B).

2. The site-specific plan will identify, among other things, the current suitable sage or sharp-tailed grouse habitat on the participating landowner's lands. Suitable habitat is defined as any combination of lek, nest, roost, brood- rearing or winter habitat deemed by IDFG at the time of enrollment to benefit Columbian sharp-tailed grouse or sage-grouse. It will also include potential habitat where restoration to native shrub/bunchgrass communities is a possibility.

VIII. Expected Conservation Benefits

As identified in the USFWS's Candidate Conservation Agreement with Assurances Final Policy (USFWS and NMFS 1999), the USFWS must determine that the conservation measures and the expected benefits, when combined with those benefits that would be achieved if it is assumed that similar conservation measures were also implemented on other similar properties, would preclude or remove the need to list sage and sharp-tailed grouse. When making a decision to list a species under the ESA, the USFWS is required to determine whether the species is threatened by any of the following factors: (1) the present or threatened destruction, modification, or curtailment of its habitat or range, (2) overutilization for commercial, recreational, scientific, or educational purposes, (3) disease or predation, (4) the inadequacy of existing regulatory mechanisms, or (5) other natural or manmade factors affecting the species' continued existence. While there are threats to the sage- and sharp-tailed grouse related to each of these factors, the Agreement also includes measures to reduce threats which would otherwise impact the survivability of the species.

Present or Threatened Destruction, Modification, or Curtailment of Habitat or Range

Habitat destruction and deterioration appears to be a leading cause of the population decline of sage- and sharp-tailed grouse. As is true throughout much of the West, invasion of exotic annual grasses has changed the species composition of vegetation and has altered the fire regime in a perpetuating cycle throughout much of the range of these grouse. This alteration has served to eliminate many important areas of sagebrush, although to a lesser extent within the West Central Planning Area. Diversity of native forbs, grasses and shrubs decreases where these exotics take over.

The second cause of habitat loss and the one that is perhaps more significant throughout the WCPA is human-induced conversions of key habitat to other uses with reduced or no benefit to sage or sharp-tailed grouse. Key among these changes is clearing of native rangelands for cultivation or to convert these lands to rural residential tracts and other types of development that fundamentally changes the character of the land. While the former cause has likely reached its limits, the latter is probably just beginning and more conversions to rural residences or small acreage "ranchettes" must be expected. Furthermore, although cultivated grasslands can be highly beneficial for various stages of the grouses' life cycle, the infrastructure associated with other types of human development represents more threat than benefit for these species.

Some have observed that reduction in the size of ranch operations into smaller ownerships with accompanying smaller pastures may be a significant issue. Such disaggregation usually includes more land being converted from rangelands to homesites or other areas of intense human use and to pastures that are occasionally too small to support the livestock placed in them without supplemental feeding. This both reduces the cover and composition of native species and increases the likelihood that livestock will encounter nests or otherwise physically disrupt the birds' life cycles.

Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Neither Greater sage-grouse nor Columbian sharp-tailed grouse can be hunted within the West Central Planning Area. These prohibitions have been in place for many years and no relaxation of them is expected during the term of the Agreement. There is evidence that poaching is a problem and portions of this Agreement include educational efforts designed to help limit losses from illegal hunting.

The Idaho Department of Fish and Game has maintained an active program of trapping sage-grouse and following their movements through radio telemetry for the past two years. Those involved in this effort report minimal levels of unintentional mortality from trapping and collaring the birds and not enough to affect the population (see Appendix C).

Disease or Predation

Because the populations of sage- and sharp-tailed grouse within the planning area are somewhat isolated, a disease outbreak could have a severe effect on these species. This possibility is heightened by the spread of West Nile Virus within the planning area. At least one bird has been found to have been exposed to the disease, although that may not have been the cause of death. Nevertheless, detection of the virus in birds in other areas in the state and the documentation of the disease in humans and horses within the WCPA raise the potential for large scale outbreaks among susceptible species, including sage-grouse in particular.

Predation has also been suggested as one of the causes of the sage-grouse and sharptails' decline. Predators can have a severe impact on prey populations that occur at critically low numbers or where patches of habitat are so small that the opportunity for grouse to escape predators is limited. The results of the telemetry studies provide some insight into current levels of predation. Since radio-collaring of local sage-grouse began in 2005, 12 of 28 collared birds have been killed by predators (Appendix C).

Inadequacy of Existing Regulatory Mechanisms

Currently, both sage- and sharp-tailed grouse are protected by state laws, principally the prohibitions against hunting. There are no zoning or other land use restrictions that protect important areas of habitat from unfavorable land use changes.

Other Natural or Manmade Factors Affecting the Species' Continued Existence

It is possible that grouse are inadvertently taken as a consequence of haying or other farming operations. It is also possible that livestock grazing can impact grouse by disrupting mating or by crushing nests or eggs. Finally, the use of pesticides to control grasshoppers, Mormon crickets, and noxious weeds may have an impact, either through direct contact with individual grouse, by consumption of insects exposed to pesticides (secondary toxicity), or by reducing all insect populations during times when insects make up a crucial part of the birds' diets or through consumption of insects that have

been exposed to pesticides. However, this is speculation and there is no available evidence that would indicate such problems within the planning area. It is also possible that indiscriminate cross-country ATV use may adversely affect grouse during nesting or brood-raising, but there is no empirical evidence of this.

Relationship of the Agreement to the Five Threat Factors

The Agreement is intended to reduce threats to sage and sharp-tailed grouse under each of the five threat categories. Conservation benefits for sage and sharp-tailed grouse from implementation of the Agreement and the site-specific plans are expected in the form of maintenance, enhancement and restoration of sage- and sharp-tailed grouse populations and their habitat. Since non-federal landowners control lands that are proven to be important habitat for sage- and sharp-tailed grouse, conservation of these species would be enhanced by creating a plan that encourages the implementation of grouse conservation measures by landowners.

Foremost among the conservation measures outlined in this agreement and specified in the agreements with individual landowners is the maintenance of key habitats, particularly sagebrush communities in the mid- to late-developmental stages. Participating landowners will agree not to convert the areas of sagebrush in their ownership to other uses or vegetative cover types in an amount that exceeds a percentage of the total sagebrush area to be defined within individual agreements over the term of their individual agreements.

For some landowners, there are opportunities to encourage the establishment of sagebrush and native bunchgrasses in areas where the current vegetative cover is perennial or annual grasses. These must be addressed within individual agreements. There may also be opportunities to encourage forb production or to protect springs, seeps and riparian areas. Other landowners have lands enrolled in the Conservation Reserve Program and these areas can be particularly important for sharp-tailed grouse. As indicated in the site-specific agreements, these lands will be maintained as CRP lands throughout the existing terms of the individual contracts.

The potential extension of the provisions of this Agreement to lands managed by the Bureau of Land Management and the State of Idaho so that the terms of the Agreement can be evaluated as the basis for future consultation, is, in itself, a conservation measure. Not only does it provide for better management of grouse habitat on public lands, it also provides more certainty that the public lands will be available for future livestock production. Since most ranch operations within the planning area are dependent to some extent on public land grazing permits, their future availability with reasonable terms and conditions helps make ranching more attractive and helps keep ranch operations intact. Without access to public lands, many ranch properties become inefficient and unprofitable. When that happens, the owners look for alternatives for their private lands, alternatives which are generally unfavorable to grouse.

Direct mortality from hunting sage-grouse and sharptails is not a potential threat to the species. To date, protection from legal hunting of grouse has been complete since there

are no open seasons for either species within the planning area. Unlawful poaching of grouse remains a problem. However, under the Agreement and site-specific plans, landowners would participate in educational and law enforcement efforts designed to help reduce mortality from poaching or accidental shooting.

While there is little that individual landowners can do to help curtail the spread of West Nile virus among sage or possibly sharp-tailed grouse, participating landowners to this agreement do agree to consider all types of mosquito abatement, since this insect is the major vector for the spread of the virus. Measures may range from support for the creation of a mosquito abatement district to removal of standing or stagnate water as a part of an individual farm or ranch operation. Such provisions will be included in the site-specific plans.

Lastly, site-specific agreements will include measures to minimize direct mortality of sage- or sharp-tailed grouse from farm or ranch operations. These may include training to avoid nesting or foraging sites during haying operations or to disperse cattle away from known nesting sites during periods of egg incubation.

The Agreement addresses the threats to sage and sharp-tailed grouse under all five factors upon which the FWS would base a future ESA listing decision. Conservation commitments include measures to maintain/enhance habitat, loss of which is likely the single greatest threat to sage and sharp-tailed grouse. Conservation measures also include commitments to reduce direct grouse mortality from farming or ranching operations. Should all necessary landowners within the project area participate and provide conservation measures similar to those in this Agreement, a substantial conservation benefit would be realized for the species. The Agreement and site-specific plans are expected to result in a larger number and more widely distributed population of sage- and sharp-tailed grouse. If the Agreement were implemented on all necessary properties, the USFWS believes that the need to list sage- and sharp-tailed grouse would likely be precluded.

Funding

Various state and federal agencies have been active in sage and sharp-tailed grouse conservation and working cooperatively with private landowners and other state and federal agencies to conserve these species for a number of years. Most recently, the agencies have funded grouse survey and research efforts to document population status and identify key habitats. In 2005-06, the IDFG received funding in the amount of _____ through Section 6 of the ESA to fund implementation of sage-grouse trapping and telemetry studies, and additional funds for helicopter surveys of lek sites. Additional telemetry studies are being proposed for future years. In 2006, the Office of Species Conservation dedicated $40,000 for the completion of this programmatic agreement plus three individual landowner agreements tiered to it an amount that was later augmented by approximately $10,000 in 2007.

In order to implement the provisions of this agreement, the agencies and participating landowners will provide funding and in-kind services to the extent possible for the sage and sharp-tailed grouse conservation measures and other measures necessary for the Agreement and site-specific plans. Major potential sources of funds include habitat improvement funds that are a part of various Farm Bill programs; Section 6 ESA funds granted to the states for conservation of listed or candidate species; the Private Stewardship Grants Program; state funds appropriated to the Idaho Office of Species Conservation; state wildlife grants and Landowner Incentive Program funds administered by the Idaho Department of Fish and Game; and the general operating funds of such agencies as the Bureau of Land Management and the Idaho Department of Lands. In addition, private funding sources are available and these will be considered as well. Landowners can participate under this Agreement without funding from the agencies or grants to carry out various provisions of the plan.

XIV. Assurances Provided

Upon approval of the Agreement, and satisfaction of all other applicable legal requirements, the Service will issue a permit, in accordance with Section 10(a)(1)(A) of the ESA, to IDFG authorizing incidental take of sage and sharp-tailed grouse by participating private landowners as a result of land use activities on the enrolled lands. Upon approval and issuance of the necessary permits, the Service will not require additional conservation measures nor impose additional land, water, or resource use restrictions beyond those voluntarily agreed to and described in the "Conservation Measures" section of the CCAA or through lands enrolled through site-specific agreements should the covered species become listed in the future. The permit will authorize incidental take resulting from participating landowners' otherwise-lawful activities as described in the "covered activities" portions of this agreement or in approved individual, site-specific agreements. These activities may include crop cultivation and harvesting, livestock grazing and production, farm equipment operation, and recreational activities (e.g., hunting, fishing, dog training, camping, hiking, and use of recreational vehicles both on and off established roads). The USFWS provides Participating Landowners the ESA regulatory assurances found at 50 CFR §§ 17.22(d)(5), 17.32(d)(5).

Consistent with the USFWS's Candidate Conservation Agreement with Assurances Final Policy (64 Fed. Reg. 32726, June 17, 1999), conservation measures and land, water, or resource use restrictions in addition to the measures and restrictions described in this Agreement and the site-specific plan will not be imposed with respect to the land use activities covered on the participating landowners' enrolled private land should sage or sharp-tailed grouse become listed under the ESA in the future. These assurances are authorized by the enhancement of survival permit issued under Section 10(a)(1)(A) of the ESA for the enrolled lands identified in the site-specific plans. In the event of unforeseen circumstances, the USFWS will not require the commitment of additional land, water, or other natural resources beyond the level otherwise agreed to for the species in this Agreement and the site-specific plans without the consent of the participating private landowners. The permit will authorize participating private landowners to incidentally take sage and sharp-tailed grouse as long as such take is consistent with this Agreement, the site-specific plan, and the permit.

Changed and Unforeseen Circumstances

The CCAA's enhancement of survival permit's regulatory assurances are tied to the effects of "changed circumstances" and "unforeseen circumstances." "Changed circumstances" are those changes in circumstances that can reasonably be anticipated and planned for in the CCAA (e.g., fire, flood, drought). Changed circumstances might include wildfires that naturally occur throughout the covered area and which exceed the historic range of variability for size or intensity. "Unforeseen circumstances" are those circumstances affecting a covered species that could not reasonably have been anticipated

by the permittee and the Service at the time of the CCAA's negotiation and development, and that result in a substantial and adverse change in the status of the covered species

Changed Circumstances

Changed circumstances provided for in the Agreement. If additional conservation measures are necessary to respond to changed circumstances and the measures are set forth in the individual site-specific agreements for enrolled lands, the landowner will implement the measures specified as in the CCAA.

Changed circumstances not provided for in the Agreement. If additional conservation measures not provided for in the CCAA's operating conservation program are necessary to respond to changed circumstances, the Service will not require any conservation measures in addition to those provided for in the CCAA without the consent of the landowner, provided the CCAA is being properly implemented.

Unforeseen Circumstances

(A) If additional conservation measures are necessary to respond to unforeseen circumstances, the Services may require additional measures of the permittee where the CCAA is being properly implemented, but only if such measures are limited to modifications within the CCAAs conservation strategy for the affected species, and only if those measures maintain the original terms of the CCAA to the maximum extent possible. Additional conservation measures will not involve the commitment of additional land, water, or financial compensation, or additional restrictions on the use of land, water, or other natural resources available for development or use under the original terms of the CCAA without the consent of the permittee.

(B) The Service will have the burden of demonstrating that unforeseen circumstances exist, using the best scientific and commercial data available. These findings must be clearly documented and based upon reliable technical information regarding the status and habitat requirements of the affected species. The Service will consider, but not be limited to, the following factors:

(1) Size of the current range of the affected species;
(2) Percentage of range adversely affected by the CCAA;
(3) Percentage of range conserved by the CCAA;
(4) Ecological significance of that portion of the range affected by the CCAA;
(5) Level of knowledge about the affected species and the degree of specificity ofthe species' conservation program under the CCAA; and
(6) Whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild.

Relationship of this Agreement with the Management of BLM Lands

As noted previously, one objective of this agreement is to develop a set of conservation measures, which are (if sage or sharp-tailed grouse are listed) adequate to both meet the federal agencies' obligation to reduce take and not jeopardize the survivability of those species on federal lands and to provide "incidental take" coverage on private lands. However, there is no existing link between actions that private landowners might take to conserve listed or candidate species under Section 10 of the ESA and the term and conditions that federal agencies must adopt to avoid jeopardy of listed species under Section 7 of the Act, even for lands that adjoin, are managed identically and have generally identical characteristics. This Agreement does recognize the importance of working ranching landscapes in maintaining sage and sharp-tailed grouse habitat as well as the importance of BLM grazing permits in assuring the viability of those operations. Toward that end, this Agreement seeks to establish a tie between the BLM grazing permits and the management of the adjacent privately-owned lands in the following manner. The provisions of this agreement will be evaluated through conferencing between the BLM and the FWS which will treat the species as if it were listed at the time of conferencing and determine the adequacy of the conservation measures in this agreement if that were the case. Then, in the event either Greater sage-grouse or Columbian sharp-tailed grouse is listed as "threatened" or "endangered," the BLM and the US FWS will use the results of that conferencing as the basis for the necessary consultation required by Sec. 7. If it is determined in their "effects" analyses conducted during consultation that additional terms and conditions are necessary to preclude jeopardizing the species, the agencies will document these, why they are necessary and provide this documentation to all the parties to this Agreement, including the participating landowners. Finally, this agreement is intended to identify terms and conditions in grazing permits or measures which can be met through changes in "annual operating instructions" and which would be necessary to reach a "no effect" determination for the BLM grazing allotments covered in it.

Specifically, here is the process the BLM will follow in evaluating the provision of this agreement and those of participating landowners within the context of the requirements of the ESA for public lands.

1. Develop a menu of conservation practices suitable for addressing threats within the covered area as well as for protecting, enhancing or restoring habitat values.
Idaho's state sage-grouse plan identifies 19 threats across the state that pose limitations to adequate populations of sage-grouse. Not all of these threats are applicable to each planning area, plus the priorities for addressing those threats are best decided at a local level. Moreover, the conservation actions in the state plan are described in general terms and will be more useful if they can be restated to meet local conditions and threats and in a manner that paves the way for individual landowners to implement them through their site-specific CCAAs. For this agreement, the threats and conservation measures applicable to the WCPA are summarized in Table ___, in Appendix ___.

2. Extend the discussion of "threats" and the identification of conservation measures to BLM lands.

While this agreement discusses desired future conditions, threats to achieving those conditions and conservation measures that will help alleviate those threats across a landscape of intermingled public and private lands, there are distinctions to be made between the two ownerships. First, the "assurances" provisions of this agreement cannot be conveyed to BLM's management activities through this agreement, as they can to covered activities on private lands, should the covered species be listed. As a matter of policy and law, the analysis of BLM activities must come through consultation completed under the provisions of Sec. 7. Second, some threats and conservation actions are irrelevant for BLM lands—exurban development, for example—even if those threats are significant across the landscape.

To make a more useful tie between the state plan and BLM's future management actions, there is a need to analyze threats and needed conservation measures on BLM lands, just as Appendix E represents the parallel effort on private lands. The same analysis will look at applicable practices to meet standards set forth in the "Standards and Guidelines for Rangeland Health" as they apply to sage-grouse habitat and management. This analysis will result in the menu of conservation actions that would be applied to BLM lands as allotment management plans are reviewed and any needed new terms and conditions are included in individual grazing permits.

3. Create a companion "candidate conservation agreement (CCA)" for the BLM lands.

This programmatic CCAA is the necessary legal and technical underpinning for the site-specific agreements of individual private landowners, but, as noted previously, the "assurances" portion of it is not applicable to BLM lands, even though the CCAA includes information useful to BLM land management decisions. Therefore, it is necessary for BLM to create a companion document that relates to and uses information from this programmatic CCAA but is specific to the BLM lands and that agency's land management planning processes. This document, generally termed a "candidate conservation agreement" (CCA) will cover the same area as is covered by the CCAA and, if a NEPA analysis of it is necessary, then that analysis may be carried out concurrently with that of the CCAA. It will also include an assessment of current conditions, threats and other factors which may be limiting sage or sharp-tailed grouse survivability. Finally, it will include the previously discussed array of conservation measures for grouse to be considered when individual grazing permits are revised and describe the process for the revision of those permits and the on-the-ground application of the conservation measures.

4. Complete conferencing on the CCA as a prelude to consultation if the species were listed.

BLM and the FWS will enter into a conference (as defined within the context of ESA implementation) on the BLM conservation agreement and the conservation measures outlined in it and for all the BLM lands included in the WCPA. The conference should also recognize the conservation actions that will be applied on the private lands that are

or likely will be enrolled through the CCAA. It should be noted that the conservation measures applicable on private lands through enrollment in the CCAA will have been judged to be sufficient for incidental take coverage through the FWS review of the application and issuance of the applicable permits. The intent of this conferencing is to address all aspects of sage and sharp-tailed grouse management as if the species were listed at the time of the conference. The result of this conferencing will be a conference report and a statement of intent that the report is to be the basis for consultation if the species is listed and that the conservation measures specified in the report are deemed those that will be adequate to meet the requirements of the ESA if the covered species are listed and if there is no substantial change in the situation existing when conferencing was completed. Moreover, the conference report will be drafted in a manner that allows easy conversion to the "biological opinion" that would result from consultation, if the species were listed.

Final determination of conservation measures adequate to prevent jeopardy and reduce take on BLM lands can only come about through consultation after a given species is actually listed as "threatened" or "endangered". The conference described above does not supplant the consultation process. However, the combination of conservation measures on private lands and judged adequate for "incidental take" coverage coupled with those that will be imposed on BLM permits as grazing permits are revised will create a presumption that nothing additional will be required for BLM lands covered under the conservation agreement as a consequence of consultation. Obviously, a final determination must await completion of the actual consultation process. New information at that time or other factors may require changes in the conservation practices, but there is at least the presumption that the conference report will equate to the biological opinion and the conservation practices outlined in the CCAA and the BLM's CA will be sufficient to reduce take and prevent jeopardy as required by the ESA.

The foregoing paragraphs outline three companion actions to be completed by the BLM and the FWS apart from the process for completing this CCAA, although they should be completed during the development of it and approved within a reasonable time frame. Once both documents are approved, then the process for implementing the conservation practices envisioned in both is as follows:

1. Individual landowners will complete site-specific CCAAs for their private lands with conservation measures they are willing to undertake and which FWS agrees will be sufficient for "incidental take" coverage and "no surprises" assurances while meeting the CCAA standard

2. BLM will review grazing allotments on their normal schedule and affirm that the agency will incorporate terms and conditions deemed necessary to meet rangeland health goals, including those for sage-grouse habitat and those necessary to reduce take as those permits are revised and as outlined in the CA. However, BLM may choose to impose any conservation measure arising from the conference that may be immediately applicable and beneficial to the lands included in any existing

permit. This would be accomplished through changes in annual operating instructions developed in consultation with the permittee(s).

3. If the species covered under the CCAA/CA is listed, then BLM and the FWS will complete consultation as required but with the assumption that the conservation practices set forth in the CCAA and CA are adequate to meet ESA requirements, unless significant changed or unforeseen circumstances have occurred since the conferencing. Any needed changes in on-the-ground practices will come through normal revisions of allotment plans and grazing permits or through modifications to annual operating instructions.

4. If consultation reveals that additional conservation measures are necessary, then the BLM will notify affected permittees of the necessary changes it plans to impose on BLM grazing allotments. This notification will be in writing and in sufficient detail to justify the change based upon current conditions. Those permittees with lands enrolled in the CCAA will have the option of:

    - Discussions with the relevant state and federal agencies to build a full understanding of what changes are contemplated and why they are needed;

    - The opportunity to discuss alternative ways to achieve the desired results identified through the consultation process, including changes which might be achieved through agreed upon modifications of the CCAA for the enrolled private lands;

    - The ability to terminate without prejudice the CCAA in the event that new provisions on the BLM lands are unacceptable to the permittee so that he/she may revise operations of private lands to offset the loss of their ability to utilize the BLM lands.

X. Duration of the Agreement, Permit and Site-Specific Plans

The duration of this Agreement will be 20 years from the date upon which the agencies have signed it. The permit issued in accordance with this Agreement will become effective on the date sage or sharp-tailed grouse become listed, and will expire on the same date upon which this Agreement expires. The USFWS estimates it may take ten years of implementing the Agreement and site-specific plans to fully reach a net conservation benefit for the species, although some level of benefits will likely occur much sooner. Therefore, the duration of any individual site-specific plan will be a minimum of ten years, with the specific duration identified in each site-specific plan.

Upon agreement of the agencies, the term of the Agreement and permit can be extended to accommodate participating landowners interested in signing up under the Agreement and permit after year 10 of the Agreement. The IDFG will notify the USFWS and OSC ninety days prior to expiration of the Agreement to allow sufficient time to extend the Agreement, if desired.

Inclusion under the Agreement and permit will only apply to those participating landowners who enroll lands under this Agreement prior to any future effective ESA listing date of sage or sharp-tailed grouse. Future non-enrolled landowners wishing incidental take authorization for sage or sharp-tailed grouse after any future effective ESA listing date could apply for authorization through the USFWS's Habitat Conservation Plan or Safe Harbor Agreement permitting programs.

Amendments

There may be occasional reasons to amend this agreement prior to the date of its terminations. For instance, it may be necessary to modify the CCAA to add or remove a species covered by the CCAA, extend or shorten the duration of the CCAA, change the boundaries of the planning area, or add or remove a conservation measure covered by the CCAA. In order to facilitate an effective amendment process, the parties agree to a set of amendment stipulations that includes: (1) notification to ensure that all parties are provided any proposed amendments; and, (2) an opportunity for all parties to review and respond to any proposed amendments.

For each proposed amendment, the Service must determine whether the proposed amendment is a minor or administrative change, or a major modification of the CCAA that could result in outcomes that are significantly different from those analyzed for the original CCAA. In particular, amendments for actions that would either (1) result in a different level or type of take than was analyzed in association with the original CCAA or (2) result in a change to the cumulative conservation benefits to the covered species such that the CCAA Standard might not be met would require additional analysis and would, therefore constitute a major amendment. Major amendments are likely to be subject to the procedural requirements of Federal laws and regulations, such as NEPA, and to require additional analysis by the Service, public notification in the Federal Register, and a formal CCAA amendment process. Regional and Field Offices will coordinate on all

proposed amendments and will help property owners determine the appropriate course of action for proposed amendments.

Minor amendments involve routine administrative revisions or changes to the operation and management program associated with the CCAA, and such minor amendments may or may not alter the conditions of the permit. Upon the written request of one of the parties to the CCAA, the Service can approve minor amendments to the CCAA if the amendment does not conflict with the purposes of the CCAA or does not result in some material change to the Service's analysis (i.e., with respect to meeting the CCAA standard or the amount of take authorized). These minor amendments do not require a "formal" amendment process, but they do require written documentation that the amendment was approved by the parties to the CCAA prior to the amendment becoming effective. For example, a minor amendment may include a change in monitoring or reporting protocols.

Adaptive Management Strategies

Adaptive management strategies allow for mutually agreed-upon changes to the conservation measures to occur in response to changing conditions or new information. The primary purpose of adaptive management is to examine alternate strategies for meeting the goals and objectives of the CCAA through research, evaluation, and/or monitoring, and then, if necessary, to adjust future actions according to what was learned in order to meet those goals and objectives. In an adaptive management framework, if the expected results of a management activity are not achieved, the management activity is either modified (if possible)or an alternative activity is undertaken in order to achieve the expected results. These strategies will be incorporated in the individual site-specific ageements for lands enrolled under this CCAA, and will include the timeframes and other milestones for evaluating the conservation measures and their outcomes in the context of adaptive management are clearly identified and agreed-upon by all parties. This will help those developing the CCAA avoid future misunderstandings if the goals and objectives are not met. Specific and detailed monitoring provisions in the site-specific agreements are necessary to determine what the potential results of the management actions might be and how they might be observed and recognized in the field.

XI. Monitoring and Reporting

Monitoring

The agencies will fund monitoring and grouse survey efforts under the Agreement to the extent that funds are available. Generally, two kinds of effectiveness monitoring will be conducted by the USFWS and IDFG to validate the conservation measures: "biological monitoring" that includes population and habitat parameters and "compliance monitoring" to assure compliance with individual site-specific agreements.

While it is not now possible to anticipate all types of monitoring that will be needed to establish trends in populations within the planning area, the continuation of trapping and telemetry studies will provide useful information, plus the Department of Fish and Game will continue annual lek counts according to established protocols. In addition, the Idaho Department of Fish and Game will work with participating landowners along with BLM, the Idaho Department of Lands and Idaho Power (if these are signatory parties to the agreement) in the collection and sharing of data regarding grouse populations and movements.

In general, if agreed to by the responsible parties, habitat analysis will be done each year at a number of sample sites to determine the effectiveness of conservation measures where habitat maintenance or enhancement has been implemented. Areas where habitat treatments are applied will be compared to control areas where habitat conservation measures are not implemented. The comparison of these treated and untreated sites will enable determination of which vegetation prescriptions are the most desirable for sage and sharp-tailed grouse and allow for refinement of habitat conservation measures.

The USFWS and IDFG will conduct compliance monitoring on an as needed basis and in cooperation with those who own land covered by site-specific agreements. Monitoring objectives will include a comparison of the conservation measures specified in the individual agreements and the progress made in achieving those measures. It is anticipated that most compliance monitoring will be conducted annually and prior to the annual meetings specified in each agreement, with the results thereof included in the annual report.

Reporting

The IDFG will be responsible for completion of an annual report on progress in implementing this Agreement by February 1st of each year. This will be in addition to the reports on individual agreements referenced in Section VI of this Agreement. Information in annual reports will include, but is not limited to: (1) a summary of the site-specific plans approved over the past year, (2) habitat management or other activities conducted under each site-specific plan over the past year, (3) effectiveness of these management activities in meeting the desired results, (4) status of habitat or other grouse management actions conducted in previous years, (5) results of grouse population, productivity, and habitat surveys, if any, on the enrolled lands, and (6) recommendations for future grouse management activities consistent with the Agreement. A copy of the report will be made available to the agencies and each participating landowner for review as described in part VII of this agreement.

Notification of Probable "Take"

Landowners with lands enrolled under this agreement shall provide the Service at least 30 days notice in advance of any activity that may result in take of the covered species and provide the Service with a reasonable opportunity to rescue individuals of the covered species before any authorized take occurs. In addition, several of the activities

covered under this agreement such as haying may have the potential for incidental take as they occur on an annual, regular basis. For these activities the agencies and enrolled landowners are encouraged to be aware of the potential for incidental take and employ measures to minimize impacts as specified in the individual agreements. However, for those regularly occurring covered activities, there will be no additional advance notice of potential "take".

XII. Level of Incidental Take

Under this Agreement, the sage and sharp-tailed grouse will be treated as if they are listed under the ESA, regardless of each species' current regulatory status. Incidental take of sage and sharp-tailed grouse will be reported by each participating landowner upon approval of the landowner's site-specific plan regardless of the species' listing status. Should sage or sharp-tailed grouse be listed under the ESA, incidental take will be authorized through the Section 10(a)(1)(A) permit, consistent with the terms of this Agreement, the permit, and the participating landowner's site-specific plan for the enrolled lands. Covered activities that present a risk of incidental take are otherwise lawful crop cultivation and harvesting, livestock grazing and production, farm equipment operation, and recreational activities.

Within areas of important habitat, incidental take of sage and sharp-tailed grouse is expected to be minimal, with conservation measures in the Agreement and site-specific plans intended to limit any unfavorable impacts to the species from land use activities in these areas. While land use activities consistent with specific conservation measures conducted within these areas may have minimal negative effects on grouse, some minor incidental take could occur. It is this level of infrequent, minor, incidental take that is intended to be authorized under the permit within these occupied sites. The actual level of incidental take is unquantifiable, but is expected to range from none to minor disturbance and harassment or, in some rare cases, injury or death of grouse from equipment operation or livestock trampling. If any sage and sharp-tailed grouse are determined to have been incidentally taken within enrolled lands during any calendar year, the agencies and the Participating Landowner will identify and implement additional protective measures to minimize any further incidental take.

Overall, given the Agreement's conservation goal of providing long-term grouse conservation on enrolled lands, the long-term conservation of sage and sharp-tailed grouse is expected to be enhanced by the Agreement and site-specific plans even with some authorization of incidental take under the permit. The actual level of incidental take is largely unquantifiable and will be dependent on the specific measures outlined in site-specific plans. Prior to the Agreement being approved and issuance of the permit to IDFG, the USFWS will analyze the site-specific impacts to sage and sharp-tailed grouse, including the level of incidental take, to satisfy the USFWS's responsibilities under Sections 7 and 10 of the ESA.

XIII. Public Involvement

This Agreement will be circulated for public review and comment, and comments received will be considered and, if appropriate, the Agreement modified, prior to the USFWS making a decision on approval of the Agreement and issuance of the permit. If the Agreement is approved, no further formal public review will occur concerning each site-specific plan, as long as the site-specific plan is consistent with the approved Agreement.

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XV. Appendices

A. Template for Landowner Site-Specific Agreement

B. Template for Certificate of Inclusion

C. Technical Report of Sage-Grouse Telemetry Study

D. LandFire Background and West Central Planning Area Models

E. Summaries of Conservation Actions in the State and WC Plans

Appendix A. Template for Landowner Site-Specific Agreement

Elements of a CCAA: Each CCAA must be written to identify or include certain discussion topics, analyses, and other factors: See (a) through (p) below for a template CCAA that includes standard language for many of these topics.

I. Parties
This section of the CCAA should identify and outline each party involved in implementation of the CCAA.

II. Tracking Number
Each Regional Office needs to develop a system of identifying CCAAs with a unique number assigned to each CCAA, and that number should be identified in this section. This number could be the number generated through the Service Permit Information and Tracking System (SPITS).

III. Enrolled Property
This section of the CCAA should identify the boundaries of the area covered by the CCAA (i.e., the enrolled property) and should reference or include maps, figures, township and range, and/or legal descriptions as necessary to clearly delineate the precise boundaries of the enrolled property.

IV. Authority and Purpose
This section of the CCAA should include language that describes the purpose of the CCAA and identifies the authorities under which the Service and the other cooperators undertake the CCAA. This section can also outline the CCAA standard which requires that the Service determine that the benefits of the conservation measures to be implemented, when combined with the benefits that would be achieved if the conservation measures were also to be implemented on other necessary properties, would remove the need to list the covered species. Each CCAA must meet this standard.

V. Background
This section of the CCAA should contain information that identifies the covered species, describes the covered species' relevant biological and other characteristics, and identifies both the overall threats to the covered species and the threats that can be addressed on the enrolled property. This section should also reference any conservation strategies, management plans, or other agreements that may exist and have relevance to the enrolled property.

VI. Description of Existing Conditions
This section of the CCAA should describe the population levels of the covered species that exist at the time the CCAA is being negotiated, if those levels are available or determinable. It should also include a detailed description of the existing habitat characteristics of the lands and/or waters on the enrolled property that sustain any current, permanent, or seasonal use by the covered species. The description might include the vegetation type, the major plant species and their percent cover, the soil type(s) and their

moisture regimes, the hydrology of the area, and any other relevant characteristics. These factors should be described quantitatively, when possible, but a thorough qualitative description can be provided where no quantitative data exist. In addition, if existing characteristics of the enrolled property help support populations of the covered species on other lands or waters (i.e., outside of the enrolled property), these characteristics should also be described. For example, riparian conditions on an enrolled property may affect water quality and the individuals or populations of the covered species that live downstream, so the CCAA should describe this type of relationship if it exists. The existing conditions described in this section are not a "baseline" in the same sense as a Safe Harbor Agreement has a baseline. That is, a property owner may or may not be able to return to the existing conditions while meeting the CCAA Standard or maintaining his or her compliance with the CCAA.

VII. Identification of Conservation Measures and Management Activities

In this section of the CCAA, the conservation measures and/or management activities that the property owner will undertake are identified. These conservation measures should focus on actions that eliminate or reduce the threats to the covered species on the enrolled property in order to meet the CCAA standard. Specifically, the property owner and the Service should: (1) describe the nature, extent, timing, duration, and other pertinent details of the conservation measures that the property owner is willing to undertake to address the threats and conserve the covered species; and (2) explain how the conservation measures are appropriate for the covered species and are expected to eliminate or reduce the threats to the species on the enrolled property.

The determination of whether the conservation measures identified in a CCAA will meet the CCAA standard is a critical part of CCAA development. In order to make this finding, the Service must determine that the benefits of the conservation measures implemented by the property owner under a CCAA, when combined with those benefits that would be achieved if the conservation measures were also implemented on other necessary properties, would preclude or remove any need to list the covered species. This determination will be made by the Service on a case-by-case basis and needs to include an analysis relating the proposed conservation measures to the five listing factors under section 4 of the Act (64 FR 32726) that categorize potential threats. These threat factors are:

> (A) the present or threatened destruction, modification, or curtailment of the species' habitat or range;
> (B) overutilization for commercial, recreational, scientific, or educational purposes;
> (C) disease or predation;
> (D) the inadequacy of existing regulatory mechanisms;
> (E) other natural or manmade factors affecting its continued existence.

Specifically, the CCAA should clearly demonstrate how the proposed conservation measures would reduce or eliminate the threats to the covered species on the enrolled property. By demonstrating this relationship, the Service can assume that if other property owners addressed the threats to the species on their properties, the CCAA

standard would be met. Since it is unlikely that all five of these threat factors will occur on each enrolled property, the CCAA needs only to address those specific threats that apply to the covered species on the enrolled property. If a specific threat factor does not apply to the covered species on the enrolled property, the CCAA needs merely to state this fact. This approach will allow the Service to compare threats and conservation measures by species across individual CCAAs, and it will help organize the threats discussion so that all five threat factors are addressed.

The conservation measures contained in a CCAA will likely vary, and may even vary in CCAAs that cover the same species. This variability can result from a variety of site-specific factors including, among others, the likely suitability and effectiveness of the conservation measure(s) proposed for each enrolled property, the magnitude of the threats to the covered species on the enrolled property, and the biological characteristics of the covered species. Therefore, the conservation measures may range from direct management actions that are continued into the future (e.g., long-term restoration of native vegetation through the application of prescribed fires or control of predators), to one-time construction of a habitat feature or component (e.g., breeding ponds or artificial dens), to one-time removal of existing threats to the target species (e.g., discontinued use of pesticides/herbicides or exclusion of managed livestock). The types of conservation measures specified in the CCAA will depend upon the types, amounts, and condition of habitats existing on and off the enrolled property, the threats to the covered species that are being addressed, and the degree of imperilment of the covered species. The Service and the participating property owner must agree on a timeline for implementation of the conservation measures and specify the appropriate milestones in this section of the CCAA, but this level of detail will not always be possible, especially when a high level of adaptive management is anticipated due to a lack of information during development of the CCAA.

The CCAA should describe the conservation measures in the context of the threat factors the conservation measures will address and the habitat and/or species population conditions that the property owner agrees to maintain through CCAA implementation. Certain threats to the covered species may not be addressed in the CCAA due to impossible or impractical circumstances. In such cases, the CCAA should describe the threat and the reasons why conservation measures to address the threat are not provided, are impractical, or are unnecessary. Also, there will be instances in which the CCAA should specify the types of land uses that will be allowed on the enrolled property and those that will not. For example, if a landowner agrees to implement a delayed haying schedule to protect a ground-nesting bird species from this activity, future conversion of the enrolled property to cultivated agriculture will not likely be a land use that would be consistent with meeting the CCAA standard. However, grazing on the enrolled property might be consistent with the CCAA standard, depending on the seasonal grazing schedule that is proposed.

VIII. Expected Benefits

This section of the CCAA should describe the benefits to the covered species that are expected to accrue as a result of the implementation of the conservation measures. The

expected benefits might be described in terms of the expected increase in population numbers, the expected improvement in key habitat characteristics, the expected reduction or elimination of take, the threats to the species that will be removed by the implementation of the agreed-upon measures, or all of the above. If the expected benefits are described in terms of habitat characteristics, this section of the CCAA should also reference literature or other data that explains or demonstrates the link between those habitat characteristics and the expected benefit to the covered species (e.g., abundance, density, recruitment). In all CCAAs, the expected benefits must be sufficient for the Service to determine that the CCAA standard will be met. Otherwise, the Service cannot enter into the CCAA.

IX. Level/Type of Take/Impacts

A CCAA does not cover take of a species until the species is listed. Therefore, this portion of the CCAA must quantify the level and type of take anticipated for each covered species once the species is listed. This take is most often expressed as the number of individuals that will be taken or, if appropriate for the covered species, the number of breeding pairs or other species-specific designations that can accurately quantify the take. Where a census or other estimation of the individuals is not possible or appropriate, habitat may be used as a substitute. When habitat is used for determining the quantity and type of take, the Service may want to quantify take by habitat quality, such as by nesting, foraging, or breeding habitat, or as suitable or unsuitable habitat, or as occupied, unoccupied, or transitional/seasonal habitat.

In addition, this section of the CCAA should describe all conservation measures related to the CCAA and all other activities proposed for the enrolled property which may result in authorized (i.e., permitted) take of the covered species. This will include on-going take that is the result of day-to-day management or operation of the enrolled property and any take that is the result of specific conservation measures or other actions. Such activities might include harvesting, forestry, livestock grazing, or the use of vehicles or other equipment. Cumulatively, these activities may result in short-term and/or long-term impacts and direct and/or indirect impacts to the covered species. For example, such impacts might result from pond or wetland construction, habitat improvement or maintenance, or the moving of a structure or some other mobile habitat (e.g., moving a shed where bats are living). Take may also result from monitoring and other species management activities, such as translocation or relocation of the covered species.
This section of the CCAA should also identify any take minimization measures that will be undertaken. For instance, if the property owner agrees to alter his or her crop harvesting, forestry, or livestock grazing schedule to benefit the covered species, those activities should be considered take minimization measures. Similarly, the Service should encourage the property owner to use trained personnel to implement the conservation measures (e.g., certified prescribed burners) or other activities that could result in take, which would further minimize take of the covered species. All such measures are noted in this section of the CCAA.

X. Assurances Provided

This section will contain standard language that states that the Service, if it approved the CCAA and issues an associated permit, will not require additional conservation measures nor impose additional land, water, or resource use restrictions beyond those voluntarily agreed to and described in the "Conservation Measures" section of the CCAA should the covered species become listed in the future. These assurances are authorized through a section 10(a)(1)(A)enhancement of survival permit, issued under 50 CFR part 17, which will allow the property owner to take individuals of the covered species so long as the take is consistent with the terms of the CCAA. These assurances may apply to a whole parcel of land, or to a portion, as specifically described in the CCAA.

This section of the CCAA will also describe the specific level of take authorization that the property owner will receive for the covered species and/or its habitat, and will identify, if possible, the manner in which the take might occur (e.g., mowing, habitat conversion through development, timber harvest). That is, the CCAA must describe in detail the type and level of take that will be permitted and must state that this level of take is consistent with meeting the CCAA standard. The permit will be issued at the time the CCAA is signed, but it will have a delayed effective date tied to the date the covered species is listed.

The CCAA's enhancement of survival permit's regulatory assurances are tied to the effects of "changed circumstances" and "unforeseen circumstances." "Changed circumstances" are those changes in circumstances that can reasonably be anticipated and planned for in the CCAA (e.g.,fire, flood, drought). "Unforeseen circumstances" are those circumstances affecting a covered species that could not reasonably have been anticipated by the permittee and the Service at the time of the CCAA's negotiation and development, and that result in a substantial and adverse change in the status of the covered species (e.g., the eruption of Mount St. Helens was not reasonably foreseeable). In the event of changed or unforeseen circumstances, the assurances provided apply to the property owner with an enhancement of survival permit only where the CCAA is being properly implemented and only with respect to the covered species.
(1) Changed Circumstances--The following standard text for the changed circumstances assurances should be included in this section of the CCAA:

- Changed circumstances provided for in the Agreement. If additional conservation measures are necessary to respond to changed circumstances and the measures were set forth in the CCAA's operating conservation program, the Permittee will implement the measures specified in the CCAA.

- Changed circumstances not provided for in the Agreement. If additional conservation measures not provided for in the CCAA's operating conservation program are necessary to respond to changed circumstances, the Service will not require any conservation measures in addition to those provided for in the CCAA without the consent of the Permittee, provided the CCAA is being properly implemented.

(2) Unforeseen Circumstances. The following standard text for the unforeseen circumstances assurances should be included in this section of the CCAA:

(A) If additional conservation measures are necessary to respond to unforeseen circumstances, the Director may require additional measures of the permittee where the CCAA is being properly implemented, but only if such measures are limited to modifications within the CCAAs conservation strategy for the affected species, and only if those measures maintain the original terms of the CCAA to the maximum extent possible. Additional conservation measures will not involve the commitment of additional land, water, or financial compensation, or additional restrictions on the use of land, water, or other natural resources available for development or use under the original terms of the CCAA without the consent of the permittee.

(B) The Service will have the burden of demonstrating that unforeseen circumstances exist, using the best scientific and commercial data available. These findings must be clearly documented and based upon reliable technical information regarding the status and habitat requirements of the affected species. The Service will consider, but not be limited to, the following factors:

(1) Size of the current range of the affected species;
(2) Percentage of range adversely affected by the CCAA;
(3) Percentage of range conserved by the CCAA;
(4) Ecological significance of that portion of the range affected by the CCAA;
(5) Level of knowledge about the affected species and the degree of specificity of the species' conservation program under the CCAA; and,
(6) Whether failure to adopt additional conservation measures would appreciablyreduce the likelihood of survival and recovery of the affected species in the wild.

XI. Monitoring

In this section of the CCAA, the parties to the CCAA will determine who is responsible for monitoring and reporting the progress of the CCAA (compliance monitoring) and will fully describe these responsibilities. Specifically, this section should establish quantifiable criteria for measuring progress associated with the implementation of the agreed-upon conservation measures. For example, if the conservation measures consist of revising a grazing management plan to restrict livestock use of riparian areas, this section might describe the date(s) (month/year) when required fencing will be completed.

This section should also include provisions for monitoring and reporting the CCAA's progress toward the expected conservation benefits (biological monitoring), but these provisions will likely vary among CCAAs due to differing circumstances. The criteria for biological monitoring do not generally relate to the implementation of the measures but, instead, relate to determining the effectiveness of the measures. Many CCAAs may be adequately monitored by a brief site inspection followed by adequate documentation, which may be conducted by the Service or a CCAA cooperator, but other CCAAs, especially large-scale or complex CCAAs, may require a higher level of monitoring effort. It is important to establish quantifiable criteria for measuring the CCAA's progress

toward the expected conservation benefits, and these criteria should be described in this section. These criteria may be defined in terms of the covered species' population levels and/or the key habitat characteristics affected by the conservation measures. For example, if the expected conservation benefit is an improvement in water quality, this section should describe the tests that will be used to assess water quality, the party or entity that will complete the tests, the date the tests will be completed, and how the results will be interpreted and reported. In addition, any adaptive management strategies or plans that are part of the CCAA's monitoring plan should also be described in this section. Further information on CCAA monitoring is located later in this Handbook.

XII. Requirement for Notification of Take

This section of the CCAA contains language that requires the participating property owner to provide the Service at least 30 days notice in advance of any activity that may result in take and provide the Service with a reasonable opportunity to rescue individuals of the covered species before any authorized take occurs. This language can be modified if permitted take is on an ongoing basis (e.g., as a result of mowing, timber harvest) and the Service agrees that notification can take the form of annual timber harvest plans, or other appropriate means of notification.

XIII. Amendments

All CCAAs should contain provisions that allow for amendment of the CCAA and describe the processes necessary for the parties to modify the CCAA. In many instances, these provisions will be generic in order to allow the parties to the CCAA to modify the CCAA to meet the changing needs of the parties and/or the CCAA's conservation program. For instance, it may be necessary to modify the CCAA to add or remove a species covered by the CCAA, extend or shorten the duration of the CCAA, change the boundaries of the enrolled property, or add or remove a conservation measure covered by the CCAA. In order to facilitate an effective amendment process, the parties need to agree to a set of amendment stipulations that, at a minimum, includes: (1) a notification provision to ensure that all parties are provided any proposed amendments; (2) a provision that all parties are given a sufficient opportunity to review and respond to any proposed amendments; and (3) a provision that identifies how the parties will handle approval or denial of any proposed amendments.

For each proposed amendment, the Service must determine whether the proposed amendment is a minor or administrative change, or a major modification of the CCAA that could result in outcomes that are significantly different from those analyzed for the original CCAA. In particular, amendments for actions that would either (1) result in a different level or type of take than was analyzed in association with the original CCAA or (2) result in a change to the cumulative conservation benefits to the covered species such that the CCAA Standard might not be met would require additional analysis and would, therefore, likely be major amendments. Major amendments are likely to be subject to the procedural requirements of Federal laws and regulations, such as NEPA, and to require additional analysis by the Service, public notification in the Federal Register, and a formal CCAA amendment process. Regional and Field Offices will coordinate on all proposed amendments and will help property owners determine the appropriate course of

action for proposed amendments. Additional information on amendments is in the "Phase 3 - Post Issuance" portion of this Handbook.

Minor amendments involve routine administrative revisions or changes to the operation and management program associated with the CCAA, and such minor amendments may or may not alter the conditions of the permit. Upon the written request of one of the parties to the CCAA, the Service can approve minor amendments to the CCAA if the amendment does not conflict with the purposes of the CCAA or does not result in some material change to the Service's analysis (i.e., with respect to meeting the CCAA standard or the amount of take authorized). These minor amendments do not require a "formal" amendment process, but they do require written documentation that the amendment was approved by the parties to the CCAA prior to the amendment becoming effective. For example, a minor amendment may include a change in monitoring or reporting protocols.

XIV. Duration of the CCAA

The duration of a CCAA may vary. However, the duration must be sufficient to allow the Service to determine that the benefits of the CCAA's conservation measures would meet the CCAA standard. In most circumstances, the CCAA and the permit will have the same duration but, in some circumstances, the permit could remain in effect beyond the expiration of the CCAA. One example of this would be when the conservation measures only require a one-time action or activity for implementation (e.g., removal of a hazard or barrier). CCAAs and their associated permits cannot be perpetual, but the agreed-upon duration should be commensurate with the habitat needs of the species, the length of time necessary to obtain the CCAA's expected benefits of the conservation measures, or other relevant factors. Generally, it is to the property owner's advantage to enter into a CCAA with a long duration. Property owners who enter into CCAAs with a short duration should be notified that if they later decide to renew the CCAA before or at the time of expiration, the Service must reevaluate the CCAA at that time to determine if the CCAA will continue to meet the CCAA standard at the time of renewal. If the status of the species has declined, the conservation measures required at the time of CCAA renewal may be greater than those originally required. Furthermore, if the species has become listed, the CCAA is nearing expiration, and the property owner wants to continue to receive assurances, he or she must renew the CCAA in order to receive those assurances and take authorization.

XV. Termination of the CCAA

In this section of the CCAA, the procedures for CCAA termination must be described. Property owners can end their participation in a CCAA and terminate the CCAA, with good cause, prior to its expiration date, even if the terms and conditions of the CCAA have not been realized. In doing so, property owners do not retain any of the liabilities or benefits of the CCAA. In particular, termination results in a corresponding loss of the permit's regulatory assurances.

XVI. Adaptive Management

An adaptive management strategy will not be necessary for all CCAAs, but, where significant uncertainty related to the covered species or the effect of the conservation measures exists, an adaptive management approach can be highly advantageous. Incorporation of adaptive management provisions and concepts in this section of the CCAA can minimize this uncertainty. Further discussion on adaptive management for CCAAs is located later in this Handbook under the heading "Adaptive Management."

Miscellaneous Provisions

1. Notification of Take Requirement

By signature of this CCAA, [insert name of participating property owner] agrees to provide the Service [insert name of other agency if CCAA is programmatic and involves Certificates of Inclusion] with an opportunity to rescue individuals of the covered species before any authorized take occurs. Notification that take will occur must be provided to the Service at least [30] days in advance of the action. [This language could be modified if permitted take is on an ongoing basis (e.g., as a result of mowing, timber harvest) and the Service agrees that notification can take the form of annual timber harvest plans, or other appropriate means of notification.]

2. Duration of CCAA and Permit

The CCAA, including any commitments related to funding under Service programs, will be in effect for the duration of [x] years following its approval and signing by the Parties. The section 10(a)(1)(A) permit authorizing take of the species will become effective on the date of the final rule listing a species and will expire when this CCAA expires or is otherwise suspended or terminated. The permit and CCAA may be extended beyond the specified terms prior to permit expiration through the permit renewal process and with agreement of the Parties.

3. Modifications

After approval of the CCAA, the Service may not impose any new requirements or conditions on, or modify any existing requirements or conditions applicable to, a landowner or successor in interest to the landowner, to compensate for changes in the conditions or circumstances of any species or ecosystem, natural community, or habitat covered by the CCAA except as stipulated in 50 CFR 17.22(d)(5) and 17.32(d)(5).

4. Modifications of the CCAA

Any party may propose modifications or amendments to this CCAA by providing written notice to, and obtaining the written concurrence of, the other Parties. Such notice shall include a statement of the proposed modification, the reason for it, and its expected results. The Parties will use their best efforts to respond to proposed modifications within 60 days of receipt of such notice. Proposed modifications will become effective

upon the other Parties' written concurrence and completion of any necessary environmental analysis as required by the NEPA or ESA.

5. Amendment of the Permit

The permit issued under this agreement may be amended to accommodate changed circumstances in accordance with all applicable legal requirements, including but not limited to the Endangered Species Act, the National Environmental Policy Act, and the Service's permit regulations at 50 CFR 13 and 50 CFR 17. The party proposing the amendment shall provide a statement describing the proposed amendment and the reasons for it.

6. Termination of the CCAA

As provided for in Part 8 of the Service's CCAA Policy (64 FR 32726, June 17, 1999), the Property Owner may, for good cause, terminate implementation of the CCAA's voluntary management actions prior to the CCAA's expiration date, even if the expected benefits have not been realized. If the CCAA is terminated, however, the Property Owner is required to surrender the enhancement of survival permit at termination, thus relinquishing his or her take authority (if the species has become listed) and the assurances granted by the permit. The Property Owner is required to give [x] days written notice to the other Parties of its intent to terminate the CCAA, and must give the Service an opportunity to relocate affected species within [x] days of the notice.

Participating landowners who receive funding under this Agreement through the various federal or state incentive programs will have the following obligations (unless precluded by the rules pertinent to any given program):

a. In the event the participating landowner sells the enrolled lands prior to the end of the duration of the agreement covering these lands, he/she will notify the USFWS at least 60 days in advance of the potential sale, and notify the prospective landowner of the existence of this Agreement in order for the potential new owner to decide whether to continue this Agreement. In the event the new landowner does not wish to continue this Agreement and does not request transfer of the permit pursuant to 50 CFR 13.25(b), the participating landowner who has received USFWS funds under this Agreement will reimburse the USFWS a pro-rated amount, calculated as (total funding received by the participating landowner divided by original term of the site-specific plan) x (number of years remaining under the site-specific plan). If the new landowner does not become a party to this Agreement and the permit is not transferred, or a new permit is not issued, he/she will not receive the benefits of the permit authorizing incidental take of Columbian sharp-tailed and/or greater sage-grouse.

b. If the participating landowner terminates his enrollment under this Agreement for reasons other than the sale of the property, the participating landowner must reimburse the USFWS a pro-rated amount, calculated as: (total funding received by

the participating landowner divided by original term of the site-specific plan) x (number of years remaining under the site-specific plan). When the participating landowner terminates his enrollment under this agreement, USFWS will suspend or revoke the permit, in which case the participating landowner then loses the benefits of incidental take or regulatory assurances for Columbian sharp-tailed and/or greater sage-grouse on the lands previously enrolled under this agreement.

c. If the USFWS suspends or revokes the permit due to the participating landowner being unwilling to fulfill his part of the agreement, the participating landowner must reimburse the USFWS a pro-rated amount, as described in the previous paragraph.

d. If the USFWS suspends or revokes the permit due to circumstances beyond the participating landowner's control, no reimbursement is required by the participating landowner.

e. In the event enrolled lands experience disturbances not caused by the landowner, including but not limited to flood, inordinately large wildfires, violent windstorm, disease, insect outbreak or abnormal predation that is beyond the participating landowner's control, and the event or events harm or degrade grouse habitat and/or take grouse, there will be no consequences to the participating landowner.

7. Permit Suspension or Revocation

The Service or IDFG may suspend or revoke the permit for cause in accordance with the laws and regulations in force at the time of such suspension or revocation (50 CFR 13.28(a)). The Service may also, as a last resort, revoke the permit if continuation of permitted activities would likely result in jeopardy to covered species (50 CFR 13.28(a)). The Service will revoke because of jeopardy concerns only after first implementing all practicable measures to remedy the situation.

8. Remedies

Each party shall have all remedies otherwise available to enforce the terms of the CCAA and the permit. *In particular, the Service may seek specific performance of appropriate mitigation measures in the event the Property Owner terminates this CCAA or fails to comply with its terms. – Use as appropriate*. No party shall be liable in damages for any breach of this CCAA, any performance or failure to perform an obligation under this CCAA, or any other cause of action arising from this CCAA.

9. Dispute Resolution

7. The Parties agree to work together in good faith to resolve any disputes, using dispute resolution procedures agreed upon by all Parties. Participating landowners will receive a draft copy of the annual report by November 15th each year. They have the right to submit written comments concerning the report. Concurrence between the individual landowner and the agency will be reached

before the final report can be issued, or any irreconcilable differences will be objectively noted in the final report. Landowners may retain their own specialists for a second opinion in cases of disagreement. Landowners will receive a final copy of the report before it is submitted to the agencies.

10. Succession and Transfer

This CCAA and related permit shall be binding on and shall inure to the benefit of the Parties and their respective successors and transferees, (i.e., new owners) in accordance with applicable regulations (50 CFR 13.24 and 13.25). The rights and obligations under this CCAA shall run with the ownership of the enrolled property and are transferable to subsequent non-Federal property owners pursuant to 50 CFR 13.25. The enhancement of survival permit issued to the Property Owner is also transferable to the new owner(s) pursuant to 50 CFR 13.25. If the CCAA and permit are transferred, the new owner(s) will have the same rights and obligations with respect to the enrolled property as the original owner. The new owner(s) also will have the option of receiving CCAA assurances by signing a new CCAA and receiving a new permit. The Property Owner shall notify the Service in writing at least 60 days in advance of any transfer of ownership, so that the Service can attempt to contact the new owner, explain the existing agreement and seek to interest the new owner in signing the existing CCAA or a new one to benefit listed species on the property. Assignment or transfer of the permit shall be governed by Service regulations in force at the time.

11. Availability of Funds

Implementation of this CCAA is subject to the requirements of the Anti-Deficiency Act and the availability of appropriated funds. Nothing in this CCAA will be construed by the Parties to require the obligation, appropriation, or expenditure of any funds from the U.S. Treasury. The Parties acknowledge that the Service will not be required under this CCAA to expend any Federal agency's appropriated funds unless and until an authorized official of that agency affirmatively acts to commit to such expenditures as evidenced in writing.

12. No Third-Party Beneficiaries

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

13. Notices and Reports

Any notices and reports, including monitoring and annual reports, required by this CCAA shall be delivered to the persons listed below, as appropriate:

[Insert addresses and contact information for parties to the agreement]

Appendix B. Template for Certificate of Inclusion

CERTIFICATE OF INCLUSION
In the
Programmatic Sage and Sharp-tailed Grouse Candidate Conservation Agreement with Assurances Between the Idaho Department of Fish and Game, the Governor's Office of Species Conservation, Idaho Department of Lands, Bureau of Land Management and the U.S. Fish and Wildlife Service

This certifies that the participating landowner of the property described in the site-specific plan is included within the scope of Permit No. _____, issued on _____, to the Idaho Department of Fish and Game under the authority of Section 10(a)(1)(A) of the Endangered Species Act of 1973, as amended, 16 U.S.C. 1539(a)(1)(B). Such permit authorizes incidental take of sage- and sharp-tailed grouse by the participating landowner, as part of a Candidate Conservation Agreement with Assurances (Agreement), to conserve sage- and sharp-tailed grouse within the species' historical range. Pursuant to that permit and this certificate, the participating landowner is authorized to cause incidental take of [number of individuals or amount of habitat] as a result of land use activities identified in the Agreement and site-specific plan on the enrolled lands identified in the site-specific plan. Permit authorization is subject to carrying out conservation measures identified in the site-specific plan, the terms and conditions of the permit, and the Agreement, entered into pursuant thereto by the Idaho Department of Fish and Game, the Office of Species Conservation, Idaho Department of Lands, the Bureau of Land Management and the U.S. Fish and Wildlife Service. By signing this Certificate of Inclusion, the participating landowner agrees to carry out all of the conservation measures described in the attached site-specific plan.

_____ _____
Landowner Date

_____ _____
Idaho Department of Fish and Game Date

_____ _____
Governor's Office of Species Conservation Date

_____ _____
U.S. Fish and Wildlife Service Date

Appendix C. Technical Report of Sage-Grouse Telemetry Study

MOVEMENTS, HABITAT USE, AND VITAL RATES OF GREATER SAGE-GROUSE (CENTROCERCUS UROPHASIANUS) IN AN ISOLATED POPULATION OF WEST-CENTRAL IDAHO

Report of Work Conducted
March 30, 2005 - October 31, 2006

By,
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Senior Wildlife Research Biologist
Idaho Department of Fish and Game
Boise, ID

18 December 2006

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MOVEMENTS, HABITAT USE, AND VITAL RATES OF GREATER SAGE-GROUSE (CENTROCERCUS UROPHASIANUS) IN AN ISOLATED POPULATION OF WEST-CENTRAL IDAHO

(March 30, 2005 - October 31, 2006)

INTRODUCTION

The greater sage-grouse (*Centrocercus urophasianus*) once occupied 13 western states and 3 Canadian provinces. Large-scale eradication and alteration of sagebrush (*Artemisia spp*.) habitats upon which sage-grouse depend for survival have limited the greater sage-grouse to 11 states and 2 Canadian provinces (Connelly and Braun 1997, Connelly et al. 2004). Continued declines in sage-grouse across their range through the mid-1990's prompted efforts to list them as threatened or endangered under the U. S. Endangered Species Act. Although the decision to list sage-grouse was "not warranted" (U.S. Fish and Wildlife Service 2005), they still receive a lot of attention from public land management and state agencies for their continued survival.

Interest in managing sage-grouse has also increased among private landowners. More private landowners are getting involved in local planning efforts to help maintain or enhance their sage-grouse populations. The West Central sage-grouse population occupies sagebrush habitat in portions of Washington, Adams, Gem, and Payette counties in western Idaho on the Idaho/Oregon border.

The West Central Sage-Grouse Working (LWG) was formed in June 2004. The LWG is an advisory group formed and supported by the Idaho Department of Fish and Game. The West Central LWG represents one of 13 sage-grouse planning areas in the state. Local working groups are designed for all interested parties and include agency staff, local landowners, and other local resource users.

The West Central area is unique in many regards. The sage-grouse population is geographically isolated from other populations of sage-grouse in Idaho and Oregon; much of the remaining habitat occurs on private land; several leks occur on winter livestock feed lots and are within 100 m of fences, roads, occupied residences, and barns; the area is dominated by large stands of introduced perennial grasses such as bulbous bluegrass (*Poa bulbosa*) crested wheatgrass (*Agropyron cristatum*), intermediate wheatgrass (*Thinopyrum intermedium*), and native perennial grasses with scattered sagebrush and abundant forbs; there as been no sage-grouse hunting season for over 20 years; and, the planning area supports the largest proportion of private land of any other LWG area in Idaho.

PURPOSE

A lack of detailed information on lek data, distribution, habitat use, and numbers in the West Central Planning Area hampered the Working Group's ability to effectively participate in broader (e.g., statewide) conservation efforts, specifically to identify threats and opportunities to initiate habitat enhancements on the ground. Landowners active in the LWG expressed a strong

desire to see baseline information established from which to evaluate progress in improving habitat or sustaining populations.

The purpose of this project was to identify seasonal habitat use, movements, and vital rates of sage-grouse in west central Idaho.

STUDY AREA

The West Central Sage-grouse Planning Area (SPGA) consists of the sagebrush steppe habitat of Washington County from the Oregon border to a few miles east of the North Crane road, north to Cambridge/Indian Valley, and south to the Washington/Payette/Gem county line (Figure 1). The study area is approximately 3,747 km^2 (Idaho Department of Lands GIS file). Ownership is made up of 64% private, 30% federal, and 6% state.

Elevations range from 640 m at the Snake River near Brownlee Reservoir to slightly over 1,219 m at Sugarloaf Peak and the southern Payette National Forest boundary. The greatest portion of the area, and of occupied habitat, lies between 762 and 1,067 m.

Climate is characterized by cold, wet winters and hot, dry summers. Mean annual precipitation is about 28 cm (11 inches) at lower elevations near Weiser but rises quickly with elevation to over 50 cm (20 inches) over much of the SGPA. Of this, about 29 percent falls during April through September. In two years out of 10, rainfall during this period is less than 13 cm (5 inches) (USDA 2001).

The SPGA is characterized by valley farmlands surrounded by extensive rolling hills of sagebrush-grassland and mountain foothills. The valley bottom is dominated by irrigated hay meadows and some dry land wheat production. Livestock grazing is the major agriculture practice in the sagebrush uplands. Much of the historic dry land wheat has been converted to perennial grass made up primarily of intermediate wheatgrass and bulbous bluegrass. The dominant native shrubs are xeric big sagebrush (*A. tridentata xericensis*), low sagebrush (*A. arbuscula*), mountain big sagebrush (*A. t. vaseyana*), stiff sage (*A. rigida*) bitterbrush (*Pursha tridentata*), hawthorn, and green rabbitbrush (*Chrysothamnus viscidiflorus*). Dominant native grasses consist mainly of bluebunch wheatgrass (*Agropyron spicatum*) and Idaho fescue (*Festuca idahoensis*). Common forbs are balsamroot (*Balsamorhiza spp.*), mules ear (*Wyethia amplexicaulis*), tapertip onion (*Allium acuminatum*), buckwheat (*Eriogonum spp.*), parsley (*Lomatium spp.*), prickly lettuce (*Lactuca serriola)*, bighead clover (*Trifolium sp.*), and curleycup gumweed (*Grindelia squarrosa*).

METHODS

The field component of the study began in late February 2005. Eight leks were selected as capture sites based on the following criteria: (1) an adequate number of displaying males to attract females (past lek counts documented 9 leks with more than 20 males); (2) geographic separation; (3) a mix of private and federal lands; and (4) a range of habitats within 5 km of the lek. From late February through early March, the leks were visited to confirm that an adequate number of males were present.

Sage-grouse were captured at night using the spotlighting technique (Giesen et al. 1982) during spring and late summer of 2005 and spring of 2006. Captured sage-grouse were equipped with harness-mounted radio transmitters (Advanced Telemetry Systems, Inc) and a uniquely numbered leg band. Age was determined for all captured grouse by assessing the shape of the outer 2 most primaries. Hens were weighed using a Pesola scale to evaluate body condition. Transmitters were equipped with a mortality switch and programmed for a 19 hour on/5 hour off cycle to extend battery life.

The radio-marked birds were monitored about once per week from March through August and once per month from October through February with an R-1000 Telemetry Receiver (Communications Specialists, Inc.) and a hand held Yagi antenna. Monitoring considerations were nesting and brood rearing locations of females, summer habitat of males and unsuccessful females, fall habitat of all birds, and movements to wintering areas.

Most telemetry work was conducted from the ground. Ground monitoring was on foot or with an ATV. The ATV was equipped with a 1.5 m (5 foot) antenna. Aerial flights (fixed wing aircraft) were conducted when birds could not be found on the ground. All locations were marked with a Global Position System (GPS). Suspected nests were not approached to avoid human-related depredation or disturbance. All radios detected on mortality mode were retrieved as quickly as possible to investigate the cause of death and to salvage the transmitter.

Vegetation measurements were conducted at all nest, brood-use, and associated random locations. The line-intercept (Canfield 1941) method was used to measure sagebrush and other shrub canopy cover. Grass and forb heights and canopy cover were ascertained using Daubenmire (1959) frames placed at 2 m intervals along, 2, 30 m perpendicular transects centered at the nest spot, 500 m from the nest site (direction chosen at random), and where the hen was observed with her brood.

Vegetation measurements began June 2005. Vegetation measurements at nests were measured May 11-24, 2006. Brood-use areas (2006 only) began after nest measurements were complete and continued through July 31. The overall objective was to describe general habitat associations by cover type. In addition, vegetation plots were established to document dominant shrub, forb, and grass species and to measure canopy cover and height of shrubs, forbs, and grasses.

RESULTS

We captured 37 sage-grouse in 2005 and 2006 (Table 1). Twelve hens (4 adults, 7 yearlings, and 1 juvenile) and 16 males (13 adults and 3 yearlings) were equipped with radio transmitters and leg bands, and 9 males (all adults) were equipped with leg bands only. All but 4 females were captured on or near leks during spring 2005 and 2006. Leks of capture included: Shoepeg, Knob Hill, Craig, Center Ranch, County Line, Bed Rock Flat (Waite's), Crane Creek Reservoir, and Four Mile. The 4 additional hens were captured during late summer 2005 (Figure 1). One male marked and observed displaying on County Line lek was also observed strutting on Bed Rock Flat (Waite's) lek. Distance between the two leks is 1.6 km.

Field personnel used the following elevated geographical features to re-locate lost signals: Ant Butte, Riley Butte, Rest Stop on Highway 95, Snowbank Mountain (Cascade), Granger Butte, Point NW of Dodson Pass, and various passable ATV roads west of Midvale.

Eight radio-marked hens were located on 9 nests. One hen lost her first nest and successfully re-nested. Nest success during 2005 was 100 % (n = 2) and nest success in 2006 was 80% (n = 5). Average eggs per nest were 7.78. Nests hatched between 12 May and 23 May (except for the renesting hen who hatched her nest in early June) (Table 2). Three other radio-marked hens captured during late summer 2005 died or disappeared over-winter, and one hen captured during spring 2006 was never found on a nest.

Broods immediately moved from nesting sites to mesic areas with concentrations of Mule's-ear following hatch. These areas are typically abundant with forbs and insects. Mule's-ear began to desiccate in early July. Hens moved broods from these areas by mid-July to surrounding ridges. They moved back and forth between mesic sites and ridges during the remainder of the summer.

Unsuccessful hens remained within the vicinity of their nests until late-June. They were most often located by themselves until mid-August. After mid-August they could be found in small, mixed flocks.

Brood survival in 2005 (n = 2) and in 2006 (n = 4) was 50%. Two hens (1 in 2005 and 1 in 2006) lost their broods within one week of hatch and were most likely weather related (heavy rains). Three hens (1 in 2005 and 2 in 2006) were found with their broods through August. We lost contact with the remaining hen on 21 July 2006. She had a brood of 4 chicks at that time (Table 3).

Average lek to nest distance was 4.2 km (range = 0.6 – 15.0 km). Two hens (SGF3229 and SGF3222) moved 9 and 15 km, respectively. The remainder of the hens nested within 3 km of lek of capture (Table 2). Most hens with broods remained within 2 km of their nest site throughout the summer. The one exception was SGF3229 who remained close to her nest for about a month then began moving southeast (elevation gain) of her nest. She was found between 3 and 4 km of her nest during July and August then moved her brood approximately 13 km north to Gray's Creek. She remained in that general area through October 2006.

Average sagebrush canopy cover at nest sites was 7.2% (range = 2.0 – 12.0). Average sagebrush height was 46.7 cm (range = 24.1 – 63.7). Average canopy cover of other shrubs was 8.5% (range = 2.6 – 16.8). Average perennial forb canopy cover was 8.5% (range = 1.1 – 20.3) and height was 20.0 cm (range = 8.6 – 34.4). Average perennial grass canopy cover was 10.4% (range = 2.2 – 25.2) and average height was 28.2 cm (range = 19.3 – 36.5) (Table 4).

Average sagebrush canopy cover at random sites was 4.9% (range = 1.00 – 10.00%). Average height of sagebrush was 44.0 cm (range = 25.2 – 60.5 cm). Average canopy cover of other shrubs was 5.4% (range = 2.0 – 10.0). Average perennial forb canopy cover was 6.1% (range = 8.4 – 24.4) and average height was 18.0 cm (8.4 – 24.4). Average perennial grass

canopy cover was 11.5% (range = 17.1 – 32.7) and average height was 26.3 cm (range = 17.1 – 32.7) (Table 4).

Average sagebrush canopy cover at brood-use areas was 15.5 % (range = 4.0-27.0, n = 2). Average sagebrush height was 68.7 cm (range = 67.4 – 70.0). Average cover of other shrubs was 14.3% (range = 2.0 – 27.0). Average perennial forb canopy cover was 13% (range = 0.67-27.92) and average height was 22.15 cm (range = 17.1 – 26.2). Average perennial grass canopy cover was 4.4% (range = 0.03 – 10.7) and average height was 24 cm (range = 10.0 – 28.9) (Table 4).

Males generally remained within 4 km of their lek during summer. The average distance from lek to summer use areas was 3.2 km (range = 0.16 – 6.4). Two males traveled the furthest distance from their lek of capture during summer. SGM3880 was found 7.4 km from Shoepeg lek, and SGM3889 was located 7 km from Four Mile lek. Six males died less than 1 km from the lek during the mating season and were not included in the average. Average distance males moved from summer to fall-use areas was 3.9 km (range = 2.9 – 5.6) and average distance moved from fall to winter-use areas was 2.7 km (range = 0.8 – 5.9) (Table 5).

Table 6 indicates vegetation associations with sage-grouse during 2005-2006. Basin big sage, xeric big sage, antelope bitterbrush, and hay fields are all important forage species annually. Other tree like and shrub species are important through various times of the year. Chokecherry and hawthorn species are important for shade during hot summer months. Forbs and grass species are important from April through September.

All males remain around their respective leks between late February and mid-May. Following breeding they fan out to ridges with little over-all cover. Males descend from the ridges to lower areas during summer to forage and return to ridges by mid-afternoon. Winter preferences were southeast and southwest facing slopes with mixtures of stiff sage and xeric big sagebrush. Southwest facing slopes were preferred when there was snow cover. These slopes are typically wind blown and offer snow free areas for roosting and loafing.

Male sage-grouse were observed feeding on top of xeric sagebrush bushes, sometimes hanging upside-down, during winter. This behavior occurred when the snow on the ground was crusty, causing the grouse to fall through despite their specialized feet. Grouse may have fed on top of bushes to conserve energy and reach succulent parts of the plant that could not be reached from the ground.

Fifteen radio-marked sage-grouse (10 males and 5 females) were found dead during the study. Seven males and all 5 females were found depredated. Three males were found depredated within a month of capture and one male was found depredated during spring one year after capture. One additional male was found depredated during the summer following capture, and the last male died during summer one year after capture. Four of the hens died over winter and 1 hen died during late summer. Two additional males died of Pneumonia and 1 male hit a powerline. Signals for 6 males and 3 females were lost during the study. By October 2006, 3 females and 1 male were known to be alive (Table 7).

DISCUSSION

Greater sage-grouse in west-central Idaho are similar to other populations of sage-grouse across the west. Hens were found nesting in greater overall shrub, forb and grass cover and taller shrubs, forbs, and grasses compared to random sites. Broods were most often located in areas with greater forb cover and height compared to nesting and random sites. This is similar to results reported across the range of greater sage-grouse (Fisher 1994, Gregg et al. 1994, Holloran and Anderson 2005, Lyon and Anderson 2003, Haustleitner 2003).

Average nest success reported for Greater sage-grouse across their range is 47% and average reported chick survival is 34% (Connelly et al. 2004). Nest success in west-central Idaho was 100% (n=2) in 2005 and 80% (n=6) in 2006. Chick survival during both years was at least 50%. During 2006 we lost the signal for a radio-marked hen who was last located on 21 July with her brood of 4 chicks. Barnett and Crawford (1994) and Gregg (2006) discussed the importance of early season forbs for pre-laying hens. He suggested that greater access and availability of forbs during early March increases egg production, nest success, and brood survival. Forb availability in the west-central area was relatively high.

Although nest success and chick survival was higher compared to other sage-grouse populations, overall survival of our radio-marked birds was quite low (32%). Cause of death was mainly predation. However, 2 males died of Pneumonia within 2 months of capture and 2 radios attached to hens were retrieved along the edges of roads. There was no sign of depredation, and the radios were completely in-tact. There is abundant upland bird hunting opportunity in the area for valley quail (*Lophortyx californica*), chukar (*Alectoris chukar*), grey partridge (*Perdix perdix*), and ring-necked pheasant (*Phasianus colchicus*). The hens may have either been poached or accidentally shot by a hunter. The hunting season for both sage and Columbian sharp-tailed grouse has been closed for well over 20 years. In addition, West Nile virus (WNV) was detected in 1 un-marked sage-grouse in 2006. Low survival in birds during August and September may have been attributed to WNV. It is easiest to detect WNV in relatively in-tact birds. By the time we reached a bird with a mortality signal, it had already been scavenged.

There were no patterns of movements from lek to nest sites or lek to summer-use areas. Some sage-grouse nested within a km of lek of capture while others nested up to 15 km from lek of capture. Most male sage-grouse remained within 5 km of their lek of capture throughout the year. However, some males were located greater than 5 km from their lek. The rolling topography of the area and numerous natural springs and irrigated hay meadows provided succulent forbs throughout the summer. Although some grouse used higher elevation sites further away from leks, most of our radio-marked birds remained near ridges closer to the leks throughout the year.

MANAGEMENT IMPLICATIONS

Much of the study area is privately owned and many portions of currently in-tact sage-grouse habitat are being sub-divided into 10-40 acre ranchettes. Long-term persistence of sage-

grouse in west-central Idaho will require landowners with very large tracts of land to work with state and federal partners to conserve the land not only for sage-grouse, but for long-term persistence of working ranches. The greatest threat to the west-central sage-grouse population is human encroachment. As more sagebrush habitat is being fragmented or lost completely, sage-grouse may become more vulnerable to disease, environmental variation (extreme drought or excessive moisture), and catastrophic events such as large wildfires that could eventually lead to inbreeding depression and ultimately population extirpation (Wisdom et al. 2005).

The West Central Local Working Group is developing a local conservation plan for sage-grouse and Columbian sharp-tailed grouse (*Tympanuchus phasianellus columbianus*) in the form of a Programmatic Conservation Agreement (PCA). The associated Candidate Conservation Agreement with Assurances (CCAA) will protect landowners from incidental take if the greater sage-grouse become listed as "Threatened" or "Endangered" under the Endangered Species Act. The agreed landowners make every effort to protect, maintain, and enhance their lands for sage and Columbian sharp-tailed grouse while still maintaining their rural way of life (mainly livestock grazing). This endeavor may be extremely important in the future as more and more wildlife habitat becomes threatened by human population expansion.

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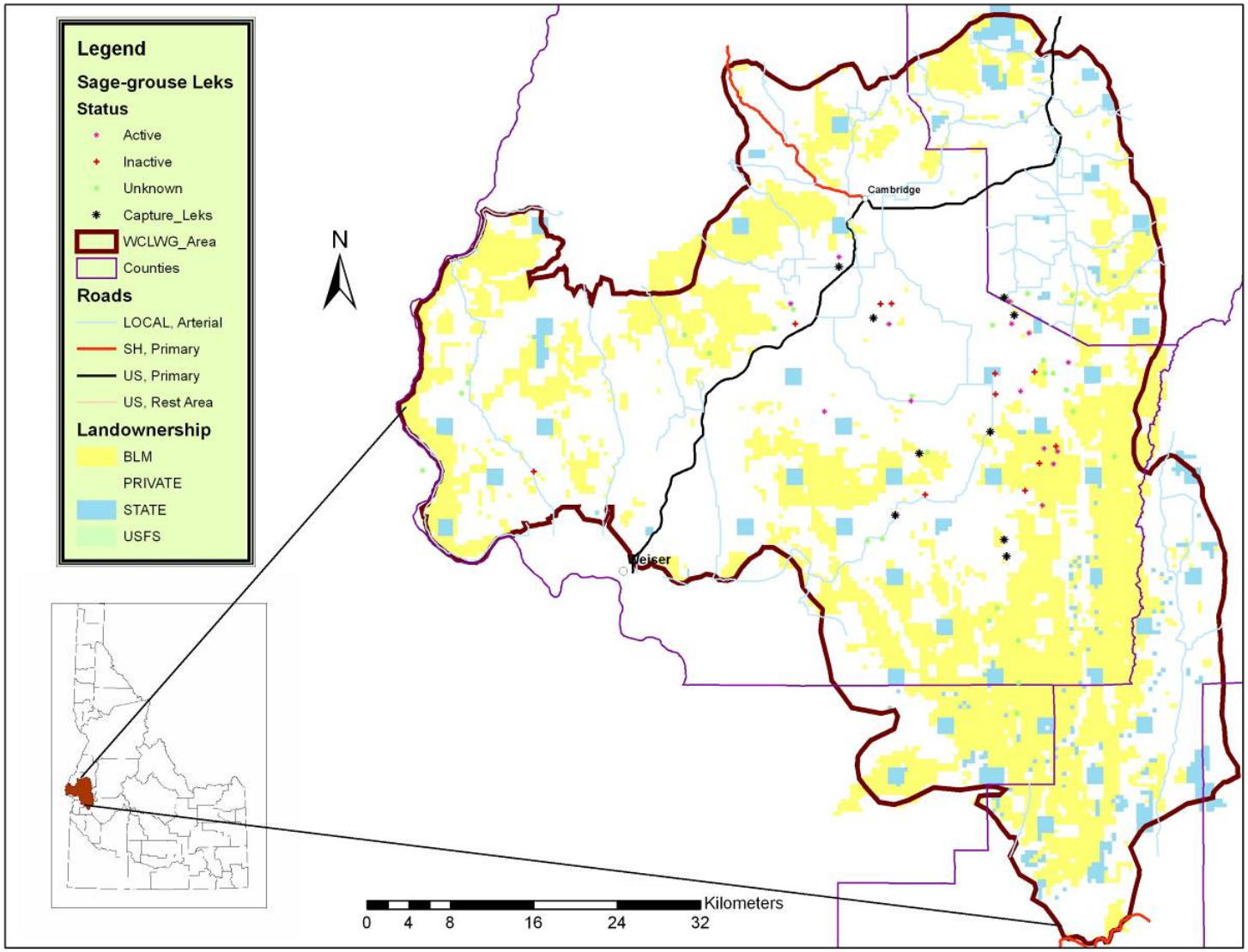

Figure 1. West Central Sage-grouse Study Area, Idaho.

Table 1. Banding summary of Greater sage-grouse marked in west-central Idaho, 2005-2006.

Band	Sex	Age	Radio	Weight (g)	Lek	Date
SGF3202	F	Y	150.324	1180		08/24/05
SGF3203	F	A	150.184	1380		08/25/05
SGF3204	F	Y	150.604	1235		08/26/05
SGF3205	F	J	150.545	1100		08/29/05
SGF3222	F	Y	150.344	1520	Shoepeg	03/26/06
SGF3229	F	Y	151.184		Bedrock Flat	03/23/06
SGF3235	F	Y	151.397	1580	Upper Knob Bill	03/26/06
SGF3240	F	A	150.906		Craig	03/22/06
SGF3296	F	Y	150.815	1525	Lower Knob Hill	04/12/06
SGF3297	F	Y	150.985	1525	Lower Knob Hill	04/12/06
SGF3298	F	A	151.415		Bedrock Flat	04/10/05
SGF3299	F	A	150.566		Crane Creek Rsvr	04/01/05
SGM3801	M	Y	150.445		Crane Creek Rsvr	04/01/05
SGM3805	M	A			Craig	03/27/06
SGM3810	M	Y			Craig	04/02/05
SGM3877	M	A			Upper Knob Hill	03/27/06
SGM3878	M	A	150.545		Upper Knob Hill	03/27/06
SGM3879	M	A			Upper Knob Hill	03/27/06
SGM3880	M	A	150.385		Shoepeg	03/26/06
SGM3881	M	A	150.665		Bedrock Flat	03/23/06
SGM3882	M	A	150.403		Craig	03/22/06
SGM3883	M	A	151.265		Soulen Center	03/21/06
SGM3887	M	A	150.225		County Line	04/10/05
SGM3888	M	Y	150.404		County Line	04/10/05
SGM3889	M	A	150.464		Four Mile	04/09/05
SGM3890	M	Y	150.506		Four Mile	04/09/05
SGM3891	M	A			Soulen Center	04/06/05
SGM3892	M	A			Soulen Center	04/06/05
SGM3893	M	Y			Craig	04/05/05
SGM3894	M	A	150.666		Soulen Center	04/03/05
SGM3895	M	A	150.186		Soulen Center	04/03/05
SGM3896	M	A	150.986		Craig	04/05/05
SGM3897	M	A	151.397		Craig	04/05/05
SGM3898	M	A	150.325		Craig	04/05/05
SGM3899	M	A	150.824		Crane Creek Rsvr	04/01/05

Table 2. Nesting summary of sage-grouse in west-central Idaho, 2005-2006.

Band	Nest	Lek to Nest Distance (km)	# Eggs	Nest Fate	Date Fate	Nest Cover
SGF3203	First	1.7	10	Depredated	25-Apr-06	Bitterbrush (Dead)
SGF3222	First	15.0	8	Hatch	12-May-06	Basin Big Sage
SGF3229	First	9.2	7	Hatch	16-May-06	Xeric Sage
SGF3235	First	3.4	8	Hatch	17-May-06	Xeric Sage
SGF3296	First	3.8	8	Hatch	23-May-06	Xeric Sage
SGF3297	First	2.6	7	Depredated	11-May-06	Stiff Sage
SGF3298	First	0.6	8	Depredated	10-May-06	Xeric Sage
SGF3298	Renest	0.8	7	Hatch	6-Jun-05	Xeric Sage
SGF3299	First	0.8	7	Hatch	18-May-05	Stiff Sage
Average		**4.21**	**7.8**			

Table 3. Brood fate of sage-grouse in west-central Idaho, 2005-2006.

Band	Brood Fate	Date Fate	Cause Fate
SGF3222	Fledge		
SGF3229	Fledge		
SGF3235	Unknown		Lost Signal
SGF3296	Loss	27-May-06	Weather
SGF3298	Fledge		
SGF3299	Loss	20-May-05	Weather

Table 4. Vegetation summary at nests, random, and brood locations in west-central Idaho, 2005-2006.

VEGETATION	NEST (n = 6)			RANDOM (n = 6)			BROOD (n = 7)		
	Mean	Range	Var	**Mean**	Range	Var	**Mean**	Range	Var
Sagebrush Canopy Cover (%)	**7.2**	2.0 – 12.0	2.07	**4.88**	1.0 – 10.0	1.84	**15.5**	4.0-27.0	4.03
Sagebrush Height (cm)	**47.0**	24.1 – 64.0	4.21	**44.0**	25.3 – 60.5	3.7	**69.0**	67.4 – 70.0	1.35
All Shrubs Canopy Cover (%)	**8.5**	2.6 – 16.8	2.33	**5.4**	2.0 – 10.0	1.7	**14.3**	2.0 – 27.0	3.5
Perennial Forb Canopy Cover (%)	**8.5**	1.1 – 20.3	2.8	**6.1**	0.83-11.6	2.2	**13.0**	0.07 – 28.0	2.9
Annual Forb Canopy Cover (%)	**0.13**	0.03 – 0.52	0.44	**0.25**	0.03 – 0.58	0.54	**2.8**	0.08 – 9.1	1.85
Total Forb Canopy Cover (%)	**8.6**	1.1 – 20.5	2.8	**6.2**	0.96 – 11.58	2.2	**15.8**	6.1 – 30.4	2.9
Perennial Forb Height (cm)	**20.0**	8.62 – 34.14	3.0	**18.0**	8.4 – 24.4	2.3	**22.2**	17.1 – 30.2	2.2
Perennial Grass Canopy Cover (%)	**10.4**	2.2 – 25.2	2.9	**11.5**	3.3 – 18.6	2.4	**4.4**	0.03 – 10.8	2.1
Perennial Grass Height (cm)	**28.2**	19.3 – 36.4	2.7	**26.3**	17.1 – 32.7	2.8	**24.0**	10.0 – 33.0	2.9

Table 5. Distances males traveled from lek to summer, summer to fall, and fall to winter-use areas in west-central Idaho, 2005-2006.

Band	Capture Date	Farthest Distance From Lek to summer (km)	Average Distance Lek to Summer	Summer to Fall (km)	Fall to Winter (km)
SGM3878	27-Mar-06				
SGM3801	30-Mar-05	6.512	6.368		
SGM3880	26-Mar-06	7.392	5.968		
SGM3881	23-Mar-06				
SGM3882	22-Mar-06	5.52	4.864	2.98	
SGM3883	21-Mar-06	3.408	2.816		
SGM3887	10-Apr-05	0.16	0.16		3.1
SGM3888	10-Apr-05	5.792	2	3.4	0.9
SGM3889	9-Apr-05	4.448	1.52	3.73	5.98
SGM3890	9-Apr-05	7.024	3.44	5.6	0.84
SGM3894	3-Apr-05				
SGM3895	3-Apr-05	0.256	0.224		
SGM3896	2-Apr-05				
SGM3897	2-Apr-05				
SGM3898	2-Apr-05				
SGM3899	30-Mar-05	5.44	4.544		
Average		**4.60**	**3.19**	**3.9275**	**2.705**

Table 6. Vegetation associated with sage-grouse locations by month, west-central Idaho, 2005-2006.

Vegetation Type	Month
	JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
TREE LIKE	
Alnus spp. (Alder)	
Crataegus douglassii (Black Hawthorn)	
Prunus virginiana (Chokecherry)	
Salix spp. (Willow)	
Sambucus caerulea (Blue Elderberry)	
SHRUBS	
Artemisia arbuscula (Low Sage)	
Artemisia frigida (Fringed Sagewort)	
Artemisia rigida (Stiff Sage)	
Artemisia tridentata tridentata (Basin Big Sage)	
Artemisia tridentata xericensis (Xeric Big Sage)	
Artemisia tripartita (Threetip Sage)	
Ceanothus velutinus (Snowbrush Ceanothus)	
Chrysothamnus nauseosus (Rubber Rabbitbrush)	
Chrysothamnus viscidiflorus (Green Rabbitbrush)	
Pursha tridentata (Antelope Bitterbrush)	
Rosa woodsii (Wood's Rose)	
Amelanchier spp (Serviceberry)	
FORBS	
Achillea millefolium (Common Yarrow)	
Allium acuminatum (Tapertip Onion)	
Amsinckia retrorsa (Rough Fiddlehead)	
Asclepias spp. (Milkweed)	
Aster spp. (Aster)	

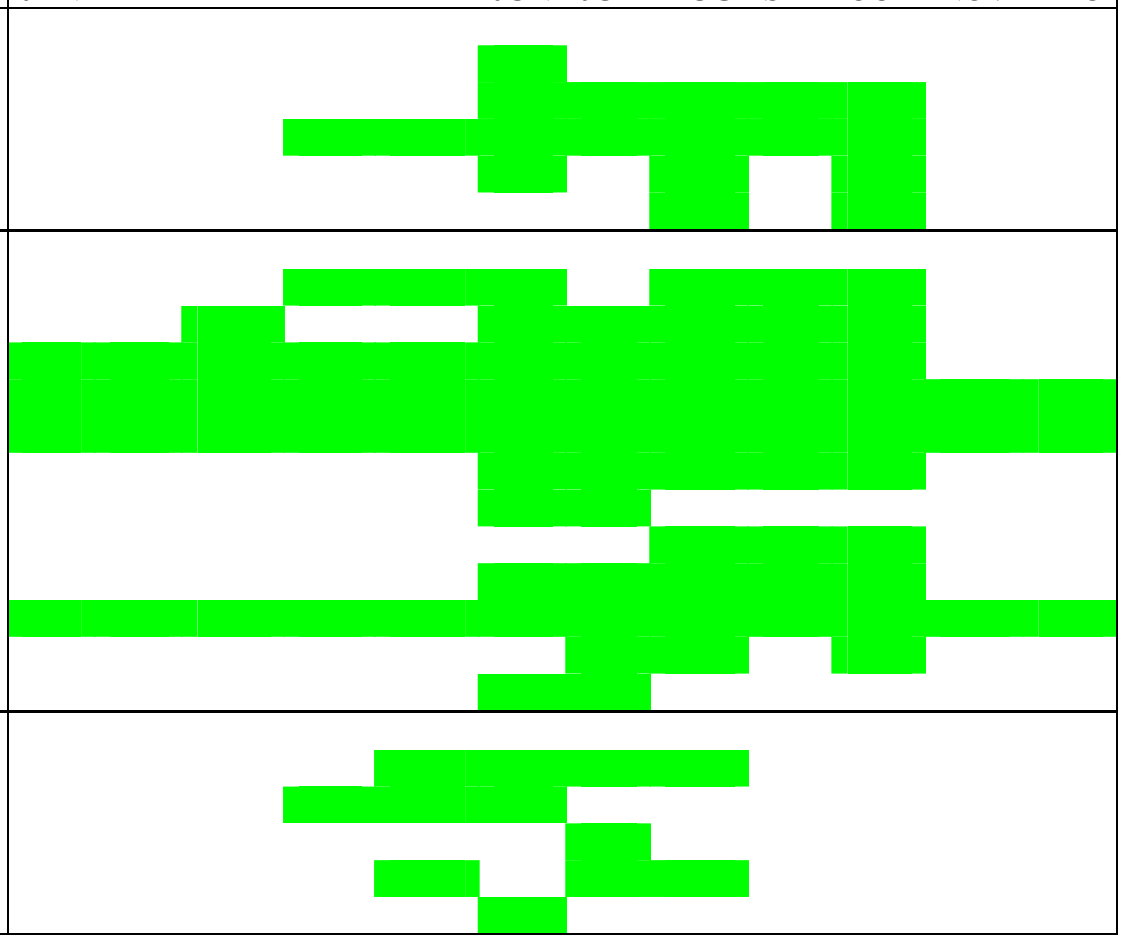

Table 6. Continued…

Vegetation Type	Month
	JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
Astragalus spp. (Milkvetch)	
Balsamorhiza sagittata (Arrowleaf Balsamroot)	
Brodiaea douglasii (Douglas Brodiaea)	
Calochortus nuttallii (Sego Lily)	
Cirscium spp. (Thistle)	
Convolvulus arvensis (Field Bindweed)	
Crepis spp. (Hawksbeard)	
Delphinium nuttallianum (Twolobe Larkspur)	
Eriogonum spp. (Buckwheat)	
Geranium viscosissimum (Sticky Geranium)	
Gnaphalium spp. (Lowland Cudweed)	
Grindelia squarrosa (Curleycup Gumweed)	
Helianthus annuus (Common Sunflower)	
Hydrophyllum capitatum (Ballhead Waterleaf)	
Lactuca serriola (Prickly Lettuce)	
Lepidium perfoliatum (Clasping Pepperweed)	
Lithophragma spp. (Woodland Star)	
Lomatium spp. (Desert Parsley, etc.)	
Lupinus spp. (Lupine)	
Lygodesmia juncea (Rush Skeletonplant)	
Madia glomerata (Cluster tarweed)	
Matricaria matricarioides (Pineapple-weed)	
Melilotus officinalis (Yellow Sweet Clover)	
Mertensia oblongifolia (Oblong Bluebells)	
Navarretia spp. (Navarretia)	
Penstemon spp. (Penstemon)	
Polygonum erectum (Erect Knotweed)	

Table 6. Continued…

Vegetation Type	Month											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Rumex spp. (Dock species)												
Taraxacum officinale (Common Dandeliion)												
Tragopogan dubius (Yellow Salsify)												
Trifolium macrocephalum (Bighead Clover)												
Trifolium spp. (Clover)												
Verbascum thapsus (Mullein)												
Viola purpurea (Goosefoot violet)												
Wyethia amplexicaulis (Mule's-ears)												
Zigadenus paniculatus (Foothill Deathcamas)												
Sphaeralcea coccinea (Scarlet Globemallow)												
Phlox spp. (Phlox)												
Potentilla spp. (Cinquefoil)												
Erodium cicutarium (Redstem Filaree)												
Hay Field, including *Medicago sativa* (alfalfa)												
GRASSES												
Agropyron spp. (Wheatgrass)												
Bromus tectorum (Cheatgrass)												
Festuca idahoensis (Idaho Fesque)												
Poa bulbosa (Bulbous Bluegrass)												
Sitanion hystrix (Squirreltail)												
Taeniatherum asperum (Medusahead Wildrye)												
Elymus cinereus (Basin Wildrye)												
Stipa comata (Needle and Thread Grass)												
SEDGES												
Carex douglasii (Douglas Sedge)												
Equisetum spp. (Horsetail)												

Table 7. Fate of radio-marked sage-grouse in west-central Idaho, 2005-2006.

Band	Capture Date	Fate	Cause Fate	Date Fate	Last Contact
SGM3878	27-Mar-06	Disappeared			27-Mar-06
SGM3801	30-Mar-05	Depredated	Coyote	6-Jul-05	
SGM3880	26-Mar-06	Disappeared			30-Aug-06
SGM3881	23-Mar-06	Disappeared			11-May-06
SGM3882	22-Mar-06	Alive			25-Oct-06
SGM3883	21-Mar-06	Depredated	Power Line	11-Jul-06	
SGM3887	10-Apr-05	Depredated	Avian	25-Apr-06	
SGM3888	10-Apr-05	Depredated	Coyote	5-Dec-05	
SGM3889	9-Apr-05	Depredated	Unknown	19-Jun-06	
SGM3890	9-Apr-05	Depredated	Unknown	20-Jun-06	
SGM3894	3-Apr-05	Depredated	Pneumonia	5-May-05	
SGM3895	3-Apr-05	Depredated	Pneumonia	21-Jun-05	
SGM3896	2-Apr-05	Depredated	Avian	12-May-05	
SGM3897	2-Apr-05	Depredated	Avian	12-May-05	
SGM3898	2-Apr-05	Depredated	Coyote	28-Apr-05	
SGM3899	30-Mar-05	Depredated	Coyote	14-Aug-06	
SGF3202	24-Aug-05	Depredated	Unknown	Nov-05	
SGF3203	25-Aug-05	Disappeared			21-Jun-06
SGF3204	26-Aug-05	Depredated	Unknown	Oct-05	
SGF3205	29-Aug-05	Depredated	Avian	Nov-05	
SGF3222	26-Mar-06	Alive			6-Oct-06
SGF3229	23-Mar-06	Alive			24-Oct-06
SGF3235	26-Mar-06	Disappeared			21-Jul-06
SGF3240	22-Mar-06	Depredated	Unknown	Sep-06	
SGF3296	12-Apr-06	Depredated	Avian	30-Aug-06	
SGF3297	12-Apr-06	Alive			26-Sep-06
SGF3298	10-Apr-05	Disappeared			10-Oct-05
SGF3299	01-Apr-05	Depredated	Unknown	Dec-06	

APPENDICES

All Sage-grouse Observations, March 2005-October 31, 2006.

BAND	RADIO	DATE	TYPE	LATITUDE	LONGITUDE
SGF3202	150.324	24-Aug-05	Visual	44.47147	-116.42089
SGF3202	150.324	31-Aug-05	Audio		
SGF3202	150.324	07-Sep-05	Visual	44.47013	-116.42664
SGF3202	150.324	14-Sep-05	Audio		
SGF3202	150.324	21-Sep-05	Audio		
SGF3202	150.324	21-Sep-05	Audio		
SGF3202	150.324	10-Oct-05	Audio		
SGF3202	150.324	31-Oct-05	Audio		
SGF3202	150.324	28-Nov-05	Visual	44.46998	-116.42222
SGF3202	150.324	20-Sep-06	Audio		
SGF3203	150.184	25-Aug-05	Visual	44.47146	-116.4209
SGF3203	150.184	31-Aug-05	Audio		
SGF3203	150.184	07-Sep-05	Audio		
SGF3203	150.184	10-Oct-05	Visual	44.46022	-116.47879
SGF3203	150.184	31-Oct-05	Audio		
SGF3203	150.184	6-Feb-06	Visual	44.44831	-116.43278
SGF3203	150.184	8-Mar-06	Visual	44.47108	-116.47209
SGF3203	150.184	13-Mar-06	Visual	44.46335	-116.46133
SGF3203	150.184	15-Mar-06	Visual	44.46361	-116.46093
SGF3203	150.184	14-Apr-06	Visual	44.47062	-116.47772
SGF3203	150.184	25-Apr-06	Visual	44.46814	-116.48113
SGF3203	150.184	2-May-06	Visual	44.46798	-116.47818
SGF3203	150.184	9-May-06	Visual	44.46724	-116.48056
SGF3203	150.184	9-Jun-06	Visual	44.46884	-116.49445
SGF3203	150.184	21-Jun-06	Visual	44.46884	-116.49445
SGF3203	150.184	14-Sep-06	Audio		
SGF3204	150.604	26-Aug-05	Visual	44.25774	-116.69043
SGF3204	150.604	31-Aug-05	Audio		
SGF3204	150.604	07-Sep-05	Visual	44.26781	-116.68134

SGF3204	150.604	14-Sep-05	Audio		
SGF3204	150.604	20-Sep-05	Audio		
SGF3204	150.604	22-Sep-05	Audio		
SGF3204	150.604	10-Oct-05	Audio		
SGF3205	150.545	29-Aug-05	Visual	44.47685	-116.4229
SGF3205	150.545	31-Aug-05	Audio		
SGF3205	150.545	07-Sep-05	Visual	44.47008	-116.42657
SGF3205	150.545	14-Sep-05	Audio		
SGF3205	150.545	20-Sep-05	Audio		
SGF3205	150.545	21-Sep-05	Audio		
SGF3205	150.545	21-Sep-05	Audio		
SGF3205	150.545	10-Oct-05	Audio		
SGF3205	150.545	31-Oct-05	Audio		
SGF3205	150.545	28-Nov-05	Visual	44.2461	-116.50717
SGF3222	150.343	26-Mar-06	Visual	44.52141	-116.70509
SGF3222	150.343	21-Apr-06	Visual	44.48933	-116.89167
SGF3222	150.343	24-Apr-06	Visual	44.48423	-116.88694
SGF3222	150.343	2-May-06	Visual		
SGF3222	150.343	8-May-06	Visual		
SGF3222	150.343	12-May-06	Visual	44.48436	-116.88571
SGF3222	150.343	18-May-06	Visual	44.48274	-116.88013
SGF3222	150.343	30-May-06	Visual	44.51046	-116.87859
SGF3222	150.343	23-Jun-06	Visual	44.47997	-116.88816
SGF3222	150.343	3-Jul-06	Visual	44.47881	-116.87495
SGF3222	150.343	20-Jul-06	Visual	44.49416	-116.87606
SGF3222	150.343	31-Jul-06	Visual	44.4831	-116.87696
SGF3222	150.343	7-Aug-06	Visual	44.492671	-116.880331
SGF3222	150.343	5-Sep-06	Visual	44.4941	-116.87504
SGF3222	150.343	18-Sep-06	Visual	44.47764	-116.84847
SGF3222	150.343	2-Oct-06	Visual	44.48505	-116.87933
SGF3222	150.343	24-Oct-06	Visual	44.47292	-116.83948

SGF3229	151.183	23-Mar-06	Visual	44.47027	-116.50232
SGF3229	151.183	21-Apr-06	Visual	44.4785	-116.38783
SGF3229	151.183	25-Apr-06	Visual	44.48005	-116.38388
SGF3229	151.183	2-May-06	Visual		
SGF3229	151.183	9-May-06	Visual		
SGF3229	151.183	16-May-06	Visual	44.48008	-116.38376
SGF3229	151.183	16-May-06	Visual	44.4785	-116.38402
SGF3229	151.183	19-May-06	Visual	44.4769	-116.38207
SGF3229	151.183	9-Jun-06	Visual	44.48072	-116.3843
SGF3229	151.183	30-Jun-06	Visual	44.47039	-116.38721
SGF3229	151.183	5-Jul-06	Visual	44.47616	-116.37968
SGF3229	151.183	6-Sep-06	Visual	44.45849	-116.23821
SGF3229	151.183	9-Oct-06	Visual	44.4692	-116.35572
SGF3229	151.183	24-Oct-06	Visual	44.56902	-116.35587
SGF3235	151.395	26-Mar-06	Visual	44.46848	-116.66418
SGF3235	151.395	10-Apr-06	Visual	44.47328	-116.62546
SGF3235	151.395	17-Apr-06	Visual	44.4461	-116.67337
SGF3235	151.395	27-Apr-06	Visual	44.47048	-116.62195
SGF3235	151.395	2-May-06	Visual		
SGF3235	151.395	9-May-06	Visual		
SGF3235	151.395	15-May-06	Visual		
SGF3235	151.395	19-May-06	Visual	44.48436	-116.88571
SGF3235	151.395	5-Jun-06	Visual	44.47547	-116.63565
SGF3235	151.395	27-Jun-06	Visual	44.47454	-116.63295
SGF3235	151.395	11-Jul-06	Visual	44.47388	-116.63129
SGF3235	151.395	21-Jul-06	Visual	44.4749	-116.63131
SGF3240	150.905	22-Mar-06	Visual	44.36777	-116.52584
SGF3240	150.905	21-Apr-06	Visual	44.38333	-116.67083
SGF3240	150.905	27-Apr-06	Visual	44.38644	-116.66446
SGF3240	150.905	3-May-06	Visual	44.38295	-116.66223
SGF3240	150.905	22-May-06	Visual	44.39256	-116.66351

SGF3240	150.905	6-Jun-06	Visual	44.3931	-116.66124
SGF3240	150.905	2-Aug-06	Visual	44.39529	-116.66688
SGF3240	150.905	19-Sep-06	Visual	44.40048	-116.6745
SGF3296	150.816	12-Apr-06	Visual	44.46839	-116.66787
SGF3296	150.816	17-Apr-06	Visual	44.43866	-116.68679
SGF3296	150.816	28-Apr-06	Visual	44.43644	-116.6843
SGF3296	150.816	2-May-06	Visual		
SGF3296	150.816	5-May-06	Visual		
SGF3296	150.816	11-May-06	Visual		
SGF3296	150.816	16-May-06	Visual		
SGF3296	150.816	19-May-06	Visual		
SGF3296	150.816	22-May-06	Visual		
SGF3296	150.816	24-May-06	Visual	44.43814	-116.68491
SGF3296	150.816	6-Jun-06	Visual	44.44106	-116.67278
SGF3296	150.816	5-Jul-06	Visual	44.4427	-116.67675
SGF3296	150.816	11-Aug-06	Visual	44.47031	-116.37215
SGF3296	150.816	30-Aug-06	Visual	44.44332	-116.67824
SGF3297	150.985	12-Apr-06	Visual	44.46619	-116.65232
SGF3297	150.985	28-Apr-06	Visual	44.44489	-116.67129
SGF3297	150.985	5-May-06	Visual		
SGF3297	150.985	11-May-06	Visual	44.44602	-116.67314
SGF3297	150.985	15-May-06	Visual	44.43807	-116.67669
SGF3297	150.985	9-Jun-06	Visual	44.4327	-116.67368
SGF3297	150.985	6-Aug-06	Visual	44.44374	-116.67621
SGF3297	150.985	7-Aug-06	Visual	44.438746	-116.679493
SGF3297	150.985	8-Aug-06	Visual	44.44374	-116.67621
SGF3297	150.985	10-Aug-06	Visual	44.44512	-116.67587
SGF3297	150.985	29-Aug-06	Visual	44.44839	-116.67645
SGF3297	150.985	26-Sep-06	Visual	44.44643	-116.67963
SGF3298	151.414	10-Apr-05	Visual	44.46849	-116.50302
SGF3298	151.414	25-Apr-05	Audio		

SGF3298	151.414	27-Apr-05	Visual	44.46511	-116.49707
SGF3298	151.414	28-Apr-05	Audio		
SGF3298	151.414	03-May-05	Audio		
SGF3298	151.414	10-May-05	Visual	44.46939	-116.49179
SGF3298	151.414	11-May-05	Audio		
SGF3298	151.414	16-May-05	Audio		
SGF3298	151.414	17-May-05	Visual	44.468	-116.4888
SGF3298	151.414	24-May-05	Visual	44.468	-116.4888
SGF3298	151.414	31-May-05	Visual	44.468	-116.4888
SGF3298	151.414	01-Jun-05	Audio		
SGF3298	151.414	03-Jun-05	Visual	44.468	-116.4888
SGF3298	151.414	06-Jun-05	Audio		
SGF3298	151.414	08-Jun-05	Visual	44.46799	-116.4889
SGF3298	151.414	09-Jun-05	Visual	44.46858	-116.49233
SGF3298	151.414	11-Jun-05	Audio		
SGF3298	151.414	20-Jun-05	Audio		
SGF3298	151.414	21-Jun-05	Visual	44.46928	-116.49377
SGF3298	151.414	01-Jul-05	Visual	44.4688	-116.49445
SGF3298	150.564	11-Jul-05	Audio		
SGF3298	151.414	12-Jul-05	Visual	44.46885	-116.4946
SGF3298	150.564	12-Jul-05	Audio		
SGF3298	151.414	18-Jul-05	Audio		
SGF3298	150.564	18-Jul-05	Audio		
SGF3298	151.414	19-Jul-05	Audio		
SGF3298	151.414	20-Jul-05	Audio		
SGF3298	151.414	05-Aug-05	Audio		
SGF3298	151.414	08-Aug-05	Visual	44.45998	-116.48797
SGF3298	151.414	31-Aug-05	Audio		
SGF3298	151.414	07-Sep-05	Audio		
SGF3298	151.414	14-Sep-05	Audio		
SGF3298	151.414	28-Sep-05	Audio		

SGF3298	151.414	10-Oct-05	Visual	44.46127	-116.48073
SGF3299	150.566	01-Apr-05	Visual	44.35002	-116.6112
SGF3299	150.564	27-Apr-05	Visual	44.34875	-116.60829
SGF3299	150.564	03-May-05	Audio		
SGF3299	150.564	10-May-05	Audio		
SGF3299	150.564	11-May-05	Audio		
SGF3299	150.564	20-May-05	Visual	44.35093	-116.61506
SGF3299	150.564	23-May-05	Visual	44.34888	-116.61263
SGF3299	150.564	31-May-05	Visual	44.34265	-116.61785
SGF3299	150.564	09-Jun-05	Visual	44.34204	-116.57619
SGF3299	150.564	06-Jul-05	Visual	44.33304	-116.56783
SGF3299	150.564	03-Aug-05	Visual	44.38793	-116.63924
SGF3299	150.564	07-Sep-05	Audio		
SGF3299	150.564	14-Sep-05	Audio		
SGF3299	150.564	20-Sep-05	Visual	44.34404	-116.57487
SGF3299	150.564	10-Oct-05	Audio		
SGF3299	150.564	21-Apr-06	Audio	44.28733	-116.68333
SGF3299	150.564	28-Apr-06	Visual	44.2901	-116.68333
SGF3299	150.564	21-Jun-06	Audio		
SGM3801	150.444	30-Mar-05	Visual	44.35001	-116.61267
SGM3801		02-Apr-05	Visual	44.37344	-116.51996
SGM3801	150.444	27-Apr-05	Visual	44.35268	-116.6167
SGM3801	150.444	03-May-05	Audio		
SGM3801	150.444	10-May-05	Audio		
SGM3801	150.444	11-May-05	Audio		
SGM3801	150.444	23-May-05	Visual	44.37393	-116.51492
SGM3801	150.444	01-Jun-05	Audio		
SGM3801	150.444	07-Jun-05	Audio		
SGM3801	150.444	09-Jun-05	Visual	44.33537	-116.5769
SGM3801	150.444	21-Jun-05	Audio		
SGM3801	150.444	06-Jul-05	Visual	44.34469	-116.58173
SGM3802		26-Aug-05	Visual	44.25775	-116.69237

SGM3805		27-Aug-06	Visual	44.37053	-116.52663
SGM3877		27-Mar-05	Visual	44.46869	-116.66713
SGM3878	150.545	27-Mar-06	Visual	44.46848	-116.66417
SGM3879		27-Mar-06	Visual	44.46869	-116.66713
SGM3880	150.384	26-Mar-06	Visual	44.52056	-116.70375
SGM3880	150.384	18-Apr-06	Visual	44.5279	-116.69676
SGM3880	150.384	9-May-06	Visual	44.53636	-116.70551
SGM3880	150.384	30-May-06	Visual	44.534592	-116.832358
SGM3880	150.384	5-Jun-06	Visual	44.54385	-116.82809
SGM3880	150.384	14-Jul-06	Visual	44.55815	-116.74515
SGM3880	150.384	7-Aug-06	Visual	44.55016	-116.756135
SGM3880	150.384	16-Aug-06	Visual	44.53899	-116.75736
SGM3880	150.384	30-Aug-06	Visual	44.54494	-116.75462
SGM3881	150.664	23-Mar-06	Visual	44.47123	-116.50035
SGM3881	150.664	12-Apr-06	Visual	44.47831	-116.49455
SGM3881	150.664	9-May-06	Visual	44.475477	-116.488863
SGM3881	150.664	11-May-06	Visual	44.46556	-116.49628
SGM3882	150.403	22-Mar-06	Visual	44.36777	-116.52584
SGM3882	150.403	3-May-06	Visual	44.36563	-116.53522
SGM3882	150.403	21-Jun-06	Visual	44.385381	-116.48985
SGM3882	150.403	15-Aug-06	Visual	44.39884	-116.4831
SGM3882	150.403	26-Sep-06	Visual	44.3825	-116.53157
SGM3882	150.403	25-Oct-06	Visual	44.37789	-116.535
SGM3883	150.264	21-Mar-06	Visual	44.29895	-116.64174
SGM3883	150.264	17-Apr-06	Visual	44.300832	-116.639858
SGM3883	150.264	20-Apr-06	Visual	44.30288	-116.63752
SGM3883	150.264	19-Jun-06	Visual	44.29716	-116.61056
SGM3883	150.264	11-Jul-06	Visual	44.27791	-116.6124
SGM3884		26-Aug-05	Visual	44.25818	-116.69182
SGM3887	150.225	10-Apr-05	Visual	44.48509	-116.50915
SGM3887	150.224	25-Apr-05	Visual	44.48272	-116.50865

SGM3887	150.224	03-May-05	Audio		
SGM3887	150.224	10-May-05	Audio		
SGM3887	150.224	11-May-05	Audio		
SGM3887	150.224	16-May-05	Audio		
SGM3887	150.224	17-May-05	Visual	44.48148	-116.49525
SGM3887	150.224	24-May-05	Visual	44.48201	-116.49567
SGM3887	150.224	31-May-05	Audio		
SGM3887	150.224	03-Jun-05	Audio		
SGM3887	150.224	08-Jun-05	Visual	44.48171	-116.49477
SGM3887	150.224	20-Jun-05	Audio		
SGM3887	150.224	5-Dec-05	Visual	44.47294	-116.45013
SGM3887	150.224	6-Jan-06	Visual	44.46918	-116.4896
SGM3887	150.224	31-Jan-06	Visual	44.46317	-116.46248
SGM3887	150.224	6-Feb-06	Visual	44.468799	-116.455926
SGM3887	150.224	8-Mar-06	Visual	44.48583	-116.513101
SGM3887	150.224	15-Mar-06	Visual	44.46213	-116.50631
SGM3887	150.224	14-Apr-06	Visual	44.47123	-116.50035
SGM3887	150.224	25-Apr-06	Visual	44.48228	-116.5112
SGM3888	150.404	10-Apr-05	Visual	44.48545	-116.50977
SGM3888	150.403	25-Apr-05	Visual	44.484	-116.51134
SGM3888	150.403	03-May-05	Audio		
SGM3888	150.403	10-May-05	Audio		
SGM3888	150.403	16-May-05	Audio		
SGM3888	150.403	17-May-05	Visual	44.48148	-116.49525
SGM3888	150.403	24-May-05	Visual	44.46962	-116.49541
SGM3888	150.403	31-May-05	Visual	44.46848	-116.49279
SGM3888	150.403	03-Jun-05	Visual	44.46873	-116.49239
SGM3888	150.403	06-Jun-05	Visual	44.46873	-116.49239
SGM3888	150.403	08-Jun-05	Visual	44.46886	-116.50851
SGM3888	150.403	20-Jun-05	Audio		
SGM3888	150.403	21-Jun-05	Visual	44.46896	-116.48956

SGM3888	150.403	01-Jul-05	Visual	44.47822	-116.50373
SGM3888	150.403	11-Jul-05	Audio		
SGM3888	150.403	12-Jul-05	Visual	44.48767	-116.48434
SGM3888	150.403	18-Jul-05	Audio		
SGM3888	150.403	19-Jul-05	Audio		
SGM3888	150.403	20-Jul-05	Audio		
SGM3888	150.403	05-Aug-05	Audio		
SGM3888	150.403	12-Aug-05	Visual	44.49519	-116.47849
SGM3888	150.403	17-Aug-05	Visual	44.47597	-116.42751
SGM3888	150.403	31-Aug-05	Audio		
SGM3888	150.403	07-Sep-05	Audio		
SGM3888	150.403	14-Sep-05	Visual	44.49533	-116.47958
SGM3888	150.403	10-Oct-05	Visual	44.4581	-116.49161
SGM3888	150.403	31-Oct-05	Audio		
SGM3888	150.403	05-Dec-05	Visual	44.466216	-116.505949
SGM3888	150.403	6-Jan-06	Visual	44.46072	-116.47569
SGM3889	150.464	09-Apr-05	Visual	44.2718	-116.5096
SGM3889	150.463	25-Apr-05	Audio		
SGM3889	150.464	28-Apr-05	Visual	44.27331	-116.5065
SGM3889	150.464	03-May-05	Audio		
SGM3889	150.464	11-May-05	Audio		
SGM3889	150.463	25-May-05	Visual	44.22689	-116.52611
SGM3889	150.463	01-Jun-05	Audio		
SGM3889	150.463	06-Jun-05	Audio		
SGM3889	150.463	07-Jun-05	Visual	44.2322	-116.52417
SGM3889	150.463	20-Jun-05	Audio		
SGM3889	150.463	05-Jul-05	Audio		
SGM3889	150.463	11-Jul-05	Visual	44.2249	-116.52853
SGM3889	150.463	12-Jul-05	Audio		
SGM3889	150.463	18-Jul-05	Audio		
SGM3889	150.463	01-Aug-05	Visual	44.22719	-116.52734
SGM3889	150.463	16-Aug-05	Visual	44.21077	-116.51054

SGM3889	150.463	07-Sep-05	Audio		
SGM3889	150.463	14-Sep-05	Audio		
SGM3889	150.463	22-Sep-05	Visual	44.20573	-116.5079
SGM3889	150.463	28-Nov-05	Visual	44.25029	-116.50849
SGM3889	150.463	9-Jan-06	Visual	44.20231	-116.496
SGM3889	150.463	31-Jan-06	Visual	44.2774	-116.51089
SGM3889	150.463	8-Feb-06	Visual	44.29225	-116.49934
SGM3889	150.463	13-Feb-06	Visual	44.26987	-116.498
SGM3889	150.463	20-Apr-06	Visual	44.27694	-116.51926
SGM3889	150.463	3-May-06	Visual	44.27335	-116.51151
SGM3889	150.463	19-Jun-06	Visual	44.23553	-116.53058
SGM3890	150.506	09-Apr-05	Visual	44.27628	-116.50798
SGM3890	150.504	25-Apr-05	Audio		
SGM3890	150.504	28-Apr-05	Visual	44.27472	-116.50686
SGM3890	150.504	03-May-05	Audio		
SGM3890	150.504	11-May-05	Audio		
SGM3890	150.504	25-May-05	Audio		
SGM3890	150.504	01-Jun-05	Visual	44.27532	-116.512045
SGM3890	150.504	20-Jun-05	Visual	44.22681	-116.52724
SGM3890	150.504	05-Jul-05	Audio		
SGM3890	150.504	11-Jul-05	Audio		
SGM3890	150.504	18-Jul-05	Audio		
SGM3890	150.504	01-Aug-05	Visual	44.29503	-116.59076
SGM3890	150.504	15-Aug-05	Audio		
SGM3890	150.504	16-Aug-05	Audio		
SGM3890	150.504	07-Sep-05	Audio		
SGM3890	150.504	14-Sep-05	Audio		
SGM3890	150.504	20-Sep-05	Visual	44.29201	-116.58816
SGM3890	150.504	22-Sep-05	Audio		
SGM3890	150.504	28-Sep-05	Audio		
SGM3890	150.504	24-Oct-05	Visual	44.2593	-116.48818

SGM3890	150.504	13-Feb-06	Visual	44.26987	-116.497
SGM3890	150.504	21-Apr-06	Visual	44.26717	-116.49067
SGM3890	150.504	20-Jun-06	Visual	44.26658	-116.48946
SGM3891		06-Apr-05	Visual	44.30067	-116.63514
SGM3892		06-Apr-05	Visual	44.30229	-116.63682
SGM3893		05-Apr-05	Visual	44.36668	-116.52232
SGM3894	150.666	03-Apr-05	Visual	44.30229	-116.63682
SGM3894	150.665	25-Apr-05	Audio		
SGM3894	150.665	03-May-05	Visual	44.30534	-116.64071
SGM3894	150.665	11-May-05	Audio		
SGM3894	150.665	12-May-05	Audio		
SGM3894	150.665	25-May-05	Visual	44.30426	-116.64145
SGM3895	150.186	03-Apr-05	Visual	44.30204	-116.63624
SGM3895	150.185	25-Apr-05	Audio		
SGM3895	150.185	03-May-05	Visual	44.30449	-116.6412
SGM3895	150.185	11-May-05	Audio		
SGM3895	150.185	12-May-05	Audio		
SGM3895	150.185	25-May-05	Visual	44.29575	-116.64822
SGM3895	150.185	31-May-05	Audio		
SGM3895	150.185	01-Jun-05	Audio		
SGM3895	150.185	07-Jun-05	Audio		
SGM3895	150.185	08-Jun-05	Visual	44.29597	-116.65122
SGM3895	150.185	20-Jun-05	Audio		
SGM3895	150.185	21-Jun-05	Visual	44.2967	-116.64991
SGM3896	150.986	02-Apr-05	Visual	44.36668	-116.52232
SGM3896	150.985	25-Apr-05	Audio		
SGM3896	150.985	28-Apr-05	Audio		
SGM3896	150.985	02-May-05	Visual	44.37652	-116.53009
SGM3896	150.985	11-May-05	Audio		
SGM3896	150.985	12-May-05	Visual	44.36051	-116.52337
SGM3897	151.397	05-Apr-05	Visual	44.36668	-116.52232

SGM3897	151.397	25-Apr-05	Audio		
SGM3897	151.397	28-Apr-05	Audio		
SGM3897	151.397	02-May-05	Audio		
SGM3897	151.397	11-May-05	Audio		
SGM3897	151.395	12-May-05	Visual	44.36068	-116.52853
SGM3898	150.325	05-Apr-05	Visual	44.37004	-116.52995
SGM3898	150.325	25-Apr-05	Audio		
SGM3898	150.325	28-Apr-05	Visual	44.36618	-116.53669
SGM3899	150.824	30-Mar-05	Visual	44.35132	-116.61391
SGM3899	150.823	27-Apr-05	Visual	44.352	-116.60912
SGM3899	150.823	03-May-05	Audio		
SGM3899	150.823	10-May-05	Audio		
SGM3899	150.823	11-May-05	Audio		
SGM3899	150.823	23-May-05	Audio		
SGM3899	150.823	31-May-05	Audio		
SGM3899	150.823	09-Jun-05	Visual	44.34059	-116.62708
SGM3899	150.823	30-Jun-05	Audio		
SGM3899	150.823	05-Jul-05	Visual	44.38577	-116.63845
SGM3899	150.823	11-Jul-05	Audio		
SGM3899	150.823	12-Jul-05	Audio		
SGM3899	150.823	18-Jul-05	Audio		
SGM3899	150.823	03-Aug-05	Visual	44.38711	-116.64621
SGM3899	150.823	12-Aug-05	Audio		
SGM3899	150.823	07-Sep-05	Audio		
SGM3899	150.823	14-Sep-05	Audio		
SGM3899	150.823	15-Mar-06	Visual	44.34707	-116.5997
SGM3899	150.823	3-May-06	Visual	44.35151	-116.61522
SGM3899	150.823	6-Jun-06	Visual	44.39414	-116.64967
SGM3899	150.823	5-Jul-06	Visual	44.39006	-116.63515
SGM3899	150.823	7-Aug-06	Visual	44.39505	-116.645143
SGM3899	150.823	14-Aug-06	Visual	44.39254	-116.6507
		03-May-05	Visual	44.352	-116.60912

	23-May-05	Visual	44.40408	-116.66198
	24-May-05	Visual	44.35322	-116.465
	31-May-05	Visual	44.46848	-116.49272
	31-May-05	Visual	44.46626	-116.49154
	03-Jun-05	Visual	44.48259	-116.50273
	03-Jun-05	Visual	44.3563	-116.46218
	06-Jun-05	Visual	44.36957	-116.52882
	09-Jun-05	Visual	44.33566	-116.57705
	15-Jun-05	Visual	44.41249	-116.76136
	01-Jul-05	Visual	44.46975	-116.49301
	06-Jul-05	Visual	44.33809	-116.57785
	06-Jul-05	Visual	44.33433	-116.5648
	06-Jul-05	Visual	44.34015	-116.56819
	20-Jul-05	Visual	44.47253	-116.51484
	03-Aug-05	Visual	44.34305	-116.56789
	08-Aug-05	Visual	44.47174	-116.42355
	08-Aug-05	Visual	44.47018	-116.42557
	12-Aug-05	Visual	44.47126	-116.42368
	15-Aug-05	Visual	44.27409	-116.67693
	16-Aug-05	Visual	44.25937	-116.68898
	16-Aug-05	Visual	44.23551	-116.52921
	14-Sep-05	Visual	44.2366	-116.5274
	14-Sep-05	Visual	44.49533	-116.47958
	20-Sep-05	Visual	44.34433	-116.57008
	22-Sep-05	Visual	44.20573	-116.5079
	10-Oct-05	Visual	44.46022	-116.47879
	10-Oct-05	Visual	44.46127	-116.48073
	10-Oct-05	Visual	44.4581	-116.49161
	24-Oct-05	Visual	44.25536	-116.70624
	24-Oct-05	Visual	44.25712	-116.70236
	24-Oct-05	Visual	44.25806	-116.48836

	24-Oct-05	Visual	44.25913	-116.4882
	24-Oct-05	Visual	44.40673	-116.66232
	28-Nov-05	Visual	44.25758	-116.69287
	28-Nov-05	Visual	44.2509	-116.54411
	5-Dec-05	Visual	44.46805	-116.49158
	5-Dec-05	Visual	44.47294	-116.45013
	6-Jan-06	Visual	44.45988	-116.479
	9-Jan-06	Visual	44.2702	-116.67842
	9-Jan-06	Visual	44.20231	-116.496
	31-Jan-06	Visual	44.462853	-116.504719
	31-Jan-06	Visual	44.26206	-116.68096
	31-Jan-06	Visual	44.46272	-116.45844
	6-Feb-06	Visual	44.263387	-116.264073
	6-Feb-06	Visual	44.263566	-116.262563
	8-Feb-06	Visual	44.26417	-116.68051
	13-Feb-06	Visual	44.25864	-116.70053
	13-Feb-06	Visual	44.37783	-116.53688
	15-Mar-06	Visual	44.34516	-116.54335
	15-Mar-06	Visual	44.41885	-116.47475
	4-Apr-06	Visual	44.45362	-116.46963
	17-Apr-06	Visual	44.26286	-1116.50814
	20-Apr-06	Visual	44.25847	-116.70249
	20-Apr-06	Visual	44.30288	-116.64054
	25-Apr-06	Visual	44.48537	-116.50597
	9-May-06	Visual	44.51346	-116.70517
	2-Jun-06	Visual	44.46851	-116.47852
	6-Jun-06	Visual	44.44191	-116.68819
	6-Jun-06	Visual	44.38947	-116.66295
	9-Jun-06	Visual	44.46859	-116.47795
	27-Jun-06	Visual	44.47327	-116.6339
	3-Jul-06	Visual	44.44225	-116.89248

	5-Jul-06	Visual	44.39351	-116.62795
	5-Jul-06	Visual	44.4427	-116.67675
	11-Jul-06	Visual	44.46568	-116.63215
	21-Jul-06	Visual	44.46532	-116.63282
	6-Aug-06	Visual	44.47344	-116.63308
	8-Aug-06	Visual	44.47359	-116.63232
	8-Aug-06	Visual	44.47295	-116.62937
	11-Aug-06	Visual	44.553556	-116.528864
	28-Aug-06	Visual	44.46612	-116.63132
	28-Aug-06	Visual	44.48011	-116.62318
	1-Sep-06	Visual	44.400696	-116.663678
	9-Sep-06	Visual	44.397362	-116.671287
	2-Oct-06	Visual	44.48719	-116.84445
	25-Oct-06	Visual	44.44175	-116.67669

Appendix D. LandFire Background and West Central Planning Area

About LANDFIRE Rapid Assessment Vegetation Models

Vegetation dynamics models for the Rapid Assessment help to synthesize the best available knowledge of vegetation dynamics and quantify the natural range of variability in vegetation composition and structure. Models consist of two components: (1) a comprehensive description and (2) a quantitative, state-and-transition (box) model, created in the public domain software VDDT[1].

Models were developed in 2004-2005 during workshops across the United States where regional vegetation and fire ecology experts synthesized the best available data on vegetation dynamics and disturbances for vegetation communities in their region. A peer review process following workshops garnered additional expert input and offered an opportunity to refine models.

Rapid Assessment vegetation models were based on a simple, standardized five-box model that combines three generic succession stages with two canopy cover classes (Table 1). Each class is specifically defined for individual models. Variations on this standardized model were also developed.

Table 1. Classes in the standard five-box model. Models for the Rapid Assessment use this standard model with modifications as needed. Letters represent unique classes (combinations of cover and structure) and correspond to boxes in the state-transition models.

	Canopy Cover	
Succession Stage	*Closed*	*Open*
Early development	A	
Mid-development	B	C
Late-development	E	D

Quantitative models are based on inputs such as fire frequency and severity, the probability of other disturbances, and the rate of vegetation growth. Inputs are derived from literature review and expert input during and after modeling workshops. Models simulate several centuries of vegetation dynamics and produce outputs such as the percent of the landscape in each class and the frequency of disturbances. Outputs are checked against available data whenever possible, and are peer-reviewed during and after expert workshops.

Model descriptions and quantitative outputs were used in the Rapid Assessment to help define and map potential natural vegetation groups (PNVG), or the vegetation communities that are likely to exist under the natural range of variability in biophysical environments and ecological processes, including fire and other disturbances. Models are used as reference conditions to calculate Fire Regime Condition Class (FRCC)[2], a standardized, interagency index to measure the departure of current conditions from reference condition.

A key to the fields that appear in Model Descriptions appears below. For a complete description of the methodology used to develop Rapid Assessment vegetation models, please consult the *LANDFIRE Rapid Assessment Modeling Manual*[3].

LANDFIRE Rapid Assessment vegetation models are used as first draft models for the national LANDFIRE project, and will be refined, added to, and improved upon through 2009 for the national implementation of LANDFIRE.

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[1] Beukema, S. J., Kurz, W.A., Pinkham, C.B., Milosheva, K. and Frid, L. 2003. *Vegetation Dynamics Development Tool User's Guide, Version 4.4c.* Prepared by ESSA Technologies, Ldt., Vancouver, BC. 239 pp. Available at:

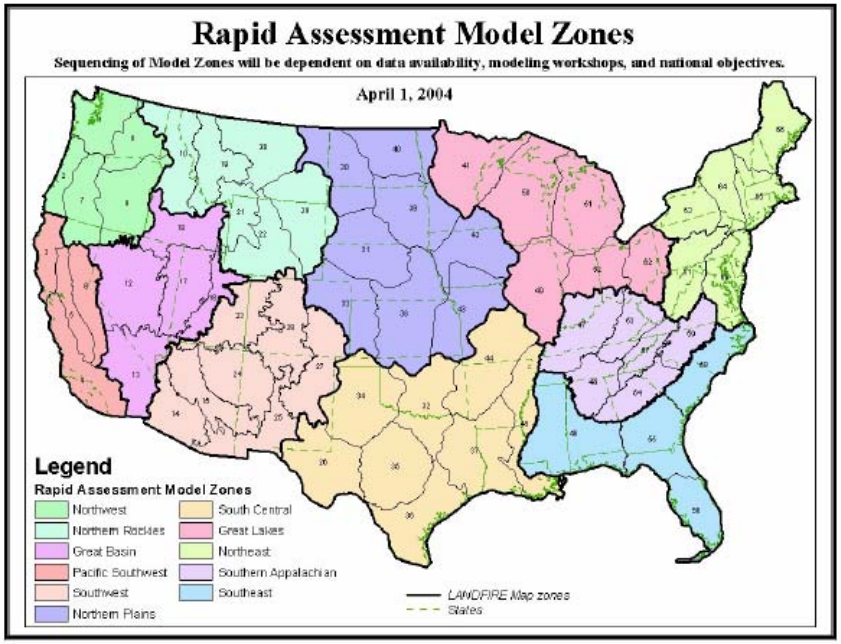
Key to Fields in Model Descriptions

Potential Natural Vegetation Group	
Field Name	**Explanation**
Potential Natural Vegetation Group	The PNVG code is listed first. Codes follow this general format: ***R # SPSP ql*** Where: • *R* = R for Rapid Assessment • *#* = a numeric code for the model zone: *#* Pacific Northwest *0* Northern & Central Rockies *1* California *2* Great Basin *3* Southwest *4* Northern Plains *5* South Central *6* Great Lakes *7* Northeast *8* Southern Appalachians *9* Southeast • *SPSP* = the first two letters of each word in the dominant species. If there are more than one dominant species, common names will be used. • *ql* = an optional lowercase alphabetical qualifier for biophysical or geographic constraints. Common qualifiers include:

an	ancient	*pu*	pumice
co	cool	*ri*	riparian
cw	cool-wet	*se*	steppe
dy	dry	*so*	south
ff	with frequent fire	*sp*	serpentine
gr	grass	*st*	with shrubs and trees
if	with infrequent fire	*up*	upper
in	interior	*wa*	warm
lw	lower	*wd*	warm dry
mn	montane	*we*	wet
ms	mesic	*wg*	with grass
no	north	*ws*	with shrub
pl	parkland	*wt*	with trees

The name of the PNVG is listed second. This is typically a descriptive title that includes the dominant species, region and qualifier.

General Information	
Field Name	**Explanation**
Contributors	Those who contributed to the model are listed here, along with email addresses. This may include modelers (i.e., people who directly created the model) and reviewers (i.e., people who reviewed the model and provided feedback after its development). Additional contributors may be listed in the "Model Evolution and Comments" field.

General Information	
Field Name	**Explanation**
Vegetation Type	The vegetation type (UNESCO world physiognomic classification) for the *majority* of the PNVG. Classes are defined as follows: • Forest: >5 m tall; 60-100% cover • Woodland: >5 m tall; 25-60% cover • Shrubland: 0.5-5 m tall; >25% cover (<25% cover of trees) • Grassland (herbaceous): >25% cover (<25% cover of trees and shrubs)
Dominant Species	The NRCS Plants Code of up to eight dominant species for the PNVG. These reflect the *majority* of the landscape in the PNVG and are in order of dominance. To look up a NRCS Plants Code, please visit http://plants.usda.gov.
General Model Source	The sources of information consulted in the development of the model. • Literature: the model generally came from published sources. • Local data: the model generally came from local research or information. • Expert estimate: the model was generally estimated experts.
LANDFIRE mapping zones	Up to ten LANDFIRE mapping zones (numbered below) that this model applies to. 
Rapid Assessment Model Zones	The Rapid Assessment model zones for which this model applies. See the map above for the delineation of model zones.
Geographic	Describes the geographic distribution of this PNVG.

General Information	
Field Name	**Explanation**
Vegetation Description	Describes the vegetation of this PNVG, including species, structure, and botanical characteristics.
Disturbance Description	Describes the dominant disturbances that impact this PNVG, including the agents, frequency, severity, and seasonality.
Adjacency or Identification Concerns	Information that may help identify the PNVG in the field, including: • synonymous local classifications (e.g., habitat type, plant association), • adjacent PNVGs, • PNVGs that this one may be confused with, • typical identifiers not described elsewhere, and • uncharacteristic types (i.e., patterns or processes that would not have existed under the historic range of variability, like exotics) that may frequently occur in this PNVG today.
Scale Description	Describes the typical scale of the most common disturbance extent, the general minimum analysis area (e.g., the minimum size that would encompass the mosaic of this PNVG), and/or the average patch size.
Scale Source	Documents the sources of information about scale. • Literature: the values entered came from published sources. • Local data: the values entered came from local observations or records. • Expert estimate: the values entered were estimated by experts.
Issues/ Problems	Describes any difficulties, issues, or concerns contributors have about the model, the availability of data on this PNVG, or other considerations.
Model Evolution and Comments	Tracks the changes, edits, and improvements to the model through the development and peer review processes. Describes any disagreements among experts about how to model the system.

Succession Classes	
Field Name	**Explanation**
Class label	Name of the class (A-E) and definition, representing a unique combination of succession stage (Early, Mid-, and Late Development) and canopy cover (All, Open, or Closed).
Class %	The percent of the landscape in this class from the VDDT model, rounded to the nearest 5%.
Description	Describes the structure, composition, and other attributes for each class.
Dominant Species	The NRCS Plants Code of up to four dominant species for the vegetation class, in order of dominance.
Dominant Species Canopy Position (optional)	The relative position of each dominant species in the canopy: • *Upper*: upper-most portion of the canopy; dominant or emergent. • *Mid-Upper*: ranging from middle to upper portions of the canopy; co-dominant. • *Middle*: middle section of the canopy; co-dominant or intermediate. • *Lower-Mid*: ranging from the lower to the middle portions of the canopy; intermediate or suppressed. • *Lower*: below the main canopy; may be suppressed or understory.

Succession Classes	
Field Name	**Explanation**
Fuel Model (optional)	The 13 Fire Behavior Fuel Models[4] for the class, if known. Fuel models are:

#	*Vegetation Type*	*Fuels*
1	Perennial grasslands, annual grasslands, savannahs, grass-tundra, grass-shrub with < 1/3 shrub or timber	Cured fine, porous herbaceous; .5-.9 tons surface fuel load per acre; .5-2 foot depth
2	Shrub, pine, oak, pinyon-juniper with < 2/3 shrub or timber cover	Fine herbaceous surface cured or dead, litter, dead stem or limb wood; 1-4 tons surface fuel load per acre; .5-2 foot depth
3	Tall grassland, prairie, and Meadow	Tall herbaceous surface with > 1/3 dead or cured; 2-4 tons fuel load per acre; 2-3 foot depth
4	Coastal/Sierra chaparral, pocosin shrub (fetterbrush, gallberry, bays), southern rough shrub, closed jack pine, pine barrens	Flammable foliage and small dead woody material with or w/o litter layer; 10-15 tons fuel load per acre; 4-8 foot depth
5	Moist or cool shrub types (laurel, vine maple, alder, manzanita, chamise), forest/shrub, regeneration shrubfields after fire or harvest	Green foliage with or w/o litter; 3-5 tons per acre; 1-3 foot depth
6	Pinyon-juniper w/ shrubs, southern hardwood/ shrub w/ pine, frost killed gambel oak, pocosin shrub, chamise, chaparral, spruce-taiga, shrub-tundra, hardwood slash	Flammable foliage, but shorter and more open than FM 4 w/ less dead small wood and litter; 4-8 tons per acre; 2-4 foot depth
7	Palmetto-gallberry w/ or w/o pine overstory, black spruce/shrub, southern rough, slash pine/gallberry	Flammable foliage even when green; 4-6 tons per acre; 2-3 foot depth
8	Closed canopy short needle conifer types, closed canopy broadleaf or hardwood types	Usually low to moderately flammable foliage with litter or scattered vegetation understory; 4-6 tons per acre surface fuels; .1-.5 foot depth
9	Long needle (ponderosa, Jeffrey, red, southern) conifer types, oak-hickory and similar hardwood types	Flammable foliage with needle or leaf litter and some dead down woody material; 3-4 tons per acre; .1-.5 feet
10	Any Forest type with > 3" down dead woody fuels)	Dead down > 3" woody fuels and litter; 10-14 tons per acre of total surface fuel < 3"; .5-2 foot depth
11	Light logging slash, partial cut slash	10-14 tons per acre total fuel load < 3"; .5-2 foot depth
12	Moderate and continuous logging slash in clearcuts or heavy partial cuts and thinned areas	30-40 tons per acre total fuel load < 3"; 2-3 foot depth
13	Heavy and continuous logging slash in clearcuts or heavy partial cuts and thinned areas	50-60 tons per acre total fuel load > 3"; 2-4 foot depth

[4] Anderson, Hal. 1982. Aids to determining fuel models for estimating fire behavior. USDA Forest Service. Intermountain Forest and Range Experiment Station, Ogden, UT. General Technical Report INT-122. 28 pp.

Succession Classes

Field Name	Explanation
Minimum and Maximum Canopy Cover	The minimum and maximum canopy cover expected for the upper layer lifeform of each class.
Minimum and Maximum Height (optional)	The minimum and maximum height for the upper layer lifeform. The height selected should be a class related to the Upper Layer Lifeform selected above. Height classes are:

Trees		*Shrubs*		*Herbaceous*	
Regen-eration	<5 m (~<16 ft)	Dwarf	<0.5m (~<1.6 ft)	Short	<0.5m (~<1.6 ft)
Short	5-9 m (~16-30 ft)	Short	05.-0.9m (~1.6-3 ft)	Medium	0.5-0.9m (~1.6-3 ft)
Medium	10-24 m \ (~30-78 ft)	Medium	1-2.9m (~3-9.5 ft)	Tall	>1m (~3-9.5 ft)
Tall	24-49 m (~78-160 ft)	Tall	>3m (~>9.5 ft)		
Giant	>50 m (~>160 ft)				

Tree Size Class (optional)	The maximum tree diameter class. Size classes are:

Seedling	<4.5 ft tall (~<1.4 m)
Sapling	>4.5 ft tall; <5" DBH (~>1.4m tall; ~<13 cm DBH)
Pole	5-9" DBH (~13-23 cm DBH)
Medium	9-21" DBH (~23-53 cm DBH)
Large	21-33" DBH (~53-84 cm DBH)
Very Large	>33" DBH (~>84 cm DBH)

Upper layer is different from dominant lifeform	If the upper layer lifeform is different from the dominant lifeform (e.g., in a savanna type system), the canopy cover range and height for the dominant lifeform are described here.

Disturbances

Field Name	Explanation
Disturbances Modeled	All of the disturbance types used in the model are checked.
Historical Fire Size (optional)	The estimated average, minimum, and maximum fire size (in acres) under the natural range of variability.
Sources of Fire Regime Data	Indicates the sources of information about fire regimes: • Literature: the values entered came from published sources. • Local data: the values entered came from local observations or records. • Expert estimate: the values entered were estimated by experts.

Disturbances	
Field Name	**Explanation**
Fire Regime Group	The single *dominant* Fire Regime Group (FRG). • FRG I = 0-35 year frequency; low and mixed severity • FRG II = 0-35 year frequency; replacement severity • FRG III = 35-200 year frequency; low and mixed severity • FRG IV = 35-200 year frequency; replacement severity • FRG V = 200+ year frequency; replacement severity
Average Fire Interval	For each severity class (Replacement, Mixed Severity, Surface), the average (or other central tendency) fire interval in years, as in the VDDT model. Fire interval is defined as the number of years between fires.
Minimum Fire Interval	For each severity class (Replacement, Mixed Severity, Surface), the minimum fire interval (smallest number) in years. This is not the statistical minimum and is entered by modelers based on observation and/or literature for informational purposes only. It is not derived from the VDDT model.
Maximum Fire Interval	For each severity class (Replacement, Mixed Severity, Surface), the maximum fire interval (largest number) in years. This is not the statistical maximum and is entered by modelers based on observation and/or literature for informational purposes only. It is not derived from the VDDT model.
Probability	Probability is equal to 1/Average Frequency. It should closely mirror the probability of fire in the VDDT model.
Percent of all fires	Percent of fires that burned for a given severity class. Percent of all fires is equal to the probability of a severity / All Fire Probability.
All Fire Frequency	All Fire Frequency is equal to 1/ All Fire Probability. It should reflect the AllFire frequency in the model.
All Fire Probability	All Fire Probability is equal to the sum of probabilities for the three severity classes.

References	
Field Name	**Explanation**
References	Lists all of the references used while creating this model, whether or not they are cited directly in the text.

Appendix E. Summaries of Conservation Actions in the State Plan and WC Plans

Summary of Conservation Actions

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
Wildfire	Wildfire that threatens a desirable grass-forb-shrub mixture and which promotes the expansion of annual grasses	Altered fuels	Identify and prioritize annual grasslands most conducive for restoration to perennial species. Coordinate closely with USGS Snake River Field Station, GBRI, Universities, local partners, and IDFG, as appropriate	Cooperating landowners will have a current vegetative map specific to their lands that identifies annual grass areas
			Consider an incremental or "buffer" approach, to protect existing intact habitat. Where large annual grasslands border key or other important areas such as recent restoration projects, create "buffers" by progressively converting broad bands of the adjacent annual grasslands to perennial species. As perennial grasses, forbs, and sagebrush become established, expand the buffers outward.	Possible for some landowners as indicatied in their individual agreements
		Human-Caused Ignitions	Increase public awareness of fire danger by installing and maintaining additional fire danger signs along main access roads.	Responsibility of other parties to the agreement

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
			Increase public outreach, information, and education related to sagebrush ecosystems, fire risk mitigation, fire ecology and related issues.	Landowners can cooperate by providing educational signs on their private lands
			Increase public awareness and understanding of fire-related risk during times of high to extreme fire danger and red flag conditions.	Responsibility of other parties to the agreement
		Restoration and burned area rehab	Ensure that sage-grouse habitat considerations are incorporated into restoration and burned area rehabilitation plans, particularly in or near stronghold, key and isolated habitats.	Possible for some landowners who can cooperate with responsible agencies
			Emphasize the use of native plant materials to the greatest extent possible, and as appropriate for site conditions. Seeds should be certified weed free.	Landowner should use certified weed-free seed for all rehab plantings on their private lands.
			Use proper site-preparation techniques (e.g., seedbed preparation, control of invasives, weed-control), seeding techniques, and seed mixes in designing restoration and burned area rehabilitation plans. For example, the restoration of annual grasslands may require preparatory chemical treatments and/or an exotic/native seed mix. Perennial grasslands (existing seedings or native) may require seeding or planting of sagebrush.	Landowner will use best available methods when seeding rehab areas on their private lands.

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
			When planting or reseeding sagebrush, favor the sagebrush species, subspecies, that are appropriate for the ecological site. Source identified seed is preferable. Consider multiple approaches, such as aerial seeding, ground broadcast seeding with harrow or roller, and planting of seedlings in strategic patches or strips. Avoid seeding sagebrush or other shrubs near road margins if the road and road margin might otherwise serve as a fuel break in the event of future fires.	Landowners will use their specific vegetation map to determine appropriate mix of vegetation on their private lands that will enhance habitat as well as the shrub density goals identified through LandFire models.
			When using exotic perennial grasses and forbs in restoration use species whose growth form, species, and phenology most closely mimic native species	Landowner may use similar perennial species when native species are too expensive or unavailable to rehab their private land.
			Provide for noxious weed control in burned area rehabilitation projects.	Landowner will control noxious weeds in burned areas on their private land, as required by Idaho law.

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
Infrastructure	Infrastructure, including roads or powerlines, that disrupt habitat connectivity or unacceptably alter the birds' life cycles	All infrastructure issues, disturbance to leks	Inspections, maintenance work, and related human activities at or near (0.6 miles) occupied leks that results in, or will likely result in, disturbance to lekking birds should be avoided in the mornings from March 15 though May 15. Utility companies should work closely with IDFG, land management agencies and landowners in scheduling such activities to minimize disturbance.	Responsibility of other parties to the agreement
		Utility lines, communications towers, and related facilities	Use of guy-wires on towers should be avoided.	Responsibility of other parties to the agreement
			Where existing utility lines, including smaller power distribution lines, telephone lines, or wireless communication towers are known to be causing adverse impacts locally, or where such impacts are likely, LWGs and/or land-management agencies should work closely with power companies and related entities in assessing problem areas and developing creative solutions. causing adverse impacts locally, or where such impacts are likely, LWGs and/or land-management agencies should work closely with power companies and related entities in assessing problem areas and developing creative solutions.	Responsibility of other parties to the agreement

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
			New above ground major power transmission lines should be sited in a manner that avoids sage-grouse habitat to the extent possible, or they should be buried.	Responsibility of other parties to the agreement
			New, smaller power distribution lines, or similar structures (e.g., telephone lines, communications towers) should be buried (as appropriate) or sited as far as possible, preferably at least 3.2 km (~2 miles) from occupied leks and other important sage-grouse seasonal habitats.	Responsibility of other parties to the agreement
			The placement of raptor perch deterrents on power poles and other structures, such as telephone poles, should be considered on a site-specific basis in areas where population impacts from raptors or ravens is likely or is a documented problem. Areas that may be of particular concern include fragmented habitats with high raptor and/or raven activity.	Responsibility of other parties to the agreement
		Major roads	Promote alternate routes for major new roads that would fragment habitat, increase traffic from external sources or otherwise adversely impact sage grouse habitat and life cycles	LWG and landowners can advocate avoidance of new road projects which could adversely impact sage grouse habitat and life cycles.

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
Annual Grassland	Potential modifications of grass-forb-shrub mixtures through plantings of exotic species or modifications to existing native cover types	Spatial extent of annual grasslands on the landscape	LWGs, land management agencies, IDFG and other partners should work closely together to identify and prioritize annual grassland areas for restoration. Work cooperatively to identify options, schedules and funding opportunities for specific projects.	Landowners will have vegetative map of their lands identifying annual grasslands and possible rehab areas.
			As funding and logistics permit, restore annual grasslands to a species composition characterized by perennial grasses, forbs and shrubs. Emphasize the use of native plant species recognizing that non-native species may be necessary depending on the availability of native seed and prevailing site conditions.	Landowners may change annuals to perennials on their private lands when funding is available for reasonably successful plantings in accessible areas
			The eradication or control of noxious weeds posing a risk to sage-grouse habitats should also be aggressively pursued using a variety of chemical, mechanical, biological, or other means as appropriate. All seeding project designs should include measures for noxious weed control and monitoring for at least 3 years following implementation.	Landowners should control noxious weeds on their private lands as required by Idaho law

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
			Seed utilized in sage-grouse habitat restoration seedings, burned area rehabilitation projects, and hazardous fuels/wildland urban interface projects will be tested and certified as weed-free.	Seeds used on private lands should be certified as weed-free.
			On private lands, consider enrolling in incentive or other programs to improve or enhance sage-grouse/ sagebrush habitats.	Landowners may consider using programs to enhance sage and sharptailed grouse habitat, such as CRP or CREP.
			In designing rehabilitation and restoration projects, utilize the best available science relative to seeding technology and plant materials. Use of NRCS's "VegSpec" website may be helpful.	Landowners can use a variety of sources to design rehab projects using best available science.
			Design vegetation treatments in areas of high fire frequency to facilitate firefighter safety; reduce the risk of extreme fire behavior; reduce the risk and rate of fire spread to stronghold, key, and restoration habitats; reduce fire frequencies; and shorten the fire season. Actions may include: fire-resistant or "green-strip" seedings, mowing vegetation along roadsides, grazing strategies, or other related measures.	May be possible for some landowners, according to their individual plans. Also, proper grazing management can reduce fire hazards

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
		Altered fuels and fire regimes	Where rangelands are dominated by annuals (such as cheatgrass), or border farmlands or railroad rights-of-way, convert cheatgrass areas to perennials, or establish buffers of perennial species to reduce the risk of fire spread from railroad or agriculture-related activities (e.g. sparks from trains, field burns, burn barrels), where appropriate and feasible.	May be possible for some landowners, although effective methods for conversion of annual grasses are lacking.
			To discourage the spread of invasive annuals and noxious weed seed, require the washing of fire vehicles (including undercarriage) prior to deployments and prior to demobilization from wildfire incidents.	Responsibility of other parties to the agreement

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
Livestock Impacts	Improperly managed livestock grazing that prevents the achievement of a desirable grass-forb-shrub mixture or which disrupts lifecycles of the birds	Livestock management, rangeland health	Use established scientifically based agency protocols and procedures for evaluating rangeland health and sage grouse habitats.	Landowners have a variety of resources available to evaluate rangeland health and sage grouse habitat
			Establish specific habitat objectives and implement effective grazing management practices and/or vegetative manipulation to achieve those objectives and maintain or improve vegetation conditions or trends.	Landowners can establish objectives and use proper grazing practices to maintain or improve vegetative conditions and trends. These might include such techniques as “dripline’ monitoring to decide when to rotate pastures
			Provide private landowners with incentives when and where appropriate to achieve sage-grouse objectives.	Responsibility of other parties to the agreement

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
		Livestock management and herbaceous plant canopy cover	If fine-scale habitat assessments or monitoring indicates that current livestock grazing practices are limiting sage grouse nesting habitat quality and/or quantity and/or reproductive success by limiting herbaceous understory characteristics - design and implement grazing management systems that maintain or enhance herbaceous understory cover, height, and species diversity that occurs during the spring nesting season.	Landowner assessments of current grazing conditions and sage grouse habitat will determine proper and reasonable methods to maintain or enhance canopy cover. "Dripline" assessments will help determine stocking and duration of grazing.
		Lek disturbances	Ensure that sheep operators and herders are aware of the location of occupied leks (e.g., provide maps, mark the perimeter of occupied leks, etc.).	Landowners will assure that sheepherders aware of known occupied leks.

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
			Discourage the bedding of domestic sheep within 0.5 mile) of occupied leks Herders should also avoid disturbing occupied leks with their sheep bands, once they leave the bed ground and begin their daily movements. On public lands, managers should work closely with sheep ranchers and IDFG in coordinating this measure and in identifying alternative bedding sites.	Landowners will assure that sheepherders tavoid bedding and trailing domestic sheep within 0.5 mile of a known occupied lek on private lands.
		Late brood, rearing habitat	Due to the preference of forbs by domestic sheep, manage sheep allotments using grazing management techniques that promote and maintain a diversity of desirable annual and perennial forbs.	Landowners will manage sheep grazing to maintain diversity of desirable vegetation and rely upon regular, periodic monitoring of vegetative composition to make any needed changes in grazing regimes
			Manage grazing of riparian areas, meadows, springs, and seeps in a manner that promotes vegetation structure and composition appropriate to the site. In some cases enclosure fencing may be a viable option. However, in some cases, (e.g., enclosed meadows), the availability and quality of herbaceous species may be improved by periodic grazing use of enclosure and should be considered in the grazing management program.	Landowners will use available resources to determine best grazing practices in individual riparian areas or a site-specific basis.

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
		Management during drought	In sage-grouse nesting and brood-rearing habitats, adjust livestock use (season, utilization, stocking, intensity, and/or duration during drought to minimize the additional stress placed on herbaceous species. This is anticipated to reduce impacts on perennial herbaceous cover, plant species diversity, and plant vigor.	Landowners will use “dripline” monitoring to help assure nesting and brood-rearing habitats are preserved
		Salt/mineral placement	When using salt or mineral supplements, place them in existing disturbed sites, areas with reduced sagebrush cover, seedings or cheatgrass sites to reduce impacts to sage-grouse breeding habitat. Where feasible, use salts or mineral supplements to improve management of livestock to benefit habitat.	Landowners can use supplements to minimize disturbed sites and improve grazing management.
		Fence/structure placement	Biologists, in cooperation with LWGs and willing landowners, are encouraged to use existing knowledge, allotment/pasture maps and lek distribution maps, to determine which fences may pose the greatest risk for collision mortality.	Landowners can determine through experience and observation if any fences on their private land pose a high risk for sage grouse collision.

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
			If sage-grouse mortality due to collision with fences is documented, or if collisions are likely to occur due to new fence placement, implement such actions as marking key sections of fences with permanent, reflective metal tags or other suitable means. Field personnel and landowners should use their best judgment in determining where fence marking is required to lessen the impacts to sage-grouse.	If sage-grouse collisions with certain sections of fence are documented, landowners can mark those fence sections with suitable materials.
			In general, avoid constructing new fences within 0.6 mi of occupied leks. Where feasible, place new, taller structures such as corrals, loading facilities, water storage tanks, windmills etc., as far as possible from occupied leks to reduce opportunities for perching raptors. Careful consideration, based on local conditions, should also be given to the placement of new fences or structures near other important seasonal habitats (winter-use areas, movement corridors etc.) in order to reduce potential impacts.	When possible, landowners can avoid placing new fences and new tall structures within 0.6 miles of known occupied leks on private land.
		Design and placement of water developments	New spring developments in sage-grouse habitat should be designed to maintain or enhance the free-flowing characteristics of springs and wet meadows by the use of float valves on troughs or other features where feasible.	When developing springs on private land, landowners should try to maintain or enhance free-flowing characteristics.

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
			Retrofit existing water developments during normal maintenance activities. Ensure that new and existing livestock troughs and open water storage tanks are fitted with ramps to facilitate the use of and escape from troughs by sage-grouse and other wildlife. Do not use floating boards or similar objects, as these are too unstable and are ineffective	Landowners should evaluate water troughs on private land for the need for bird escape ramps
			When placing new water developments in sage-grouse breeding habitat, choose sites and designs that will provide the greatest enhancement for sage-grouse and sage-grouse habitat.	Landowners will use available resources to determine placement and design of new water developments to also enhance sage grouse.
			Avoid placing water developments into higher quality native breeding/late brood habitats that have not had significant prior grazing use.	Not applicable for most landowners---Nearly all private lands have had significant prior livestock grazing for the past century.
		Management of livestock during restoration efforts	Identify and establish strategically located forage reserves on areas unsuitable for sage grouse habitat restoration or low priority habitat restoration areas. These reserves could provide livestock operators with temporary alternative forage during the resting of recently seeded restoration or fire rehabilitation areas and could serve as additional fuel breaks depending on location and configuration.	On public lands, this is responsibility of other parties to the agreement. On private lands, landowners will seek alternative forage areas.

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
			Identify and utilize economic incentive programs to assist private landowners in implementation of appropriate sage grouse habitat conservation actions on private lands.	Responsibility of other parties to the agreement
Human Disturbance	Human disturbances, including residential development or recreation that threatens habitat security or connectivity or reduces the size of habitat patches	OHV disturbances	Limit OHV use to existing designated roads and trails to eliminate or minimize disturbance to sage-grouse and reduce the risk of wildfire and other habitat disturbances associated with cross-country use. Consider a "closed unless posted open" approach where appropriate.	Landowners can limit and manage OHV access on private lands, as well as place educational signs on private lands.
			Discourage the creation of new OHV trails in sage grouse breeding or winter habitat. Re-route existing trails and route new trails in a manner that minimizes disturbance.	
			Where existing roads or OHV trails are near occupied leks, apply use-restrictions where needed and appropriate, to minimize nonessential activity and from approximately March 15 through May 15.	

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
		Projects and maintenance activities near leks	Human activities such as fence and pipeline maintenance or construction, facility maintenance, utility maintenance, or any project or related work at or near (0.6 miles) occupied leks that results in or will likely result in disturbance to lekking birds should be avoided in mornings from approximately March 15 through May 15. Human activities such as fence and pipeline maintenance or construction, facility maintenance, utility maintenance, or any project or related work at or near (0.6 miles) occupied leks that results in or will likely result in disturbance to lekking birds should be avoided in mornings from approximately March 15 through May 15.	Landowners may limit non-emergency fencing and pipeline maintenance near known occupied leks during the early morning hours.
		Human activity associated with livestock management	Avoid creating unnecessary disturbances related to livestock management activities near occupied leks whenever possible.	Landowners may avoid unnecessary disturbances near known occupied leks.
			Avoid establishing sheep camps within (0.5 mile) of occupied leks from March 15 through May 15 to reduce disturbance to breeding sage-grouse.	Landowners can prevent sheepherders from establishing sheep camps within 0.5 miles of known occupied leks.

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
		Wildlife viewing and photography	Wildlife viewing and appreciation should be promoted; however, the viewing of sage-grouse on leks should be conducted so that disturbance to birds is minimized or eliminated. Use of blinds for photography at leks should be limited to the latter part of the lekking season, outside of peek breeding activity, as determined locally.	Landowners can control access to known occupied leks on private lands as well as place educational signs on private land.
			Where photography or viewing activities appear to be increasing in extent, or if they appear to be problematic in certain areas, consider designating 1-3 lek locations for public viewing. Other alternatives might include establishing one or more seasonal blinds for public use, utilize agency staff or trained volunteers to guide viewers to selected leks during designated times, and limit close-up viewing/photography of selected leks to the latter portion of the breeding season after most breeding has occurred.	Landowners can control access to private lands to prevent known occupied lek human disturbance. Public lands are the responsibility of other parties to the agreement.
			Camping on occupied leks should not be allowed, to eliminate sustained disturbance.	Landowners can control camping areas on private lands. Public land camping is the responsibility of other parties to the agreement.
West Nile Virus	N/A	Surveillance for WNV	I Continue cooperating with regional and state level WNV monitoring and/or surveillance efforts.	Landowners can allow county and state monitoring for WNV mosquitoes on their private lands, as well as support control efforts.

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
				Landowners can either eliminate small stagnant water sources as mosquito breeding areas or apply appropriate control methods to kill larvae found on private land.
Prescribed Fire	N/A	Reduction of already limited or fragmented habitat	Prior to planning prescribed burns, or other vegetation management treatments in sagebrush communities, ensure that sage-grouse seasonal habitats have been mapped	Landowners will have habitat maps of their private lands.
			Once seasonal habitats have been mapped, ensure that proposed project areas have been evaluated on the ground in the context of the appropriate seasonal habitat characteristics.	Landowners will use proper available resources in planning a controlled burn on private land.
			Avoid the use of prescribed fire, and other sagebrush reduction projects, in habitats that currently meet or are trending toward meeting breeding or winter habitat characteristics or in areas where sagebrush is limiting on the landscape.	Landowners will determine from various resources and their habitat map which areas would benefit sage grouse by the use of prescribed fire on private land.
			If the analysis shows that a vegetation treatment may still be advisable, design habitat manipulation projects to achieve the desired objectives	Landowners may use fire treatments to enhance sage grouse habitat on their private lands.

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
			Evaluate and monitor prescribed burns, and other treatments, as soon as possible after treatment and periodically thereafter to determine whether the project was successful and is meeting or trending toward desired objectives.	Landowners will monitor the success of the fire treatment program on private land.
		Expansion of exotic plant species	Avoid the use of prescribed fire or other sagebrush treatments in habitats prone to the expansion or invasion of cheatgrass or other invasives unless adequate measures are taken to control the invasives and ensure subsequent dominance by desirable perennial species	Landowners will control exotic plants and noxious weeds on their lands as required by Idaho law
		Risk of escaped fire	Prescribed fires must be planned, executed and monitored in a manner that provides for adequate control and provision for contingency resources.	Landowners will work with neighbors and local fire department for adequate planning and control of prescribed burns on their private lands.
			Ensure burn plans address the importance of preventing escaped fires when prescription fires are planned in the area of stronghold and key habitat.	Landowners will work with neighbors and local fire departments to prevent the escape of prescribed fire on their private lands.

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
Seeded Perennials	N/A	Seedings and restoration	LWGs, land management agencies, IDFG and other partners should work closely together to identify and prioritize perennial grasslands (exotic versus native) where plant species diversity or sagebrush is limiting on the landscape; and work cooperatively to identify options, schedules and funding opportunities for reestablishing sagebrush in higher priority areas.	Landowners will have a vegetative map specific to their private lands and using available resources will determine timing and opportunity for new seeding and rehab efforts.
			When seeding sagebrush, use source-identified, tested seed adapted to local conditions.	Landowners will use appropriate seed when rehabbing their private lands.
			If sagebrush re-establishment is an option, use one of the recommended options for planting.	If landowners wish to increase sagebrush on their private lands, they will follow recommended options for planting.
			In established stands of introduced perennial grasses, transplant sagebrush into strategic patches or strips in critical sites or throughout the area. Scalp spots or strips to reduce grass competition prior to planting or as an alternative to scalps, consider the use of herbicides	Landowners can use numerous methods to transplant or establish sagebrush and native perennial vegetation in established stands of introduced grasses.
			Where the diversification of crested wheatgrass or similar seedings with native species of grasses, forbs and/or shrubs is desired, use recommended protocols.	Landowners can use various methods to create vegetative diversification on private lands as specified in their individual agreements

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
			Explore various opportunities for project funding that might be available with their local NRCS district conservationist and the Local Working Group.	Landowners seeking to rehab their private lands can explore opportunities for project funding.
Climate Change	N/A			Responsibility of other parties to the agreement
Conifer Encroachment	N/A			N/A in WCPA
Isolated Populations	N/A			Responsibility of other parties to the agreement
Predation	Predation, where levels of prey/predators are out of balance or where limited patch size and habitat security increase			Landowners can use predator control to stabilize sage grouse numbers on private lands.
Urban/Exurban Development	See “Human Disturbances”	Loss of habitat through residential development	Work with county and city zoning and planners to avoid developing important sagebrush habitat.	Responsibility of other parties to the agreement
			Educate landowners and developers to values of sagebrush habitat.	Responsibility of other parties to the agreement
			Consider term easements or non-development agreements for private lands	Landowners can choose not to develop their private lands through non-development agreements or easements
Sagebrush Control	N/A			N/A

Threats			Conservation Actions	
State Plan	**WC Plan Area**	**Issues**	**State Plan**	**WC Planning Area Landowners & Local Working Group (LWG)**
Insecticides	Improper use of insecticides, particularly during the period in which sage and sharp-tailed grouse are heavily dependent upon insects as a food source			Landowners will follow label directions for all pesticides
Agricultural Expansion	N/A			N/A
Sport Hunting	Poaching or accidental shooting			Cooperating landowners will cooperate with Idaho Fish and Game in enforcement and education
Mines and Gravel Pits	N/A			N/A
Falconry	N/A			N/A

Summary of Conservation Actions and Implementation Responsibilities

Threat	**Conservation Action and Appropriate Implementing Entity for Actions Applicable to WCPA**				
	Conservation Actions	**Public Agencies**	**Working Group**	**Local Gov't**	**Individual Landowner**
Wildfire	#1 in state plan, considered important in WCWG plan, but not of the highest priority, given fire history and relatively minor cheatgrass invasions following fire.				
Altered fuels	Identify and prioritize annual grasslands most conducive for restoration to perennial species. Coordinate closely with USGS Snake River Field Station, GBRI, Universities, local partners, and IDFG, as appropriate	Yes	Yes	No	No

Threat	Conservation Action and Appropriate Implementing Entity for Actions Applicable to WCPA				
	Conservation Actions	**Public Agencies**	**Working Group**	**Local Gov't**	**Individual Landowner**
	Consider an incremental or "buffer" approach, to protect existing intact habitat. Where large annual grasslands border key or other important areas such as recent restoration projects, create "buffers" by progressively converting broad bands of the adjacent annual grasslands to perennial species. As perennial grasses, forbs, and sagebrush become established, expand the buffers outward.	Yes	No	No	Yes
Human-Caused Ignitions	Increase public awareness of fire danger by installing and maintaining additional fire danger signs along main access roads.	Yes	Yes	Yes	No
	Increase public outreach, information, and education related to sagebrush ecosystems, fire risk mitigation, fire ecology and related issues.	Yes	Yes	Yes	No
	Increase public awareness and understanding of fire-related risk during times of high to extreme fire danger and red flag conditions.	Yes	No	Yes	No
Restoration and burned area rehab	Ensure that sage-grouse habitat considerations are incorporated into restoration and burned area rehabilitation plans, particularly in or near stronghold, key and isolated habitats.	Yes	Yes	No	No
	Emphasize the use of native plant materials to the greatest extent possible, and as appropriate for site conditions. Seeds should be certified weed free.	Yes	No	No	No
	Use proper site-preparation techniques (e.g., seedbed preparation, control of invasives, weed-control), seeding techniques, and seed mixes in designing restoration and burned area rehabilitation plans. For example, the restoration of annual grasslands may require preparatory chemical treatments and/or an exotic/native seed mix. Perennial grasslands (existing seedings or native) may require seeding or planting of sagebrush.	Yes	No	No	No

Threat	Conservation Action and Appropriate Implementing Entity for Actions Applicable to WCPA				
	Conservation Actions	**Public Agencies**	**Working Group**	**Local Gov't**	**Individual Landowner**
	When planting or reseeding sagebrush, favor the sagebrush species, subspecies, that are appropriate for the ecological site. Source identified seed is preferable. Consider multiple approaches, such as aerial seeding, ground broadcast seeding with harrow or roller, and planting of seedlings in strategic patches or strips. Avoid seeding sagebrush or other shrubs near road margins if the road and road margin might otherwise serve as a fuel break in the event of future fires.	Yes	No	No	No
	When using exotic perennial grasses and forbs in restoration use species whose growth form, species, and phenology, most closely mimic native species.	Yes	No	No	No
	Provide for noxious weed control in burned area rehabilitation projects.	Yes	No	Yes	Yes
Infrastructure	#2 in state plan. Very important in WC area, particularly for residential development.				
All infrastructure issues, disturbance to leks.	Inspections, maintenance work, and related human activities at or near (0.6 miles) occupied leks that results in, or will likely result in, disturbance to lekking birds should be avoided in the mornings from March 15 though May 15. Utility companies should work closely with IDFG, land management agencies and landowners in scheduling such activities to minimize disturbance.	Yes	No	No	No
Utility lines, communications towers, and	Use of guy-wires on towers should be avoided.	Yes	No	Yes	No

Threat	Conservation Action and Appropriate Implementing Entity for Actions Applicable to WCPA				
	Conservation Actions	Public Agencies	Working Group	Local Gov't	Individual Landowner
related facilities.	Where existing utility lines, including smaller power distribution lines, telephone lines, or wireless communication towers are known to be causing adverse impacts locally, or where such impacts are likely, LWGs and/or land-management agencies should work closely with power companies and related entities in assessing problem areas and developing creative solutions.	Yes	Yes	Yes	No
	New above ground major power transmission lines should be sited in a manner that avoids sage-grouse habitat to the extent possible, or they should be buried.	Yes	Yes	Yes	No
	New, smaller power distribution lines, or similar structures (e.g., telephone lines, communications towers) should be buried (as appropriate) or sited as far as possible, preferably at least 3.2 km (~2 miles) from occupied leks and other important sage-grouse seasonal habitats.	Yes	Yes	Yes	No
	The placement of raptor perch deterrents on power poles and other structures, such as telephone poles, should be considered on a site-specific basis in areas where population impacts from raptors or ravens is likely or is a documented problem. Areas that may be of particular concern include fragmented habitats with high raptor and/or raven activity.	Yes	Yes	No	No